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REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

Proposed Recommendations for Additions to or Deletions
from the Coastal Barrier Resources System

**VOLUME 15
FLORIDA (WEST COAST)**



REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

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**Proposed Recommendations for Additions to or Deletions from
the Coastal Barrier Resources System**

FLORIDA (WEST COAST)

Mapped, edited, and published by the Coastal Barriers Study Group

**United States Department of the Interior
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FLORIDA (WEST COAST)

INTRODUCTION

The Coastal Barrier Resources Act (CBRA) of 1982 (Public Law 97-348) established the Coastal Barrier Resources System (CBRS), a system of undeveloped coastal barriers along the Atlantic and Gulf of Mexico coasts. This atlas of coastal barriers in west Florida has been prepared in accordance with Section 10 of CBRA (16 U.S.C. 3509), which states:

Sec. 10. Reports to Congress.

(a) In General.--Before the close of the 3-year period beginning on the date of the enactment of this Act, the Secretary shall prepare and submit to the Committees a report regarding the System.

(b) Consultation in Preparing Report.--The Secretary shall prepare the report required under subsection (a) in consultation with the Governors of the States in which System units are located and with the coastal zone management agencies of the States in which System units are located and after providing opportunity for, and considering, public comment.

(c) Report Content.--The report required under subsection (a) shall contain--

(1) recommendations for the conservation of fish, wildlife, and other natural resources of the System based on an evaluation and comparison of all management alternatives, and combinations thereof, such as State and local actions (including management plans approved under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.)), Federal actions (including acquisition for administration as part of the National Wildlife Refuge System), and initiatives by private organizations and individuals;

(2) recommendations for additions to, or deletions from, the Coastal Barrier Resources System, and for modifications to the boundaries of System units;

(3) a summary of the comments received from the Governors of the States, State coastal zone management agencies, other government officials, and the public regarding the System; and

(4) an analysis of the effects, if any, that general revenue sharing grants made under section 102 of the State and Local Fiscal Assistance Amendments of 1972 (31 U.S.C. 1221) have had on undeveloped coastal barriers.

This atlas of the west coast of Florida includes delineations of the CBRS units designated by Congress in 1982 and delineations of proposed recommendations for additions and modifications to the CBRS that will be provided to Congress by the Department of the Interior following public review and comment.

Under the direction of the Assistant Secretary for Fish and Wildlife and Parks, this report has been prepared by the Coastal Barriers Study Group, a task force of professionals representing the National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and other Departmental offices.

BACKGROUND

Florida is one of the rapidly growing States of the sunbelt. Its population currently exceeds 10 million and its rate of population growth ranks among the highest in the Nation. Most forecasters predict that Florida will rank among the top four States in both population and economic base by the turn of the century.

Although marked growth in Florida's population took place during the first few decades of the 20th century, it was not until the post-World War II era that major growth began. Growth may have peaked with an overall increase of 43 percent between 1970 and 1980. During this period coastal counties accounted for 72 percent of the increase (State of Florida 1981). This growth has been accompanied by a significant diversification in the State's economic base.

Until the 1960's, the bulk of Florida's economic base was in agriculture and tourism. Agriculture is primarily citrus, cattle and vegetables. Tourism was concentrated on the coasts, with the east coast dominating, but the economy has spread and diversified with the greatest increase in the central Florida area near Orlando.

Great industrial diversification began in the early 1960's. Much of the impetus for this was the development of the National

Aeronautics and Space Administration's Kennedy Space Center and related high-tech activities near Cape Canaveral. This growth has been accompanied by similar expansion across the central Florida strip from the area of the Kennedy Space Center through the Orlando area to Tampa Bay and the numerous surrounding cities.

Florida's four major metropolitan regions--Miami-Fort Lauderdale, Tampa Bay, Orlando/Orange County, and Jacksonville--are also growing commerce centers. The Miami area, long known as a major tourist attraction, has become a center for international trade as many Latin American corporations relocate or expand into the central Florida area. The Tampa Bay area includes nearly 2 million people. Tampa, St. Petersburg, Clearwater, and Sarasota are the largest of the many Tampa Bay area municipalities. Although this was originally a retirement area, it too has greatly diversified during the past two decades. Tampa has become a high-tech electronics and financial center. Jacksonville is more of a seasonal tourist area than the other metropolitan regions and has long had a diversified economy. It has a large port and numerous military bases and is the insurance center of Florida.

In addition to the four major metropolitan areas, three of which are in the coastal zone, there are numerous midsize cities along the coast. These are located along the east coast (including the Florida Keys), on the west-central coast, and on the coast of the Florida panhandle. The only relatively unpopulated coastal areas of the State are between Cape Sable and Cape Romano on the southwestern peninsular coast and between Pasco County and the Apalachicola Delta in the Big Bend area. These are also the only coasts of Florida where beaches and barriers are generally absent.

Florida's most valuable resource is its beaches, and its most valuable real estate is found on coastal barriers. Tourism is certainly the State's largest coastal industry: nearly 40 million out-of-state guests visit the beaches each year. The coastal tourism industry includes such activities as sailing, power boating, fishing, boat-building, and numerous amusement and other tourist attractions.

Florida also has petroleum and minerals mining and related industries, but their impact on the State's economy falls far below that of the beaches and climate. The State ranks among the world's leaders in phosphate production, although recent years have seen the rapid expansion of some foreign producers. Limestone and silica sand are also significant mineral products in the State. Although Florida is not presently among the U.S. leaders in petroleum production, there is optimism about expansion in the future, especially in the offshore Gulf of Mexico. Presently, only two major fields are producing in the State: the Jay Field near the Georgia border in the panhandle and the Sunniland Field in the Big Cypress Swamp area of south Florida.

Florida also has industries based on its extensive renewable natural resources, such as the timber and fishing industries.

Throughout the panhandle and northern peninsula, there are softwood forests that are used primarily for paper pulp and particle board. The entire coastal area supports an extensive fin and shellfishing industry.

Much of the State's industry is located on the coast, largely because the majority (about 75 percent) of the population lives in the coastal counties. Much of the new industry attracted to Florida has moved into coastal counties because employees prefer living on or near the coast. Some industries rely on the coast to support their activities. Phosphate products, for example, are almost all shipped out through the deepwater port at Tampa.

COASTAL RESOURCE MANAGEMENT

Florida Coastal Resource Management

In 1967, the Florida Legislature turned its attention to the general topic of resource management. In 1970, the first of many legislative bills aimed specifically at coastal management created the Coastal Coordinating Council. For a 5-year period, this body, comprising representatives from a wide range of local governments, developers, and interest groups, worked towards developing a coordinated coastal resource management program (State of Florida 1981). In 1975, the legislature abolished the Council and transferred its duties to the Department of Natural Resources. In 1977, the legislature transferred the program to the Department of Environmental Regulation.

Florida Coastal Management Act. Passed in 1978, this Act did not include new regulations but simply called for better coordination and enforcement of existing ones. The Governor created the Interagency Management Committee in October 1979. This committee consists of the managers of many State agencies and is responsible for coordinating efforts in the State's coastal management programs. It took 3 years for the State to develop a coastal management program consistent with both the 1978 Florida Coastal Management Act and the Federal Coastal Zone Management Act of 1972 (Bernd-Cohen 1983). After extensive public hearings and interaction with the Federal Office of Coastal Zone Management, the Final Environmental Impact Statement was issued in August 1981. The State of Florida continues to emphasize the refinement and more effective coordination of existing regulations related to the coastal zone rather than the establishment of new regulations (State of Florida 1981).

Florida Coastal Management Program (CMP). The program is based on 25 statutes that are administered by 16 State agencies. However, the bulk of the program rests in three agencies: the Department of Environmental Regulation (DER), the Department of Natural Resources (DNR), and the Department of Community Affairs (DCA). The DCA contains the Office of Federal Coastal Programs.

The Florida CMP solicits input from the State's 5 water management districts and 11 regional planning councils. Eligibility for

funds through the CMP is limited to 35 coastal counties and 162 coastal municipalities (Bernd-Cohen 1983).

Florida is one of several coastal States to attempt to regulate new construction on and immediately adjacent to beaches and dunes. The Coastal Construction Setback Line (SBL) was formulated and adopted in 1974 (Purpura and Sensabaugh 1974). This line established a boundary in front of which no construction or excavation is allowed without a permit from the State. The SBL was established on a county basis in only those counties where beaches are well developed and widespread. Numerous exceptions to the SBL were granted and, in general, the Florida SBL was considered by some to be weak (Kennedy 1983).

Recently, a modification of the SBL, called the Coastal Construction Control Line (CCCL), has been developed by using new field data and the experience of the SBL. As of this time, this line has not been drawn for all coastal counties. In any instance of construction seaward of the SBL or the new CCCL, permits must be obtained from both the DER and the DNR.

Executive Order 81-105. On September 4, 1981, the Governor signed Executive Order 81-105 which directed executive agencies to (1) give high priority to acquisition of coastal barrier properties, (2) limit development subsidies in hazardous coastal barrier areas, and (3) cooperate with local governments in managing growth in these coastal barrier areas.

Implementation of the order will be based on the set of maps prepared by the DCA. Using these maps as guidelines, each agency will modify its program funding to the degree legally possible for compliance with the intent of the executive order. For purposes of implementation, all coastal barriers will be considered in two categories: (1) those which are traditionally called barrier islands, spits, or peninsulas, and (2) those which are exposed mainland beaches, marshes, or mangrove swamps with no other barriers seaward of them. This second group is affected landward only as far as the velocity zone on National Flood Insurance maps or the CCCL, whichever is further inland.

The degree of development includes three subcategories. Undeveloped barriers are those islands, spits, and peninsulas that are limited to watercraft or aircraft access, have sparse settlement, and have no publicly subsidized infrastructure. Also, all CBRS units are treated as undeveloped for purposes of this order. Mainland coastal barrier areas are considered to be undeveloped if they are not within corporate limits or are in a delimited urban area. Developed barrier areas are islands, spits, and peninsulas with at least 70 percent of their surface area developed as of the DCA inventory of 1983. Also included are appropriate mainland areas within corporate limits. All coastal barrier areas not classified in either of these groups are considered partially developed. State subsidies will be restricted to the greatest extent possible under existing authority for all undeveloped barriers. There will also be restrictions on subsidies for partially developed barriers. Exceptions

may be granted if proper management is indicated and safe accommodation can be made; the head of the department that administers the funding will have the power to grant these exceptions. The order will apply to developed barriers only in postdisaster situations.

A draft rule for implementation of this executive order has been formulated by the Department of Community Affairs under authority of Chapter 252.35 of the Florida Statutes, which delegates responsibility for emergency preparedness functions. The rule is designed to provide State agencies with a common, readily interpretable, and functional basis for reviewing and making policy decisions regarding coastal barriers. This draft rule also addresses the delineation of maps and interpretations of the level of development (developed, partially developed, or undeveloped).

Local Government Comprehensive Planning and Land Development Regulation Act (85-55, Laws of Florida). This 1985 Act contains a new package of coastal protection statutes. The Act, which will be implemented over the next 3 years, establishes new procedures for determining the Coastal Construction Control Line. It fixes a new 30-year erosion line inside the CCCL, seaward of which, with few exceptions, no new structures will be allowed. The Act also established a new "Coastal Building Zone" for the entire coast. In this zone building requirements for major and minor structures must be met.

This Act requires that local comprehensive plans contain more stringent coastal elements. All plans must contain 11 mandatory components that include environmental, safety, and infrastructure considerations. The plans will be implemented by the adoption of appropriate local land development regulations. The final major new provision in the Act is the prohibition against using State funds to construct bridges or causeways to barrier islands not already accessible by bridge or causeway on October 1, 1985.

Taxes. Presently there are no State taxation policies that support or encourage development in Florida. There are some State taxation incentives that encourage nondevelopment of barrier properties. The best example is the conservation easement provision (704.06 F.S./193.50 F.S.), which allows a property owner to surrender development rights for a 10-year period. It is renewable at the option of the property owner. During this time no property taxes are levied on the land and it is categorized as a nature preserve. Because of the potential loss to the landowner of large amounts of revenue, this is not a widely used program.

Permitting. There are numerous State permitting regulations which apply to CBRS units. The permitting regulations are administered by several agencies, including the Department of Natural Resources (Division of Beaches and Shores), the Department of Environmental Regulation, the Department of Community Affairs, and the Department of Health and Rehabilitation Services. Unfortunately, when more than one agency is involved with the same project, disagreements may occur.

Probably the most common permitting situation includes the Coastal Construction Setback Line (SBL) (Purpura and Sensabaugh 1974), which is currently evolving into the CCCL. This is administered by the Division of Beaches and Shores in DNR.

Any Development of Regional Impact must be reviewed by regional planning councils and the Department of Community Affairs. The DER has permitting authority over any discharge of waste into surface or ground water. Both the DER and the individual water management districts have permitting authority for withdrawal, storage, diversion, and consumption of water. Regulation of the taking of living resources from waters within CBRS units falls under the jurisdiction of the DNR, Marine Fisheries Commission.

The DER also has jurisdiction over all permitting for dredge and fill activities in submerged lands and wetlands. In general, the DER's jurisdiction over dredge and fill activities is coincident with that of the U.S. Army Corps of Engineers, although in some cases the DER is more stringent (State of Florida 1981). In virtually all cases, the DER requires that a well-documented environmental impact study accompany any application for a dredge and fill permit. Marinas and boat docks are also permitted through the DER.

Beach nourishment and erosion-control projects can be undertaken through DNR in conjunction with local governments and the Federal Government (S.S. 161.141 through 161.45 F.S.). There are several ways in which such projects can be implemented. However, Florida's support of the CBRS and Executive Order 81-105 tend to discourage such activities in CBRS units.

Financial assistance. One of the most comprehensive but also most expensive conservation management tools for any critical habitat is public acquisition. The State of Florida uses bonds, real estate taxes, and legislated appropriations to fund such acquisitions. The State of Florida passed the Outdoor Recreation and Conservation Act in 1963. This Act established a Land Acquisition Trust Fund administered by the Division of Recreation and Parks (DNR). This Act also provided for loans and grants to local governments for acquisition of public beach tracts (F.S. Chapter 375) (Bernd-Cohen 1983). The State may also acquire property for parks through a State Park Trust (F.S. Chapter 592). Honeymoon Island in Pinellas County was recently purchased under this program and is now developed as a major coastal park on a property where initial development had taken place.

The State offers financial assistance to local governments for the development and implementation of coastal conservation programs. Included are the Erosion Control Assistance Program (DNR), the Coastal Management Program (DER), the Recreation Development Assistance Program (DNR), and the Save Our Coast Program (through bonds). In all of these, State funds are made available to local governments if certain stipulations are met. For example, assistance is being provided for beach nourishment at Venice and Manasota Key. Funds are also available to

assist local governmental units in developing beach management plans.

In some instances, the State has provided seed money to assist communities in getting large projects funded. Some of these pertain directly to beach or barrier properties. For example, a planning grant to the City of Naples for \$31,000 resulted in successful local funding for eight public parking and access areas. In Martin County, a \$34,000 grant led to a successful \$5 million bond issue to purchase beach access properties. Grants have also been provided to Sarasota and Collier Counties to help implement their local coastal zone management plans.

Local Actions

Taxes. There appear to be no special taxation policies at local levels which benefit or promote the development of barriers relative to any other locations.

Only Pinellas County, which is the most highly developed county on the west coast, includes taxation policies that support the conservation of barriers. Lands designated as "Preservation" on the County Land Use Plan (CLUP) may remain in private ownership or may be donated to the county. If they remain private, some type of deed restriction or easement is typically applied to specific sensitive areas. These lands are taxed at the lowest rate by the County Property Appraiser. Pinellas County passed a referendum in 1977 to establish a 0.25-mill tax to set up a fund for the purchase of environmentally sensitive land. This tax was only in effect for a 2-year period.

Permitting and zoning. Numerous local ordinances encourage the conservation of barrier island and related coastal zone properties. Tree ordinances are widespread, ranging from protection of mangroves to prohibition of cutting anything but punk trees or Brazilian pepper trees without a special permit.

Another common type of ordinance is the flood damage prevention ordinance (FDPO). These ordinances prohibit alteration of any physiographic or vegetative features that would result in an increased potential flood hazard. They only apply to communities participating in the National Flood Insurance Program, but the construction requirements of the local FDPO continue to apply in CBRS units even though Federal flood insurance is no longer available.

Some counties have established construction requirements that are stricter than those of the State. For example, Sarasota County does not permit structures closer than 20 feet to MHWL on the bay or estuary regardless of elevation (Ord. 75-38), nor buildings closer than 150 feet to MHWL on the Gulf of Mexico. Sarasota County has its own Water and Navigation Control Authority which regulates and controls all submerged and other sovereignty lands of the county. Any activities that affect these lands must be approved through this body.

Financial assistance. As previously mentioned, financial assistance to the local government is available only for conservation

of barriers, not for their development. The most direct method for local governments to protect barriers is by purchasing them. This is being done by Sarasota County (four parcels), and others.

There is one plan that may be considered as indirectly supporting barrier development. Dunedin Pass, part of CBRS unit P24A, in Pinellas County is currently being considered for dredging by using local funding. If this dredging is successful, it could encourage nearby development by allowing better access from both open and protected water.

Private Sector Initiatives

Numerous private organizations at all levels are actively involved in conservation related to coastal barriers. Most visible among these are The Nature Conservancy and the Trust for Public Lands; the former has by far the greatest coastal presence. The Conservancy has purchased numerous tracts either to keep or to resell to the State. The Trust for Public Lands acts more as an intermediary rather than as a purchaser. Other national conservation organizations such as the National Wildlife Federation, the Audubon Society, and the Sierra Club have also supported coastal conservation and serve as forceful lobbyists at both the Federal and State levels.

A large number of local conservation groups also operate in the State, and many of these are quite effective. In some cases, these groups have actually purchased tracts of coastal land. For example, the Moonshine Island Trust, an ad hoc group in Pinellas County, purchased an island and deeded it to the State with the restriction that it remain as a natural preserve. Such a purchase provides for maintenance of the tract in its present state and also gives the trust members a tax advantage because of their purchase. The Lemon Bay Conservancy in Sarasota County (a local branch of The Nature Conservancy) provided seed money to develop Blind Pass Park on Manasota Key (CBRS unit P21A). The Sarasota Sea Turtle Association is monitoring turtle nesting on the same parcel. The Pelican Island Audubon Society in Indian River County developed a nature center educational facility at Wabasso Island. The Florida Oceanographic Society, Inc., a private group in Martin County, provided the coastal zone management grant project for Hutchinson Island from January to September 1982.

Some local groups act as "watchdogs" over development activities on barrier islands. Examples are the Vero Beach Civic Association, which monitors development projects on the barrier, and the Casey Key Protective Association, which discourages construction or hardening of the shoreline seaward of the CCCL.

EXISTING CBRS UNITS

The west coast of Florida can be divided into three distinct regions: the west-central coast, the Big Bend coast, and the panhandle coast.

The west-central coast includes the barrier island complex that begins at Cape Romano (P15) on the south and extends north to just north of Mandalay Point (P24A). This coast is subject to low wave energy because of the restricted fetch of the Gulf of Mexico and the gentle slope of the adjacent Continental Shelf. Tidal range is about 3 feet. Although tropical storms occur on this coast, they are relatively infrequent. The most recent significant hurricane (Donna) was in 1960. Barriers are typically short and rather wide, at least at one end or the other. Many protect extensive mangrove forests and marshes as well as large open water areas adjacent to them. The barriers are separated by numerous large inlets and are irregularly shaped because of the marshes and mangroves. Erosion is common and locally severe though more spotty than on the east coast. The barriers on the west-central coast have lower elevations than those on the east coast and are, therefore, more susceptible to flooding. Development is locally intense.

The Big Bend coast is sometimes also called the "zero energy" coast because of the low wave climate and the general absence of beaches. There is also a general absence of barriers in the usual sense, though this reach of coast does contain two small units (P25 and P26). This area is remote, is unattractive to many people, and does not have extensive beaches. Most of the coast is a low marshy environment that is very susceptible to flooding. As a result, it is only sparsely developed and is likely to remain so for some time.

The generally east-west trending coast of west Florida, or the panhandle, contains six CBRS units. They extend from the Ochlockonee Complex (P27A) on the east side of the Apalachicola Delta to Moreno Point (P32). Some of the barriers are associated with the large river delta, and others are associated with the mainland. Wave climate increases from the delta westward, partly because of the increase in shelf gradient and decrease in shelf width in that direction. Tides are about 3 feet or less throughout. Hurricanes are more frequent in the panhandle than in the Big Bend. Along the western panhandle, storms are about as frequent as they are on the east coast of the State.

The coastal barriers of the panhandle are typically long and narrow, but rather high because of dune development. The western panhandle coast has the highest dunes in the State. Extensive open water bays are present in most places, but here the barriers front small embayments. Beach erosion is moderate along this coast and generally related to the passage of tropical storms.

A brief description of each existing CBRS unit along Florida's west coast follows. Each unit is identified by its number, name, and the county in which it is located.

P15-Cape Romano (Collier). This large unit includes a barrier island complex which is subdivided by bays and tidal channels into Cape Romano Island, Kice Island, Morgan Beach, and several unnamed mangrove keys. The unit is not accessible by land. The

CBRS UNITS IN FLORIDA (WEST COAST) ESTABLISHED BY CONGRESS, 1982

Unit Name	Unit ID Code	County	Shoreline Length (miles)	Area (acres)
Cape Romano	P15	Collier	4.3	3,461.6
Keewaydin Island	P16	Collier	9.0	2,946.5
Lovers Key Complex	P17	Lee	2.5	1,196.1
Bodwitch Point	P17A	Lee	0.4	70.1
Sanibel Island Complex	P18	Lee	0.4	427.9
North Captiva Island	P19	Lee	1.3	329.9
Cayo Costa	P20	Lee	2.5	2,441.5
Bocilla Island	P21	Charlotte	3.9	1,565.7
Manasota Key	P21A	Sarasota	0.9	70.4
Casey Key	P22	Sarasota	1.0	397.3
Longboat Key	P23	Manatee	0.2	234.8
The Reefs	P24	Pinellas	1.1	1,417.0
Mandalay Point	P24A	Pinellas	0.2	59.9
Atsena Otie Key	P25	Levy	1.0	751.8
Pepperfish Keys	P26	Dixie	1.9	704.4
Ochlockonee Complex	P27A	Wakulla		
		Franklin	2.8	553.8
Dog Island	P28	Franklin	6.7	1,573.7
Cape San Blas	P30	Gulf	10.4	4,803.7
St. Andrew Complex	P31	Bay	31.1	12,121.5
Four Mile Village	P31A	Walton	3.5	1,879.0
Moreno Point	P32	Walton		
		Okaloosa	3.2	4,364.5
Totals:			88.3	41,371.1

entire unit is pristine except for a dredged canal through Cape Romano Island that has been closed off, apparently by natural processes. Beaches are well developed, but dunes are lacking. Widespread mangrove swamps are present. The area fronts the Gulf of Mexico on the south and west and is separated from the mainland by a complex of mangrove islands, tidal channels, and open bays. The community of Marco Island is to the north.

P16-Keewaydin Island (Collier). This unit consists of 9 miles of barrier located between Gordon Pass and Big Marco Pass. Numerous mangrove islands and tidal channels separate the island from the mainland. About half of the unit is beach/dune and the other half is mangrove swamp. The unit is pristine except for some spoil piles adjacent to the Intracoastal Waterway (ICW) and a few cottages and related trails on the southern portion of the island. The community of Marco Island lies to the south, and the City of Naples lies to the north. Extensive wetlands lie landward of the island.

P17-Lovers Key Complex (Lee). This unit consists of two barrier islands: Lovers Key, 1 mile north of New Pass, and Big Hickory Island, just south of New Pass. Lovers Key is entirely beach and dune. It is undisturbed and inaccessible by vehicle from the mainland. Big Hickory Island is dominated by mangrove swamp with a fringe of sand beach. A highway extends the entire length of the island. Both islands face the gulf and are separated from the mainland by mangrove islands and open water. Estero Island to the north and Bonita Beach to the south are fairly heavily developed.

P17A-Bodwitch Point (Lee). This is a very

small parcel just in excess of the quarter-mile minimum. It occupies the northwestern tip of Estero Island and is a sand spit beach with some vegetation on the higher ground. The unit is free of residential development but is accessible by vehicle for recreational use. It is adjacent to and northwest of Fort Myers Beach but surrounded on the other three sides by water.

P18-Sanibel Island Complex (Lee). This unit is very small and is adjacent to Wulfert Channel and Blind Pass between Sanibel and Captiva Islands. It includes a narrow strip of barrier beach on Captiva Island, several small mangrove islands, and a portion of Sanibel Island. The habitat is heavily used for sport fishing and recreation. A highway and bridge over Blind Pass traverse the unit. Extensive development is present immediately to the south and north of the unit.

P19-North Captiva Island (Lee). This unit consists of three parcels which extend from Foster Point to the southern tip of the island at Redfish Pass. The northern parcel includes part of Foster Point, the middle one is adjacent to Foster Bay, and the southern one includes the South Banks. Each parcel includes beach, dune, and mangrove environments. Although there are a few buildings present, human impact appears minimal. Beach and dune environments are best developed in the south parcel; mangrove swamps are most extensive in the north and middle parcels. North of the unit is a residential development accessible only by boat or air.

P20-Cayo Costa (Lee). This unit consists of six parcels on Cayo Costa Island, a well-developed drumstick-shaped barrier island. The largest parcel includes most of the central 2.5 miles of the island except for four small developed areas. The other five

parcels are small areas on the southern end of the island. The island is not accessible from the mainland by vehicle. The unit contains well-developed beach, dune and mangrove swamp environments which are undisturbed except for a few scattered cottages. The unit is bounded to the north by an area of scattered cottages and trails.

P21-Bocilla Island (Charlotte). This unit consists of three parcels along the barrier island coast. The northern parcel is at the northern end of Don Pedro Island immediately south of Stump Pass. The middle parcel is at the southern end of Don Pedro Island, and the southern parcel is 1 mile north of Gasparilla Pass on Little Gasparilla Island. The entire unit contains well-developed beach dune, and mangrove swamp environments; there are numerous spoil piles along the mangroves. Scattered cottages, trails, and boat docks are present within the unit, and intervening tracts contain more extensive human development.

P21A-Manasota Key (Sarasota). This unit includes three barrier island parcels on Manasota Key. Each parcel has a well-developed beach and a narrow fringe of mangrove swamp. The habitat appears little disturbed. The parcels front the gulf on the west and Lemon Bay or the ICW on the east. All intervening tracts contain a relatively high number of dwellings and trails.

P22-Casey Key (Sarasota). This unit consists of 1 mile of barrier island and mangrove islands adjacent to Midnight Pass. It includes the Bird Keys and portions of Casey Key and Siesta Key. The Bird Keys are old tidal deltas of Midnight Pass; large spoil piles are present on their landward side because of dredging of the ICW. Several dwellings are within the unit on Siesta Key. There is a well-developed beach with some Australian pines on Casey and Siesta Keys. The density of development increases markedly to the north on Siesta Key and to the south on Casey Key.

P23-Longboat Key (Manatee). This unit includes a small portion of the northern tip of Longboat Key, a barrier island, and all of Jewfish Key, a mangrove-covered flood tidal delta landward of Longboat Key. The Longboat Key portion has a well-developed beach with a fringe of salt marsh; it contains several dwellings and has dense development to the south. Jewfish Key contains undisturbed mangrove wetland; it is surrounded by water and receives no open water waves.

P24-The Reefs (Pinellas). This unit consists of a group of mangrove keys and an emergent barrier located between Bunces Pass on the south and Pass-a-Grille to the north. This unit is accessible by water only. The emergent barrier, which first became supratidal in 1961, is completely pristine and contains well-developed beach and dune environments. The mangrove islands are only disturbed by a few widely scattered and rarely used fishing shacks.

P24A-Mandalay Point (Pinellas). This unit consists of a recently formed sand spit complex at the north end of Clearwater Beach Island. It contains completely pristine beach and dune environments with some wash-

over aprons. The unit faces the gulf on the west, Clear Water Harbor on the east, and Dunedin Pass on the north. To the south is extensive residential development.

P25-Atsena Otie Key (Levy). This unit includes all of Atsena Otie Key, the southeastern island of the Cedar Keys. The island is fringed with a narrow beach and contains scattered patches of salt marsh and open water. This island is undoubtedly rock-cored and is not a typical barrier island. It is totally pristine and is accessible by water only. The community of Cedar Key is 1 mile to the north. To the south and west are other keys which are part of a National Wildlife Refuge. Some distance to the east is the drowned karst coast of Florida.

P26-Pepperfish Keys (Dixie). This group of three small, low-lying, salt marsh islands is one-half mile south of Halfway Point. The islands are pristine and have essentially no beach development. The largest of the three is about 1 mile long. The islands are surrounded by water and are adjacent to the salt marsh coast of Dixie County.

P27A-Ochlockonee Complex (Franklin and Wakulla). The unit consists of two parcels on either side of the mouth of the Ochlockonee River at the eastern end of Mashes Island (Ochlockonee Point) and St. James Island (Bald Point). The Ochlockonee Point parcel is primarily salt marsh with much evidence of human impact in the form of dredged canals and roads for residential development. The Bald Point parcel is less affected. It contains some beach and dune development and is accessible by unpaved trail only. The unit lies west of Apalachee Bay; extensive salt marsh and tidal creeks line the back of the unit.

P28-Dog Island (Franklin). This unit contains seven parcels which total about half of the area of Dog Island, a 7-mile long barrier off the coast of the mouth of the Carrabelle River. Although the island is not accessible by road, there is a ferry service and an airstrip. Modest development is scattered throughout the island. There are excellent beaches and dunes with salt marsh wetlands landward. The human impact within the unit itself has been minimal. The island is bounded on the southeast by the Gulf of Mexico and on the landward side by St. George Sound.

P30-Cape San Blas (Gulf). This large unit includes about 10 miles of Cape San Blas and St. Joseph Peninsula to the northwest. The unit is primarily beach and dune with discontinuous salt marsh on the landward side. Although the unit is accessible by road and is adjacent to a State park, there is little evidence of human impact on habitat quality. This is one of the most rapidly developing units in the CBRS.

P31-St. Andrew Complex (Bay). This is the largest unit in Florida, consisting of about 30 miles of barrier coastline in two parcels. The largest parcel includes Crooked Island, St. Andrew Sound, the southern two-thirds of Shell Island, and the adjacent mainland coastline. The second parcel includes part of Shell Island adjacent to St. Andrews State Park. The unit contains well-developed beach

and dune complexes on both the barriers and the mainland. Some scattered salt marsh is present on the landward side of the barriers. The unit is uninhabited and undisturbed with the exception of a small development on Raffield Peninsula.

P31A-Four Mile Village (Walton). This unit includes 3.5 miles of the seaward side of a barrier peninsula (Moreno Point) in front of Choctawhatchee Bay. It is a beach, dune ridge, and wooded environment about 1 to 1.5 miles wide. There are several small freshwater lakes and freshwater marshes landward of the dunes. The beach/dune complex is well developed. Although the unit is accessible by trails, there is no visible development or human impact. Adjacent land areas have scattered residential development.

P32-Moreno Point (Walton and Okaloosa). Four miles of Moreno Point, a peninsula seaward of Choctawhatchee Bay, are included in this unit. It contains beach, dune, and woods with some small ponds, freshwater marsh, and salt marsh. A road corridor and three residentially developed tracts are excluded from the unit. A highway (US 98) traverses the unit and numerous trails are present, but human impact has been minimal. Adjacent land areas have scattered residential development.

PROPOSED ADDITIONS AND MODIFICATIONS

This section identifies proposed recommendations for additions to and deletions from the Coastal Barrier Resources System along Florida's west coast. The Secretary of the Interior, as directed by Section 10 of the Coastal Barrier Resources Act, will make his final recommendations to the Congress after a 90-day public comment period. The following proposed recommendations have been developed in response to public, State and Federal agency, and Congressional comments on the Coastal Barrier Draft Inventory developed by the Study Group. The inventory maps were available for public comment between March 4, 1985, and September 30, 1985. The process and criteria used in the inventory were described on March 4, 1985, in the Federal Register (Vol. 50, No. 42).

The State of Florida reviewed these documents and favors a substantial expansion of CBRS to include:

1. all publicly owned land except intensively developed recreation and beach parking facilities,
2. "otherwise protected" private holdings, and
3. associated aquatic habitats including estuarine sanctuaries and aquatic preserves but excluding deepwater ports.

However, the State also requested exclusions of:

1. phased development within State-approved developments of regional impact, and
2. State road right-of-ways not contiguous with State roads already in CBRS, including bridges and causeways not presently in the CBRS.

The Department received 770 comments (539 petition signatures) concerning the entire State of Florida. Approximately 600 of

these (including all of the petitions) expressed opposition to including the Keys in CBRS. Of the remaining letters, a little more than half opposed the CBRS expansion into other areas of the coast.

The Department of the Interior proposes to recommend that all undeveloped, unprotected coastal barriers and associated aquatic habitat identified in the inventory of the west coast of Florida be included in the Coastal Barrier Resources System.

Congress requested that the Department review the development status of the Wulfert Woods property in CBRS unit P18, Sanibel Island Complex. The owners contend that the property is not an undeveloped coastal barrier. The Study Group reviewed the information supplied by the landowners and determined that the property was undeveloped and not part of a phased development (under CBRA criteria) when the unit was placed in CBRS in 1982. Therefore, the Department proposes to recommend no change in the boundary of this unit.

A large part of Dog Island, P25, was excluded from the CBRS in 1982 because it belonged to the Nature Conservancy and was deemed "otherwise protected." The Nature Conservancy has since sold its holdings to a private trust that will permit limited development. Because of the change in ownership and protective status, the Department proposes to recommend that all of Dog Island be placed in the CBRS.

A small part of the Cape San Blas unit, P30, and most of the St. Andrew Complex, P31, are military lands under the jurisdiction of the U.S. Air Force. The Department proposes to recommend that Congress delete these areas from the CBRS with the caveat that if at sometime in the future, the military determines these lands to be no longer necessary to fulfill their mission, these lands be directly transferred to the Department of the Interior for transfer, disposal, or exchange for a conservation/recreation purpose. Military activities essential to national security are exempted by CBRA after consultation with DOI. The military must comply with the National Environmental Policy Act and other pertinent laws and regulations prior to taking actions that could affect the environment or its resources.

The west boundary of the Four Mile Village unit, P31A, cuts through an established development, leaving all but one of the structures outside the unit. The Department proposes to recommend that Congress slightly modify this boundary to exclude the one structure.

The Santa Rosa Island authority asked that the draft inventory unit FL-97, Santa Rosa Island, be deleted so as not to interfere with planned development of the area. As the area does not include enough infrastructure to be considered developed, the Department recommends its addition to the CBRS, except for the lands held by U.S. Air Force and the State of Florida.

A table presenting the Department's current position on each unit identified in the inventory follows this discussion.

Public comment on the proposed recommendations is solicited.

Comments should be directed to:

The Coastal Barriers Study Group
Department of the Interior
National Park Service
P.O. Box 37127
Washington, DC 20013-7127.

Kennedy, D.L. 1983. A system approach to barrier island management in Florida. M.S. Thesis. Department of Urban and Regional Planning, Florida State University. 79 pp.

Purpura, J., and W. Sensabaugh. 1974. Coastal construction setback line. Florida Sea Grant, Marine Advisory Program Rep. SUSF-SG-74-002.

REFERENCES

Bernd-Cohen, T. 1983. Coastal discussion paper prepared for Governor's Coastal Resources Citizens Advisory Committee and the Office of Coastal Management Florida State University, Joint Center for Environmental and Urban Problems. 40 pp.

State of Florida. 1981. The Florida Coastal Management Program. Final Environmental Impact Statement, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, and Florida Office of Coastal Management, Tallahassee.

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
FL-62	Ten Thousand Islands	Collier	12	—	—	State protected; no further consideration
P15	Cape Romano	Collier	12	4.77	7,012	Delete Horrs Island from inventory; not a coastal barrier. Add wetlands to existing CBRS unit
FL-63	Big Marco Pass	Collier	12	2.16	623	Add to CBRS; no change from inventory
P16	Keewaydin Island	Collier	12	9.00	2,947	Delete Rookery Bay Aquatic Preserve from inventory; State protected. No change to existing CBRS unit
FL-64	Pelican Bay	Collier	12	—	—	Locally protected; no further consideration
FL-65	Wiggins Pass	Collier	12	3.23	1,583	Add undeveloped barrier area at north end of unit. County recommendation for additional wetlands accommodated within limits of study criteria
P17	Lovers Key Complex	Lee	13	2.50	4,811	Delete locally protected area from inventory. Add wetlands to existing CBRS unit

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA (CONTINUED)

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
FL-66	Estero Bay	Lee	13	—	—	State protected; no further consideration
P17A	Bodwitch Point	Lee	13	0.38	70	No change to existing CBRS unit
FL-67	Bunch Beach	Lee	13	3.85	2,277	Add to CBRS; no change from inventory
FL-68	Matlacha Pass	Lee	13	—	—	State/federally (FWS) protected; no further consideration
FL-69	Pine Island Sound	Lee	13	—	—	State/federally (FWS) protected; no further consideration
P18	Sanibel Island Complex	Lee	13	0.40	428	Delete federally (FWS) protected area from inventory. No change to existing CBRS unit. See text "Proposed Additions and Modifications" on Wulfert Woods
P19	North Captiva Island	Lee	13	1.30	330	Delete State-protected area from inventory. No change to existing CBRS unit
P20	Cayo Costa	Lee	13	2.50	2,441	Delete State/locally protected area from inventory. No change to existing CBRS unit
FL-70	Charlotte Harbor	Lee	13	—	—	State protected; no further consideration
FL-71	Gasparilla Sound	Lee Charlotte	13	—	—	State/federally (FWS) protected; no further consideration
P21	Bocilla Island	Charlotte	13	3.90	2,058	Delete State-protected area; add wetlands to existing CBRS unit
FL-72	Punta Gorda	Charlotte	13	—	—	Locally protected; no further consideration

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA (CONTINUED)

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
P21A	Manasota Key	Sarasota	13	1.47	558	Add additional undeveloped barrier and wetlands to existing CBRS unit
FL-73	Venice Airport	Sarasota	13	—	—	State protected; no further consideration
FL-74	Venice Inlet	Sarasota	13	—	—	Locally protected; no further consideration
P22	Casey Key	Sarasota	13	1.00	621	Add wetlands to existing CBRS unit; no change from inventory
FL-75	Lido Key	Sarasota	13	—	—	Locally protected; no further consideration
FL-76	White Key Complex	Manatee	10	—	—	Locally protected; no further consideration
P23	Longboat Key	Manatee	10	0.20	1,824	Delete locally protected area from inventory. Add wetlands to existing CBRS unit
FL-77	Manatee Beach	Manatee	10	—	—	Locally protected; no further consideration
FL-78	Rattlesnake Key	Manatee	10	2.30	3,361	Delete federally (NPS) protected area. Add balance to CBRS
FL-79	Anna Maria Key	Manatee	10	—	—	Locally protected; no further consideration
FL-80	Passage Key	Manatee	10	—	—	Federally protected (FWS); no further consideration
P24	The Reefs	Pinellas	7	1.10	1,417	Delete locally/ federally (FWS) protected area. No change to existing CBRS unit
FL-81	Egmont Key	Hillsborough	7	—	—	Federally protected (FWS); no further consideration
FL-82	Bishop Harbor	Hillsborough	7	4.85	2,015	Add to CBRS; no change from inventory

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA (CONTINUED)

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
FL-83	Cockroach Bay	Hillsborough Manatee	7 10	—	—	State protected; no further consideration
FL-84	Treasure Island	Pinellas	9	—	—	State protected; no further consideration
FL-85	Sand Key	Pinellas	9	—	—	Locally protected; no further consideration
P24A	Mandalay Point	Pinellas	9	0.25	60	Delete State- protected area from inventory. No change to existing CBRS unit
FL-86	Honeymoon Island	Pinellas	9	—	—	State protected; no further consideration
FL-87	Howard Park	Pinellas	9	—	—	Locally protected; no further consideration
FL-88	Anclote Keys	Pinellas Pasco	9	—	—	State protected; no further consideration
P25	Atsena Otie Key	Levy	2	14.23	8,534	Delete federally (FWS) protected area from inventory; add balance to existing CBRS unit
P26	Pepperfish Keys	Dixie	2	1.90	704	No change to existing CBRS unit
P27A	Ochlockonee Complex	Franklin Wakulla	2	6.66	4,740	Add new area to existing CBRS unit; no change from inventory
FL-89	Alligator Harbor	Franklin	2	—	—	State/private protected; no further consideration
P28	Dog Island	Franklin	2	10.21	13,640	Add new area to existing CBRS unit; no change from inventory
FL-90	St. George Island	Franklin	2	—	—	State protected; no further consideration
FL-91	St. Vincent	Franklin	2	—	—	State/federally (FWS) protected; no further consideration

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA (CONTINUED)

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
FL-92	Indian Peninsula	Gulf	2	2.80	1,327	Add to CBRS; no change from inventory
P30	Cape San Blas	Gulf	2	7.28	4,021	Delete State/federally (FWS) protected area from inventory. Delete military lands (Air Force) and State-protected area from existing CBRS unit
P31	St. Andrew Complex	Bay	1	1.90	1,396	Delete State-protected area and military (Air Force) lands from existing CBRS unit. Also delete State-protected area from inventory.
FL-93	Phillips Inlet	Bay	1	—	—	Locally protected; no further consideration
FL-94	Deer Lake Complex	Walton	1	1.60	213	Delete developed segment; add balance to CBRS
FL-95	Grayton Beach	Walton	1	0.92	378	Delete State-protected area; add balance to CBRS
FL-96	Draper Lake	Walton	1	0.21	44	Add to CBRS; no change from inventory
P31A	Four Mile Village	Walton	1	3.48	1,905	Delete one structure on the west edge of the existing unit. Add wetlands to existing CBRS unit
P32	Moreno Point	Walton Okaloosa	1	3.20	4,364	No change to existing CBRS unit
FL-97	Santa Rosa Island	Okaloosa	1	0.58	6,178	Delete State-protected area and military (Air Force) land from inventory. Add balance to CBRS

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS
ALONG THE WEST COAST OF FLORIDA (CONCLUDED)

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
FL-98	Gulf Islands	Escambia	1	10.31	9,760	Delete State/ federally (NPS) protected segment. Add eastern undeveloped segment to CBRS
FL-99	Tom King	Escambia	1	0.53	29	Add to CBRS; no change from inventory
FL-100	Town Point	Santa Rosa	1	0.62	38	Add to CBRS; no change from inventory
FL-101	Garcon Point	Santa Rosa	1	3.59	773	Add to CBRS; no change from inventory
FL-102	Basin Bayou	Santa Rosa	1	1.05	102	Add to CBRS; no change from inventory
FL-103	Perdido	Escambia	1	—	—	State protected; no further consideration
FL-104	Kees Bayou	Escambia	1	—	—	Developed; no further consideration
Total - CBRS as Recommended				116.23	92,582	
Existing CBRS				<u>88.3</u>	<u>41,371</u>	
Net Change in CBRS				+27.93	+51,211	

^aUNIT ID CODE - State initials (FL) plus a number identify a proposed new unit. An existing unit is identified by the legal code letter (P) and number established by Congress in 1982.

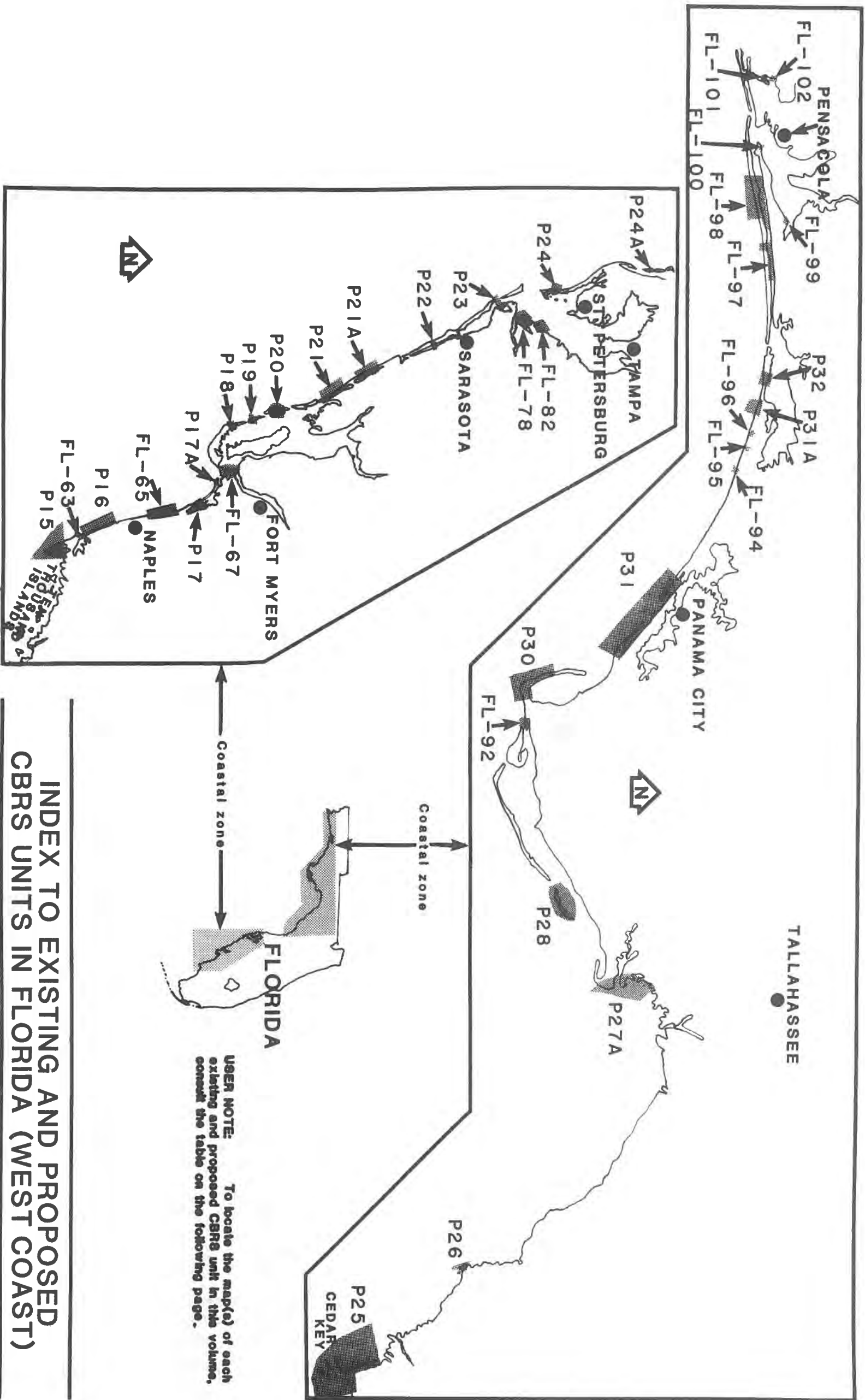
^bUNIT NAME - For proposed new units, this is a provisional name based on a prominent local feature. For existing CBRS units, this is the legal name.

^cCONGRESSIONAL DISTRICT - U.S. Congressional District in which unit is located.

^dSHORELINE LENGTH - For existing units with additions or deletions, this length is for the entire unit, as modified.

^eAREA - For existing units with additions or deletions, this area is for the entire unit, as modified.

^fPROPOSED RECOMMENDATION - A brief explanation of the differences between the 1985 inventory and the recommendations proposed in this revised inventory. For more detailed explanations, please contact the Study Group. Abbreviations: FWS = Fish and Wildlife Service, NPS = National Park Service, CBRS = Coastal Barrier Resources System. Barriers no longer under consideration are not mapped in this atlas.



**INDEX TO EXISTING AND PROPOSED
CBRS UNITS IN FLORIDA (WEST COAST)**

EXISTING AND PROPOSED CBRS UNITS AND THEIR LOCATION IN THIS VOLUME

Unit			
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FL-63	Big Marco Pass	Marco Island	18
P16	Keewaydin Island	Marco Island	18
		Naples South	19
FL-65	Wiggins Pass	Bonita Springs	20
P17	Lovers Key Complex	Bonita Springs	20
		Estero	21
P17A	Bodwitch Point	Fort Myers Beach	22
FL-67	Bunch Beach	Fort Myers Beach	22
		Pine Island Center	23
P18	Sanibel Island Complex	Wulfert	24
P19	North Captiva Island	Captiva	25
P20	Cayo Costa	Captiva	25
		Bokeelia	26
P21	Bocilla Island	Placida	27
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P21A	Manasota Key	Englewood	28
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P22	Casey Key	Bird Keys	30
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FL-78	Rattlesnake Key	Anna Maria	32
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FL-82	Bishop Harbor	Palmetto	33
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FL-94	Deer Lake Complex	Point Washington	50
FL-95	Grayton Beach	Grayton Beach	51
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P31A	Four Mile Village	Miramar Beach	52
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FL-98	Gulf Islands	Holley	56
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FL-99	Tom King	Holley	56
FL-100	Town Point	Gulf Breeze	58
FL-101	Garcon Point	Garcon Point	59
FL-102	Basin Bayou	Garcon Point	59

MAP KEY	
-----	Existing CBRS units
_____	Proposed additions to or deletions from CBRS
ADD	Area recommended for addition to a CBRS unit
DELETE	Area recommended for deletion from the CBRS
EXCLUDED	Area excluded from an existing or proposed CBRS unit because it is developed or it is otherwise protected

P16

FL-63

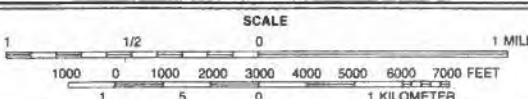


Report to Congress on the Coastal Barrier Resources System

UNITED STATES
DEPARTMENT OF THE INTERIOR
DONALD P. HOEL, SECRETARY



QUADRANGLE
MARCO ISLAND
FLORIDA



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Dash lines depict approximate boundaries of existing units in the Coastal Barrier Resources System, for reference purposes only.

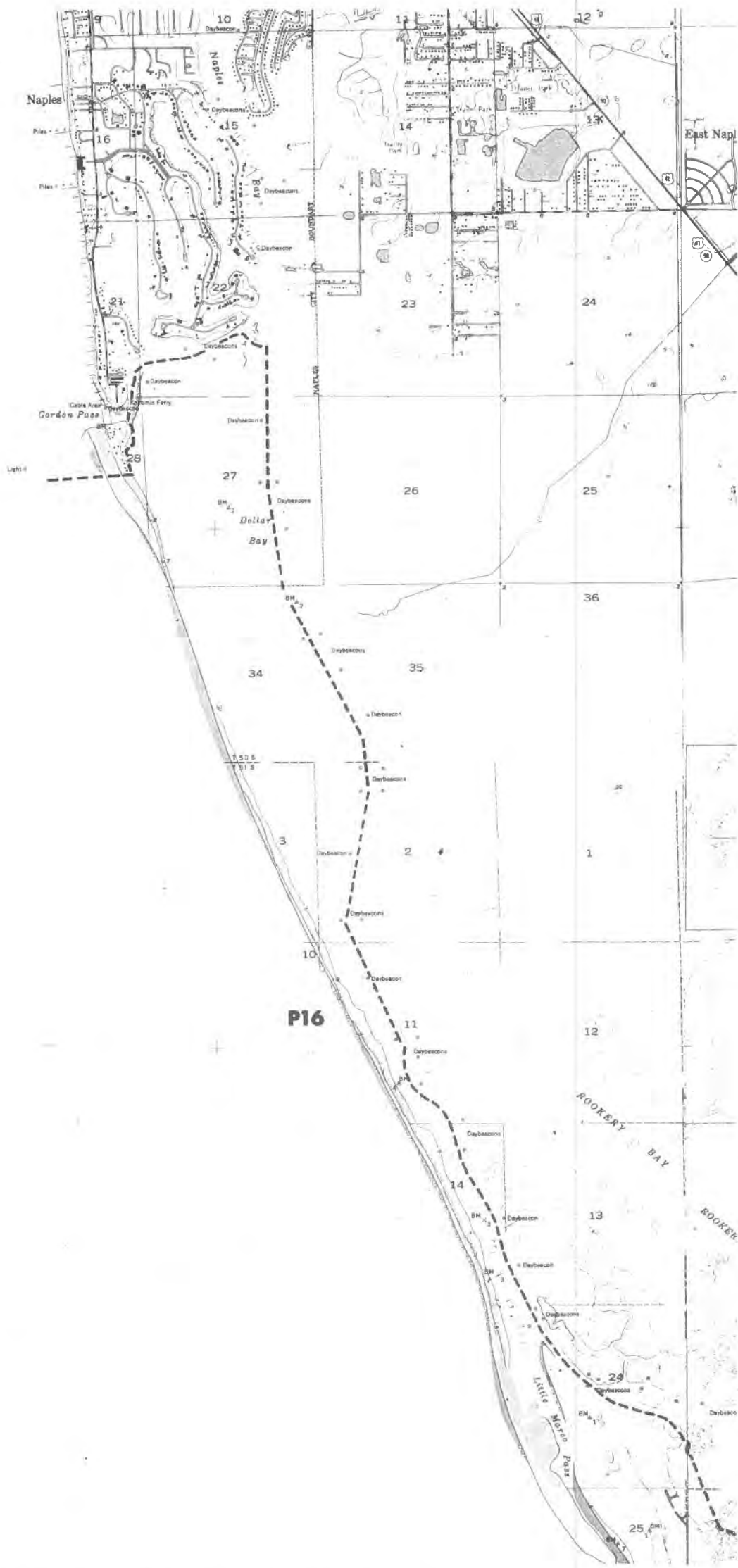
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Washington, D.C. 20240

Base Map is the U.S. Geological Survey 1:24,000 scale quadrangle.

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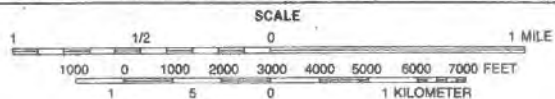


UNITED STATES
DEPARTMENT OF THE INTERIOR
DONALD P. NOBEL, SECRETARY



Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
NAPLES SOUTH
FLORIDA



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UNITED STATES
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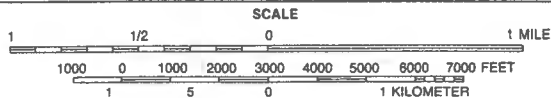


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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
FORT MYERS BEACH
FLORIDA



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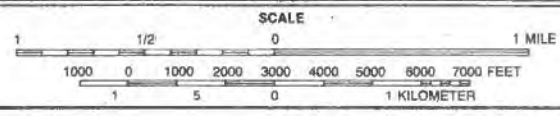
Report to Congress on the Coastal Barrier Resources System

UNITED STATES
DEPARTMENT OF THE INTERIOR
DONALD P. MODEL, SECRETARY



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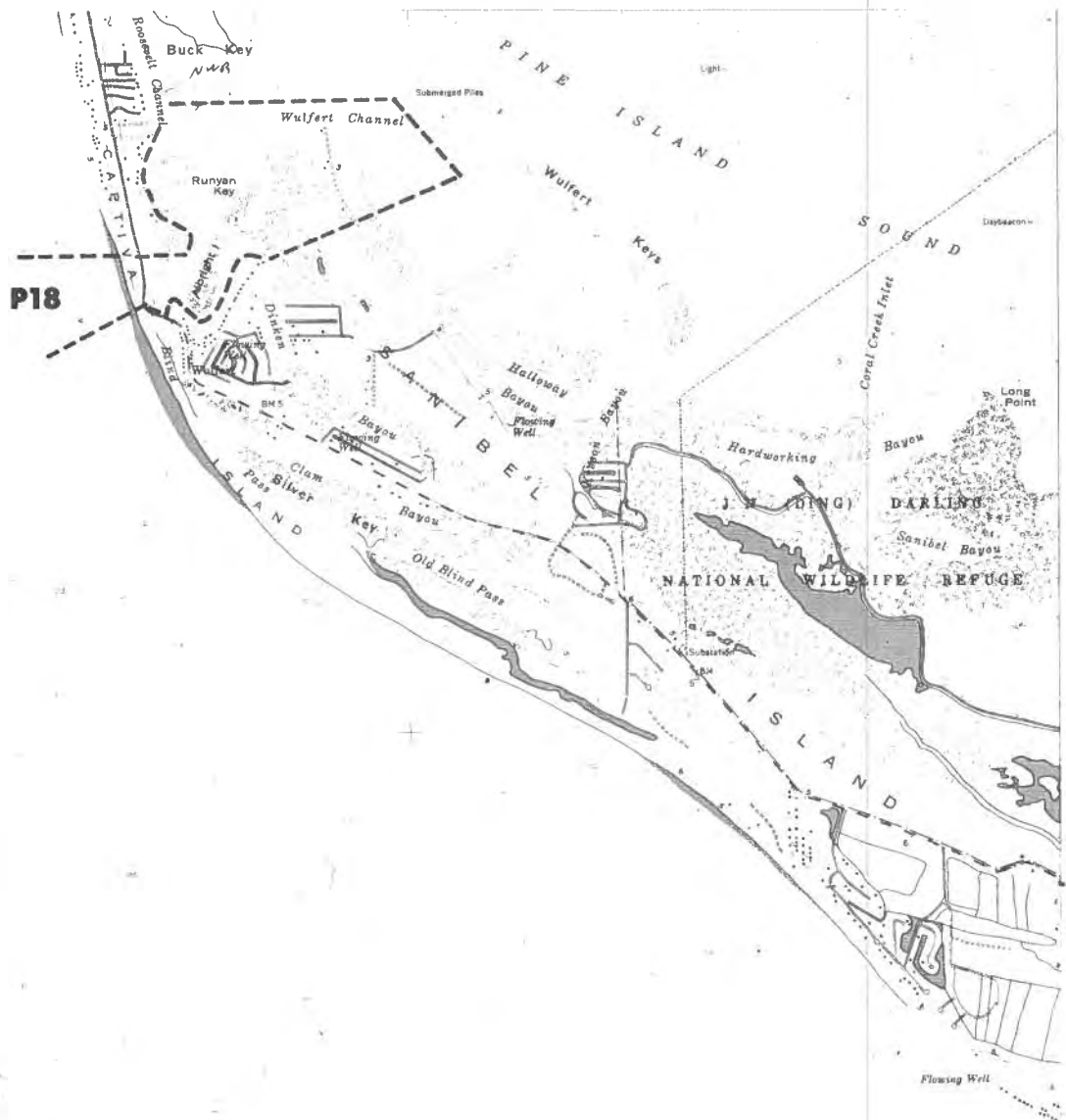
QUADRANGLE
PINE ISLAND CENTER
FLORIDA



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Washington, D.C. 20240

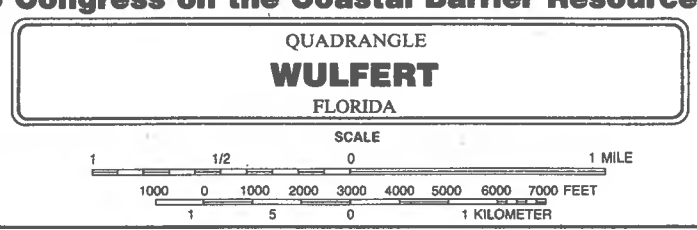
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G U L F O F M E X I C O

Report to Congress on the Coastal Barrier Resources System

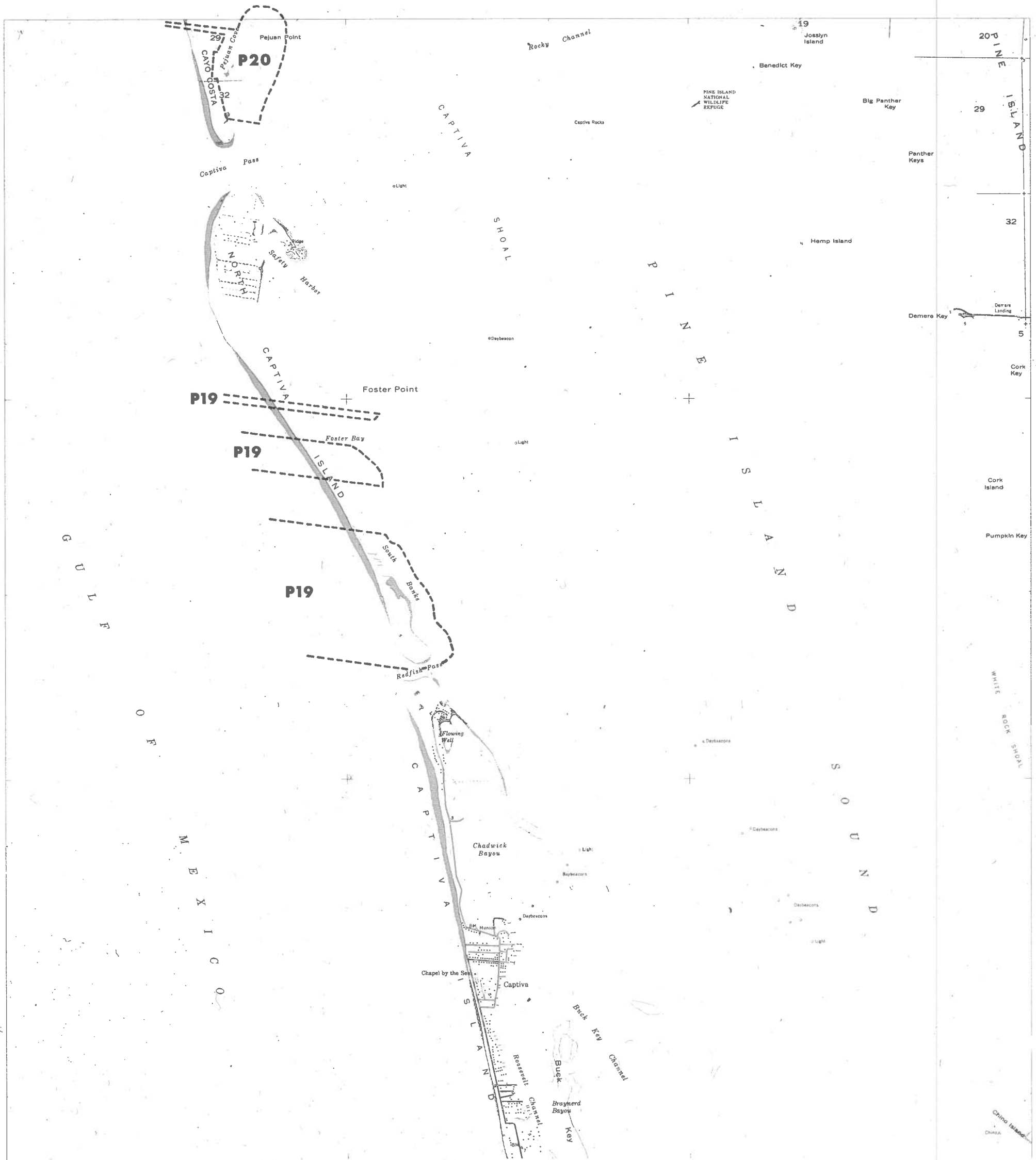
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DONALD P. HODEL, SECRETARY



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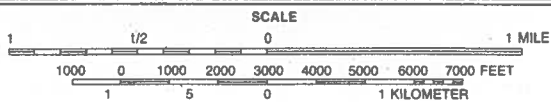


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Report to Congress on the Coastal Barrier Resources System

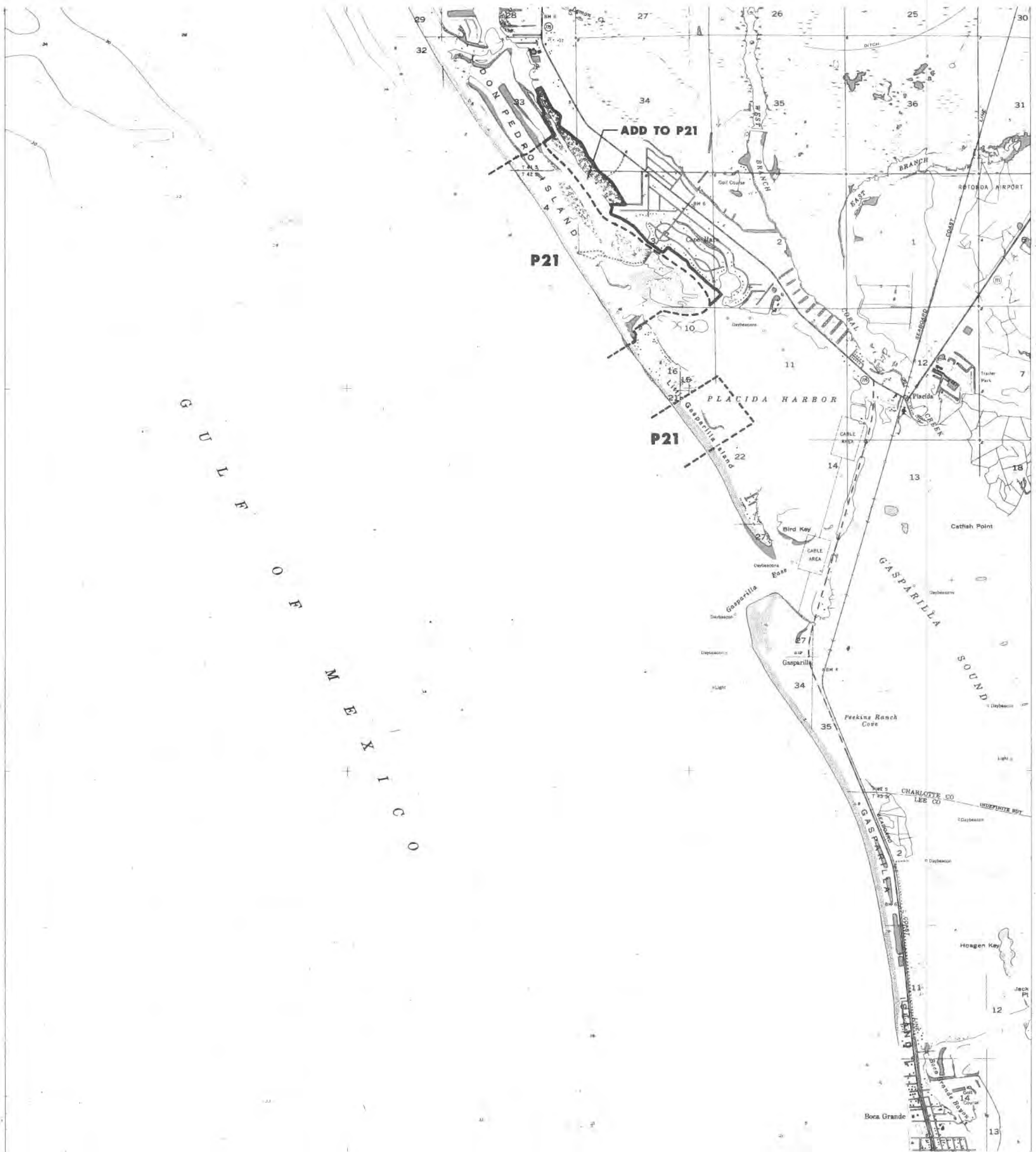
QUADRANGLE
CAPTIVA
FLORIDA



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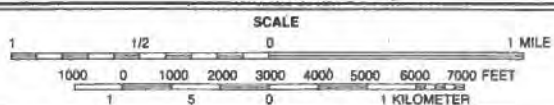
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Report to Congress on the Coastal Barrier Resources System

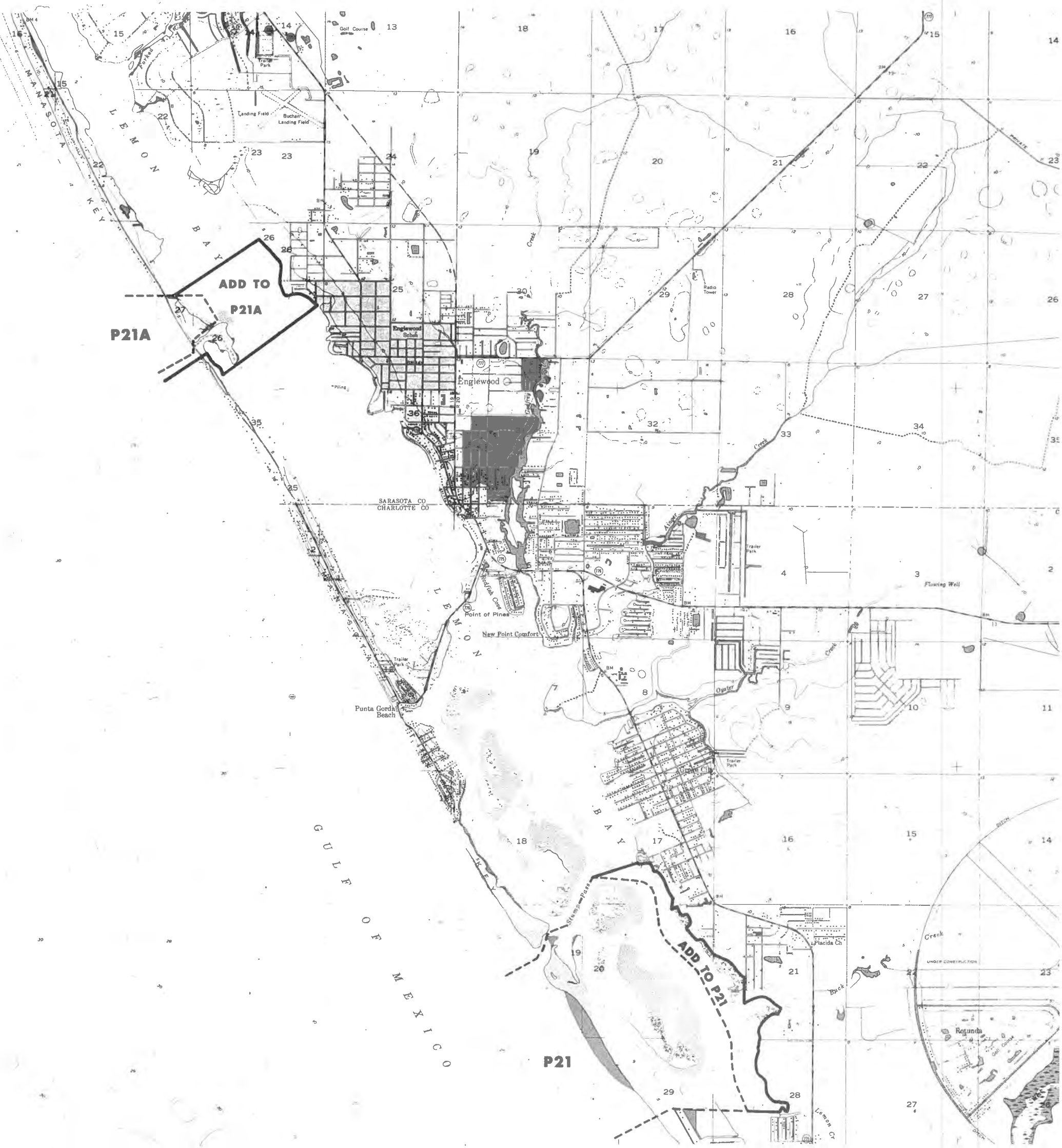
QUADRANGLE
PLACIDA
FLORIDA



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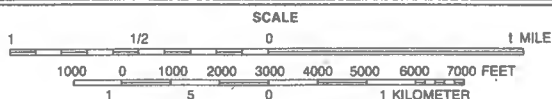


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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
ENGLEWOOD
FLORIDA



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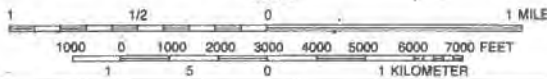


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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
VENICE
FLORIDA

SCALE



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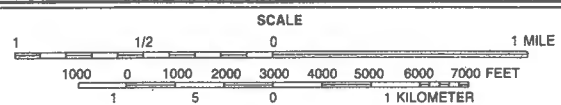
G U L F O F M E X I C O

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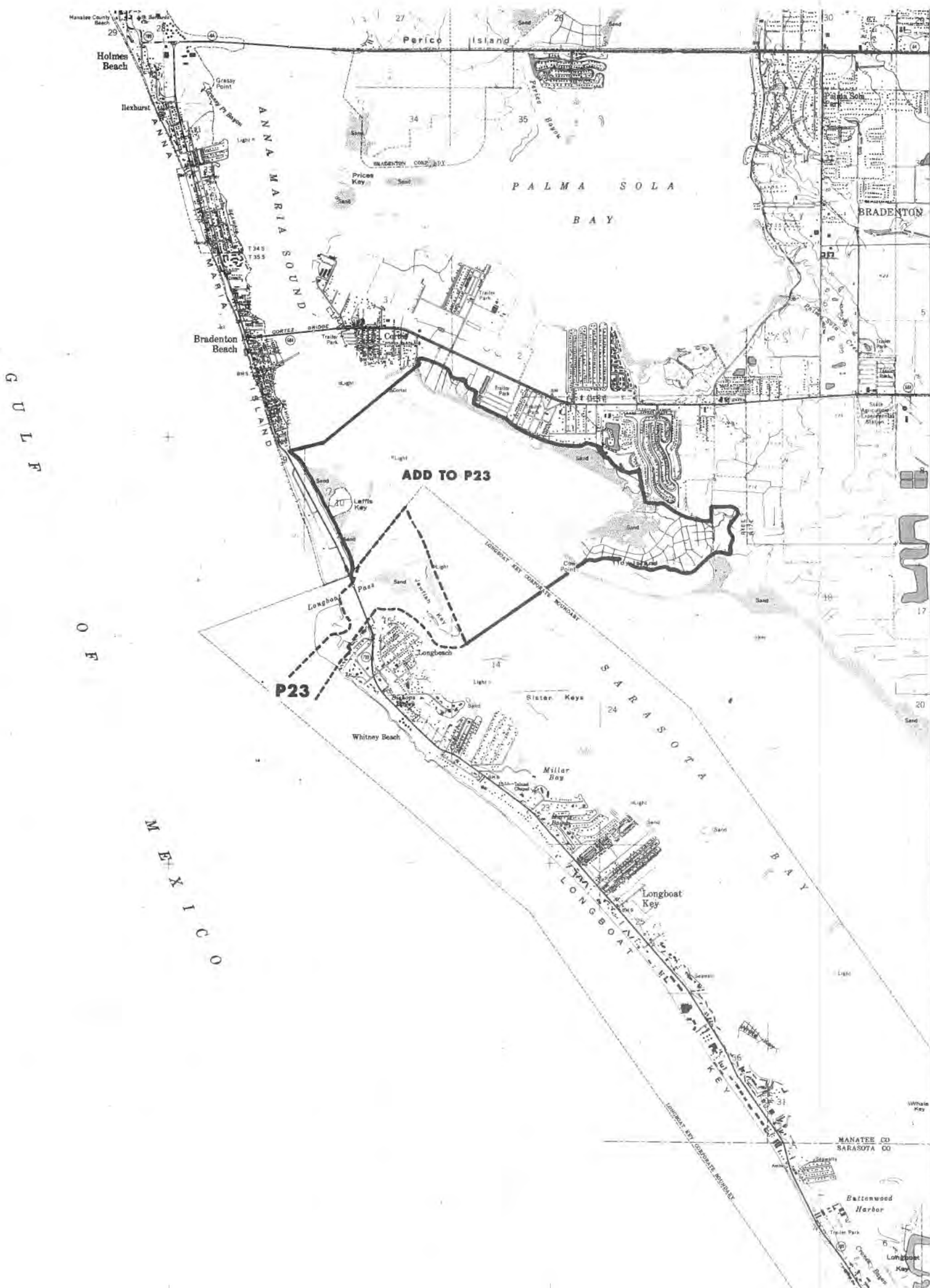
QUADRANGLE
BIRD KEYS
FLORIDA



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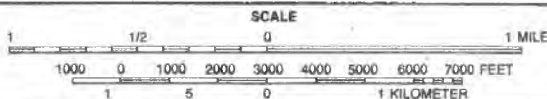


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QUADRANGLE
BRADENTON BEACH
FLORIDA



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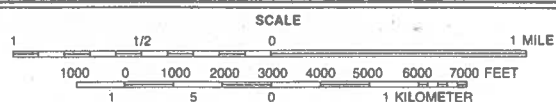


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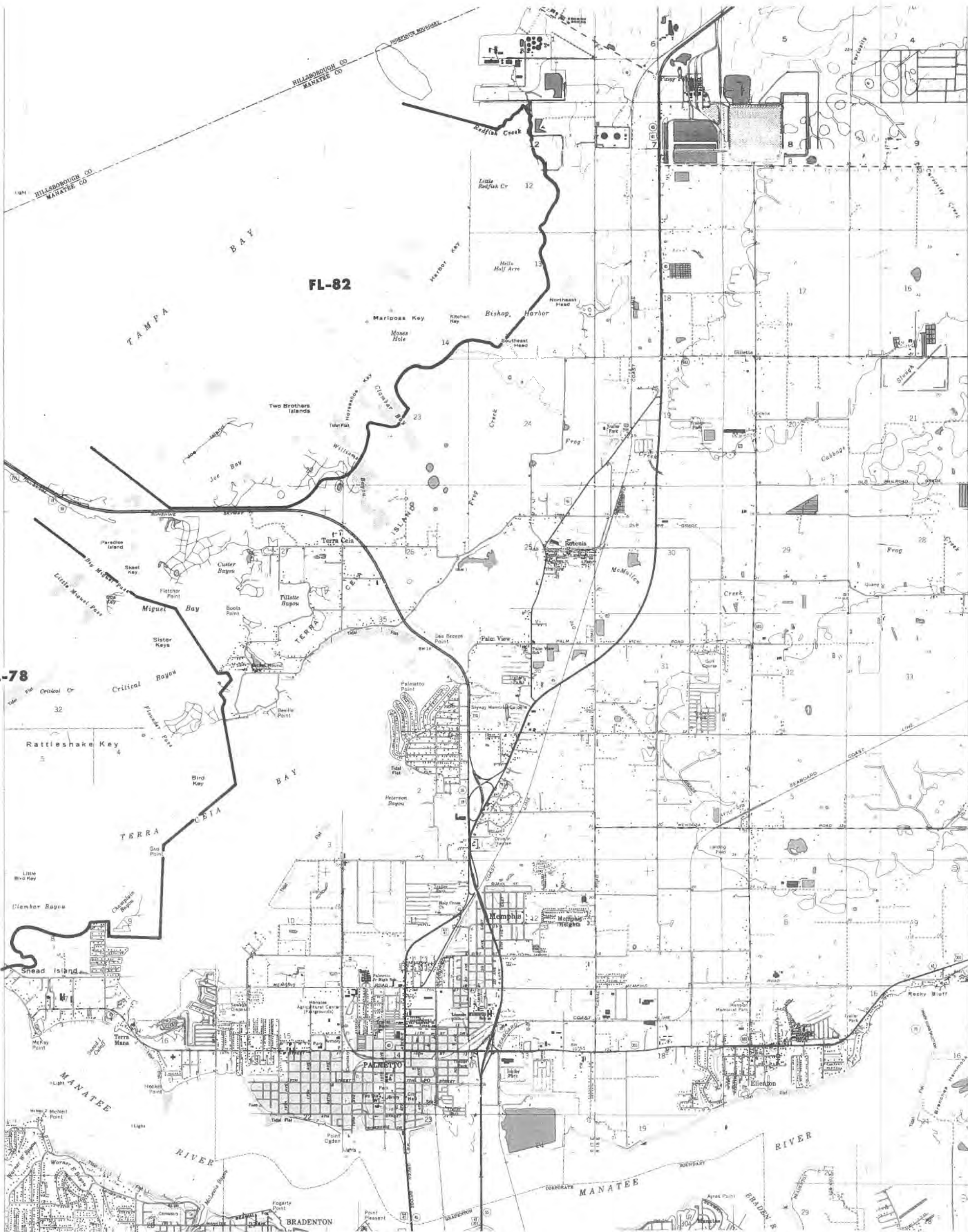


QUADRANGLE
ANNA MARIA
FLORIDA

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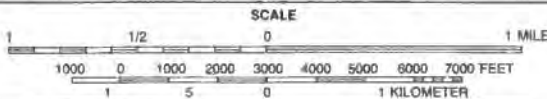
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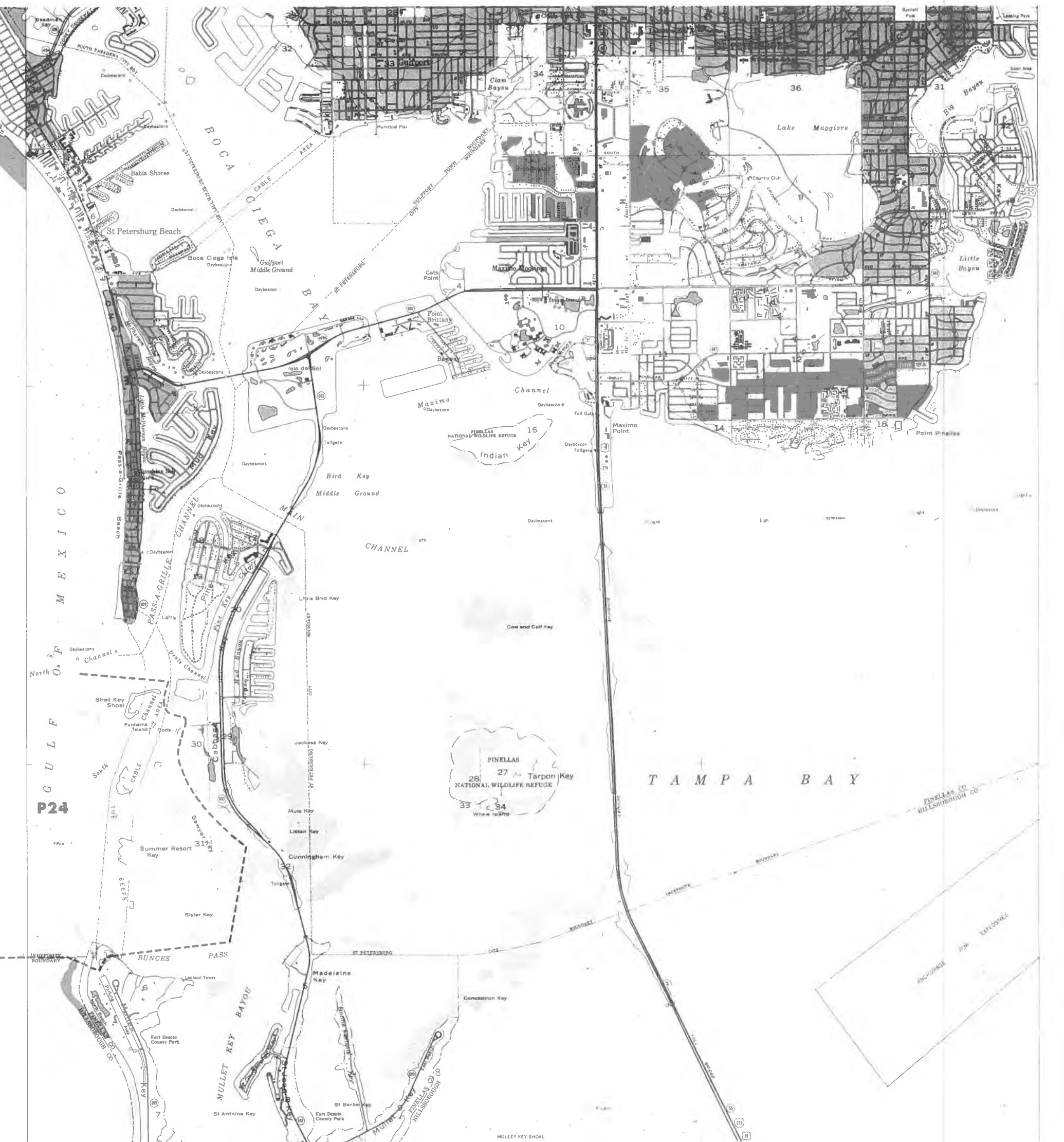
QUADRANGLE
PALMETTO
FLORIDA



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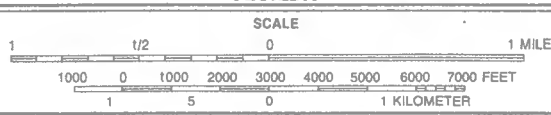
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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
PASS-A-GRILLE BEACH
FLORIDA



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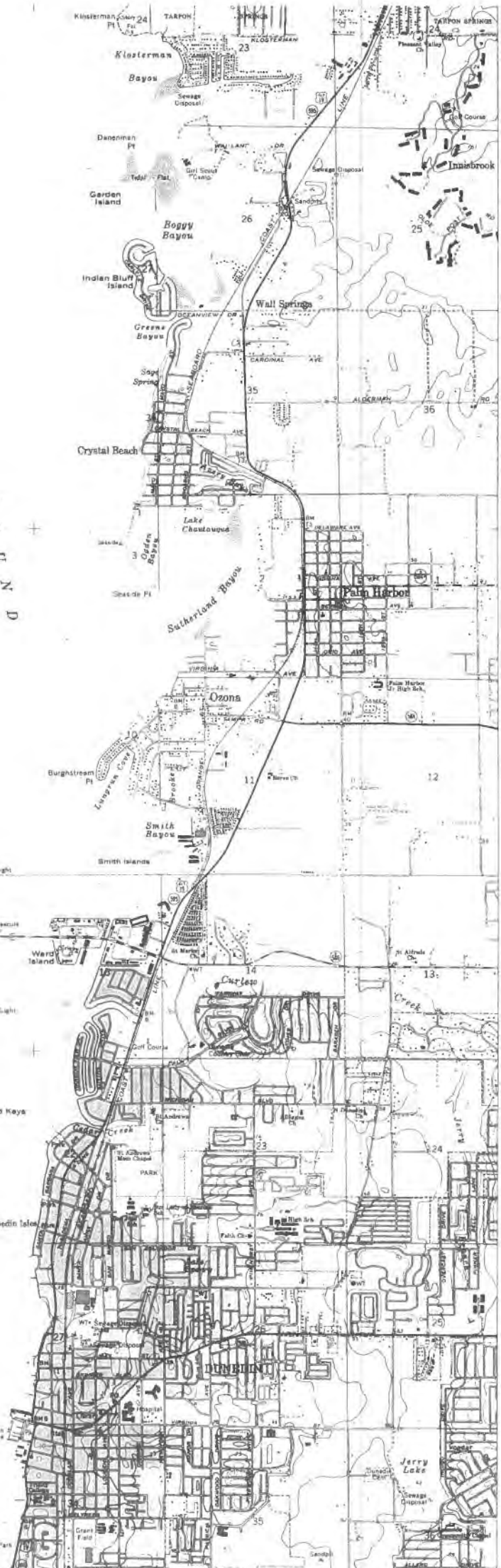
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O F
M E X I C O

S T
J O S E P H

S O U N D

S T
J O S E P H
S O U N D

C L E A R W A T E R
H A R B O R

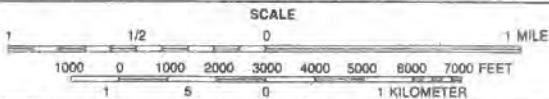


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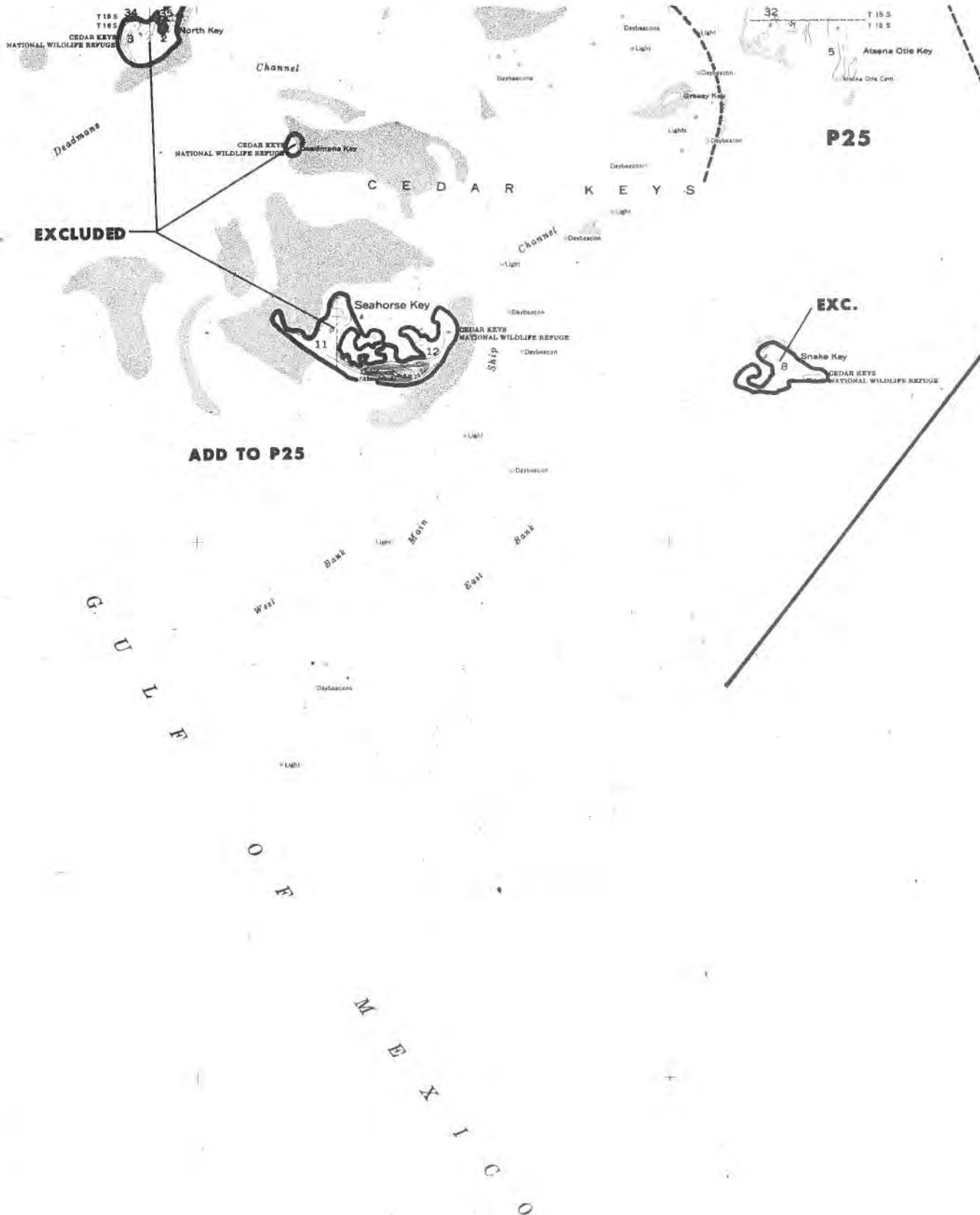
QUADRANGLE
DUNEDIN
FLORIDA



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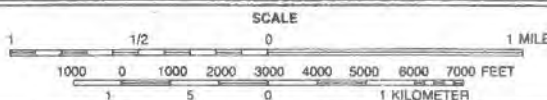
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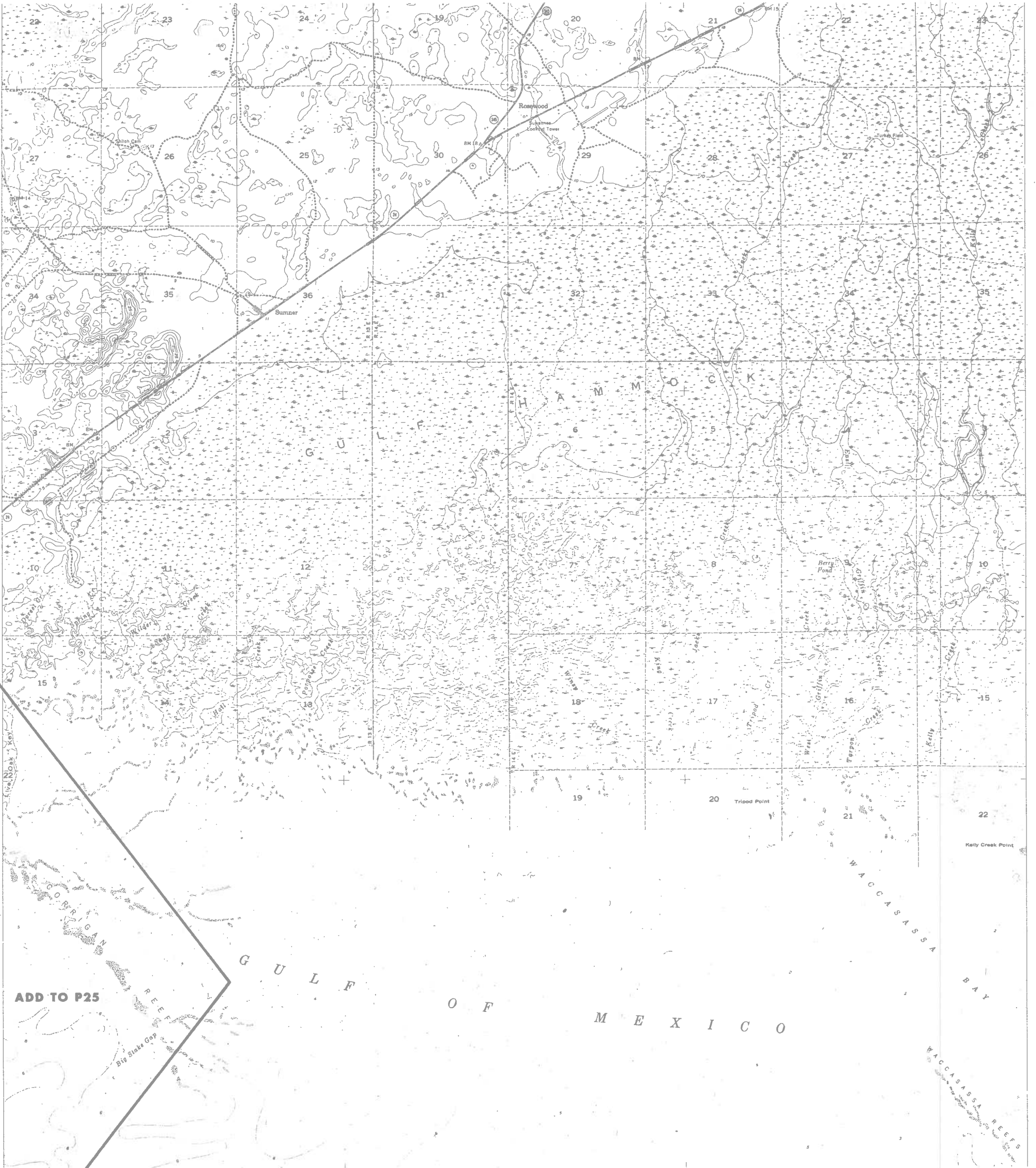
QUADRANGLE
SEAHORSE KEY
FLORIDA



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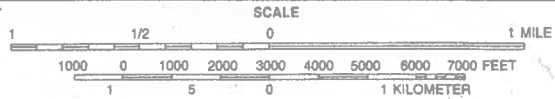
ADD TO P25

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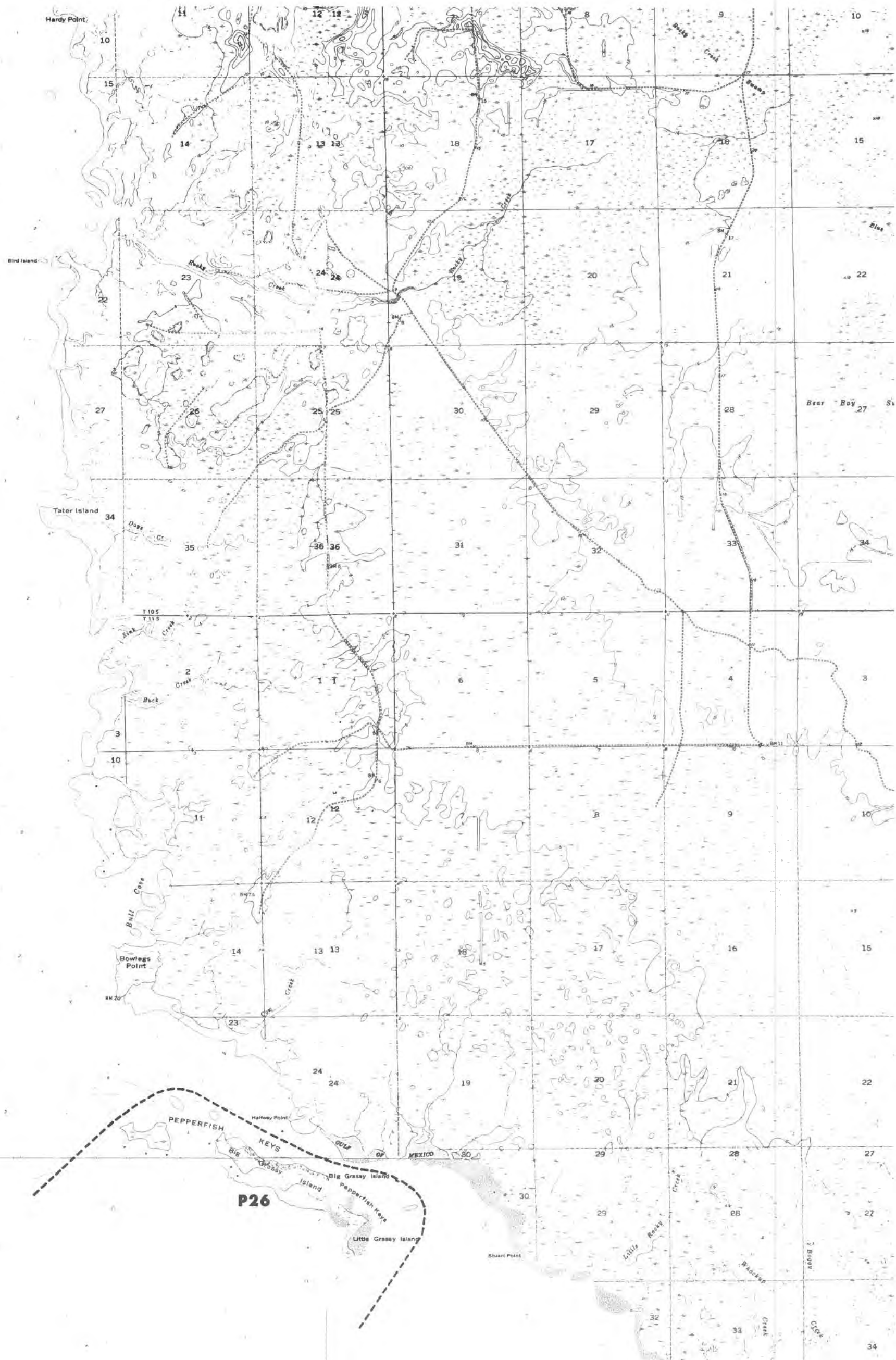
QUADRANGLE
SUMNER
FLORIDA



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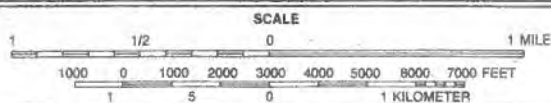


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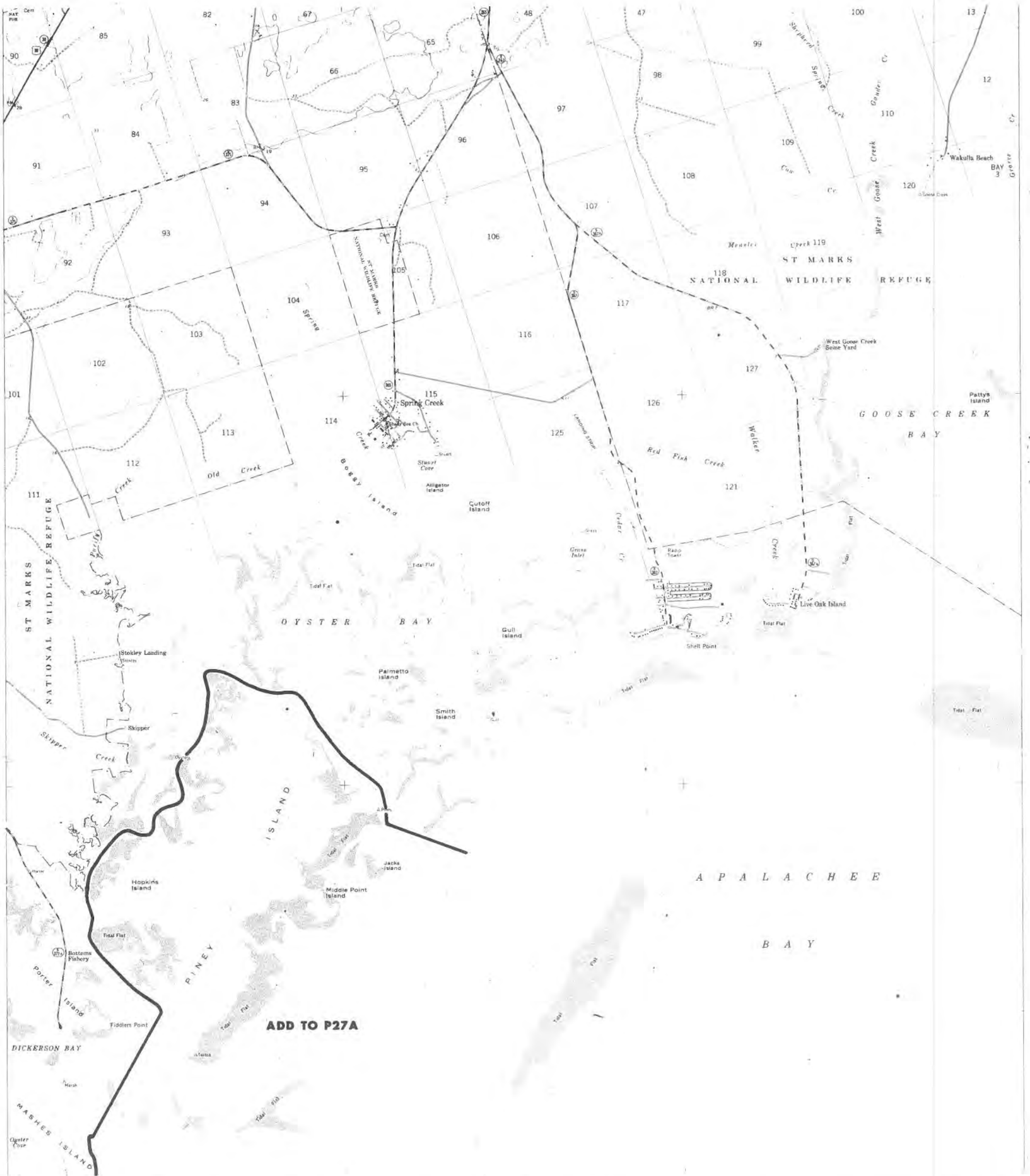
QUADRANGLE
STEINHATCHEE SW
FLORIDA



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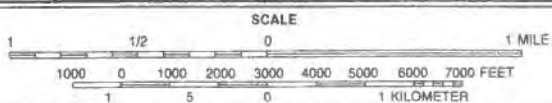
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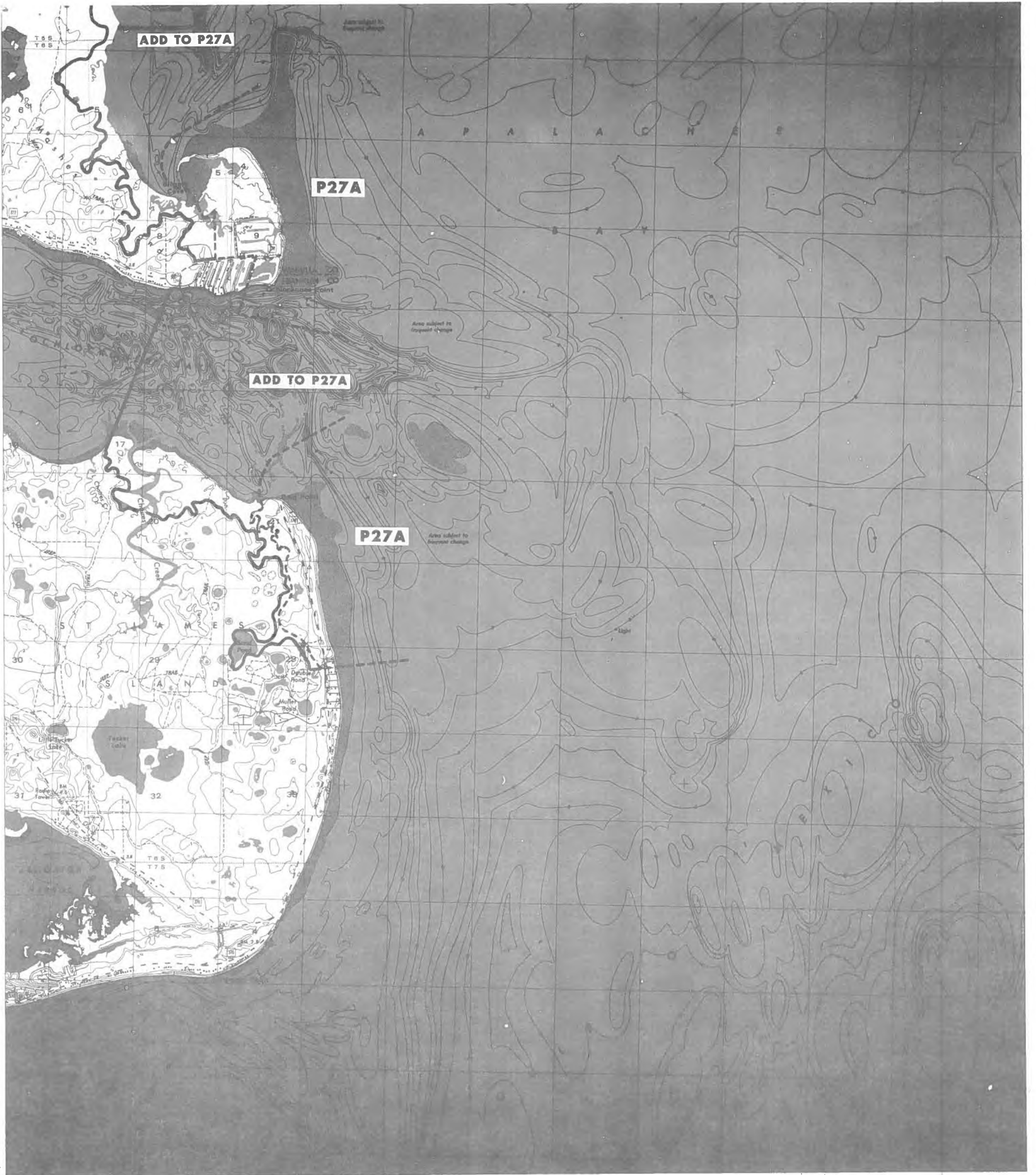
QUADRANGLE
SPRING CREEK
FLORIDA



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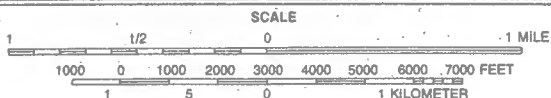


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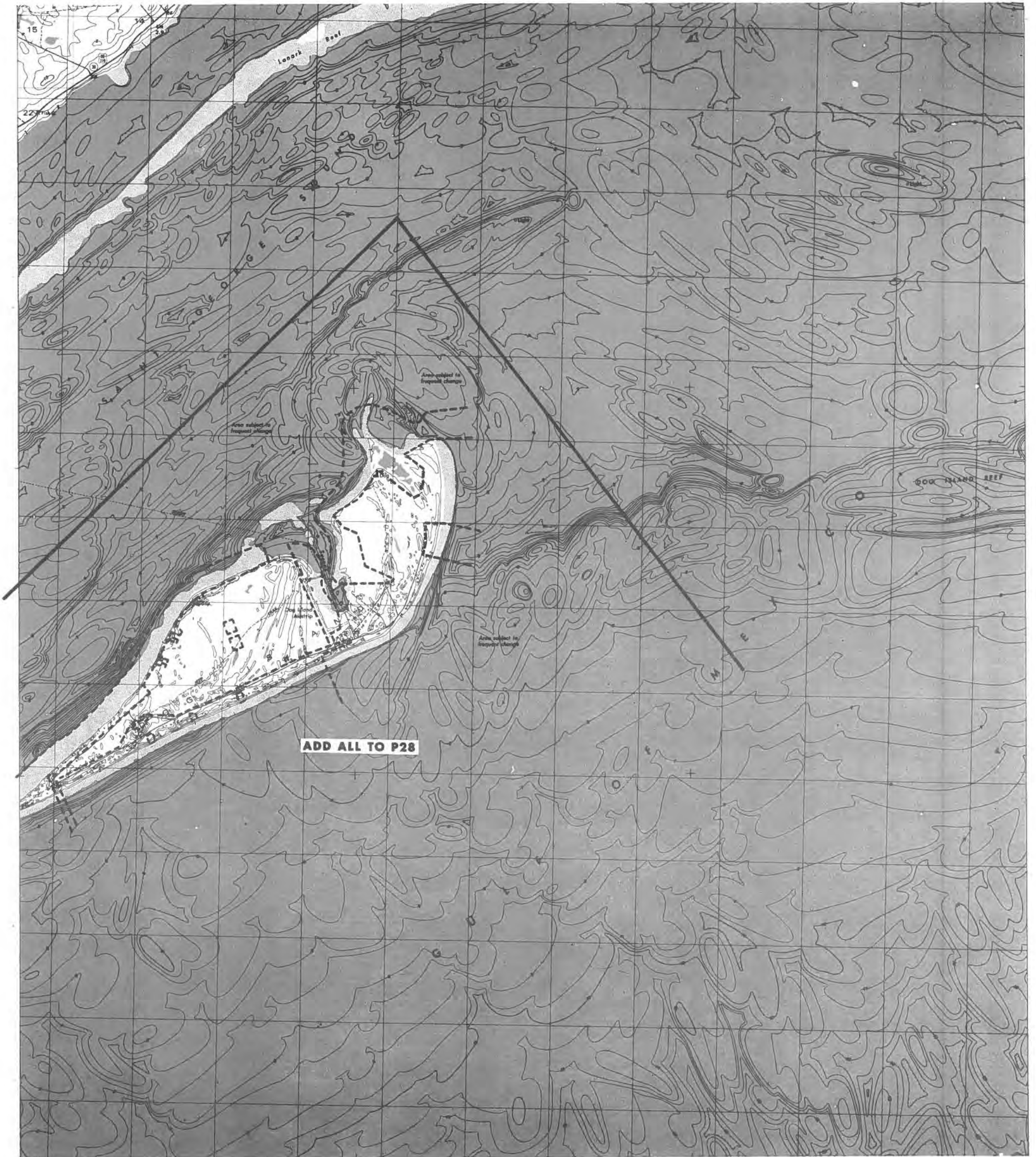
QUADRANGLE
LIGHTHOUSE POINT
FLORIDA



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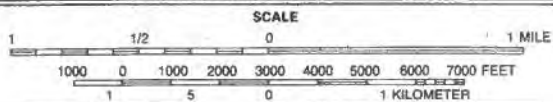


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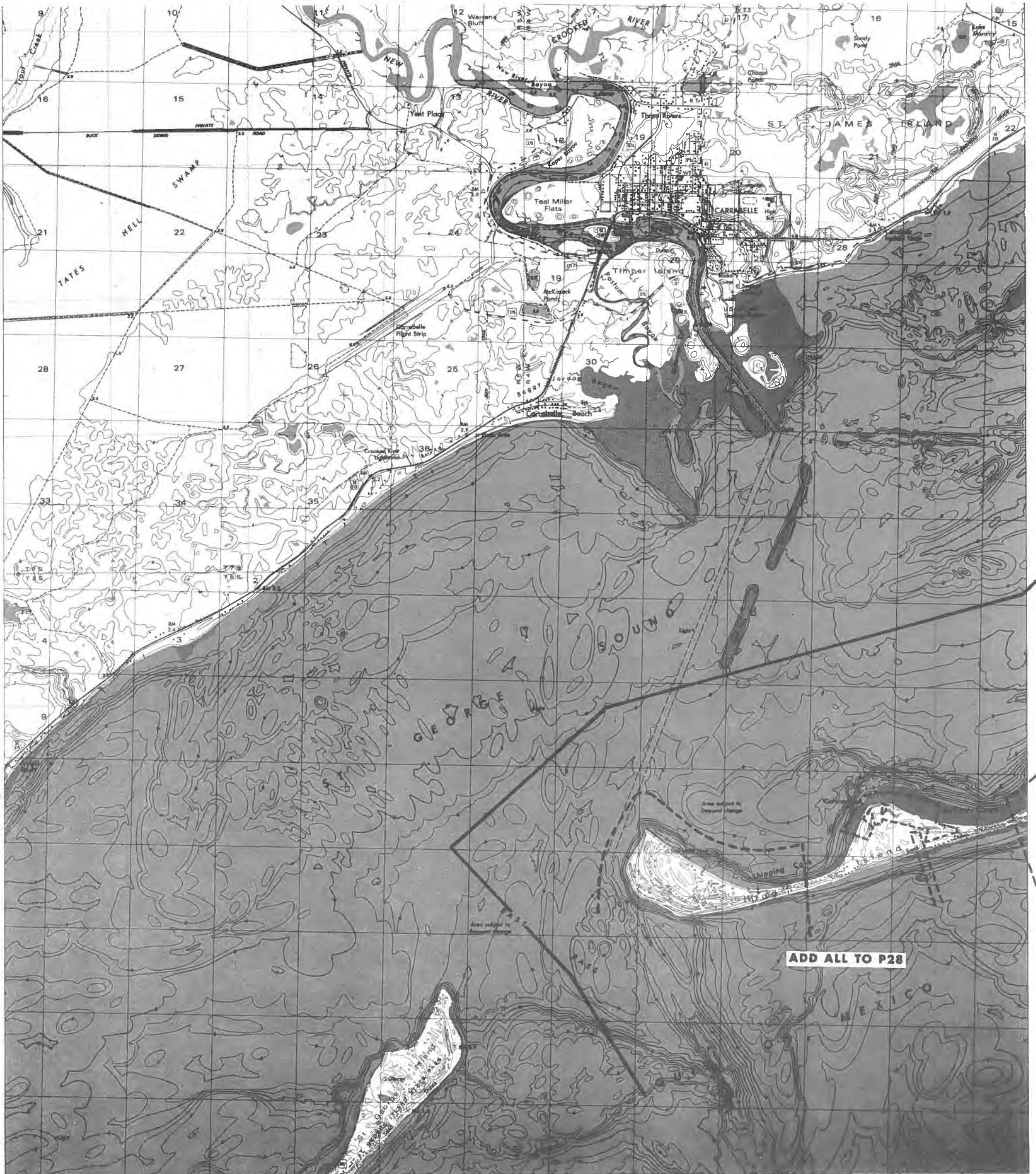
QUADRANGLE
DOG ISLAND
FLORIDA



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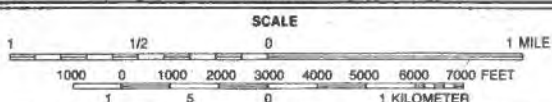
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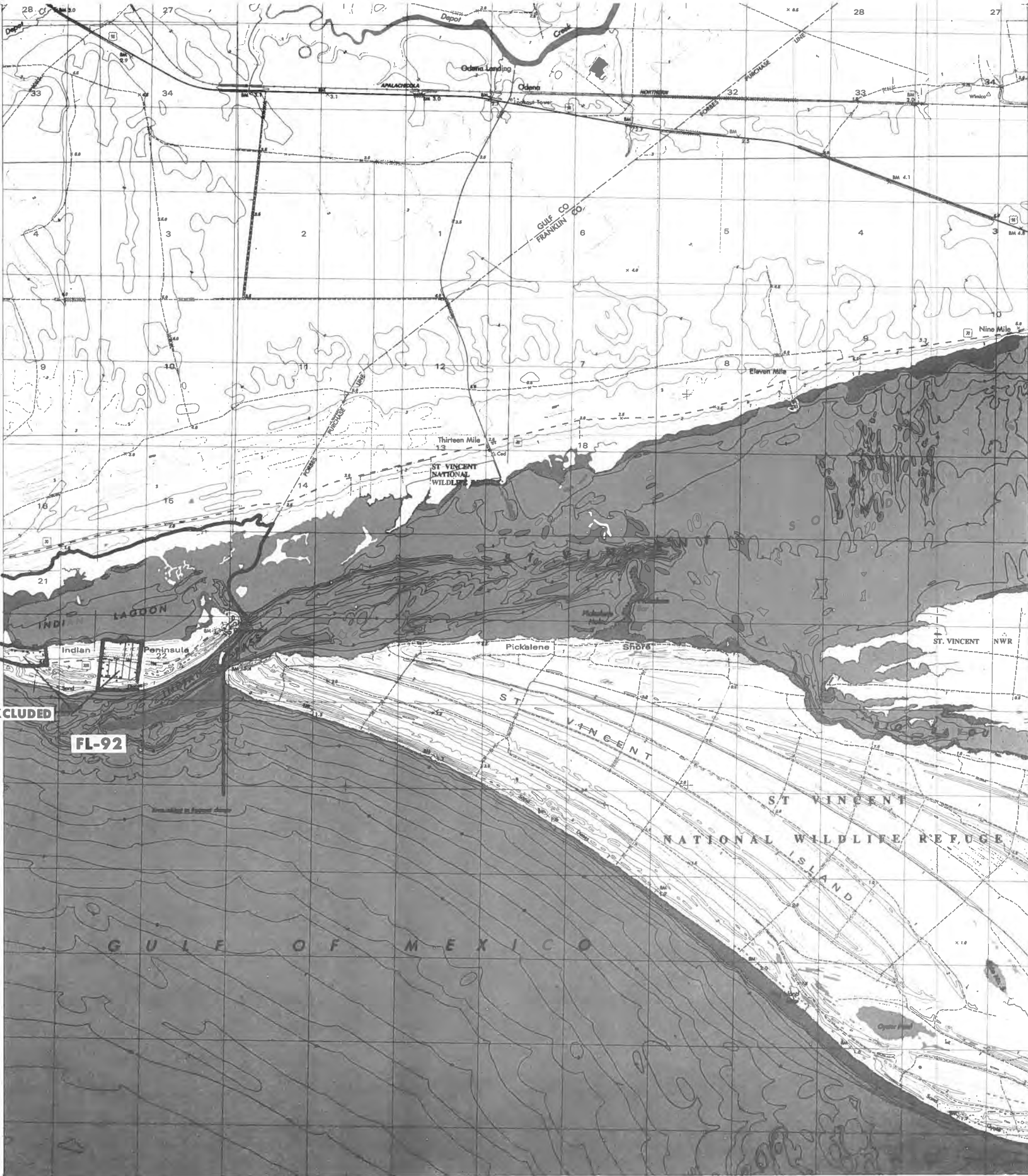
QUADRANGLE
CARRABELLE
FLORIDA



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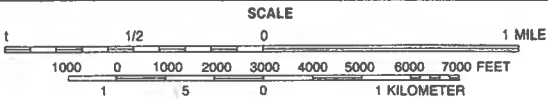
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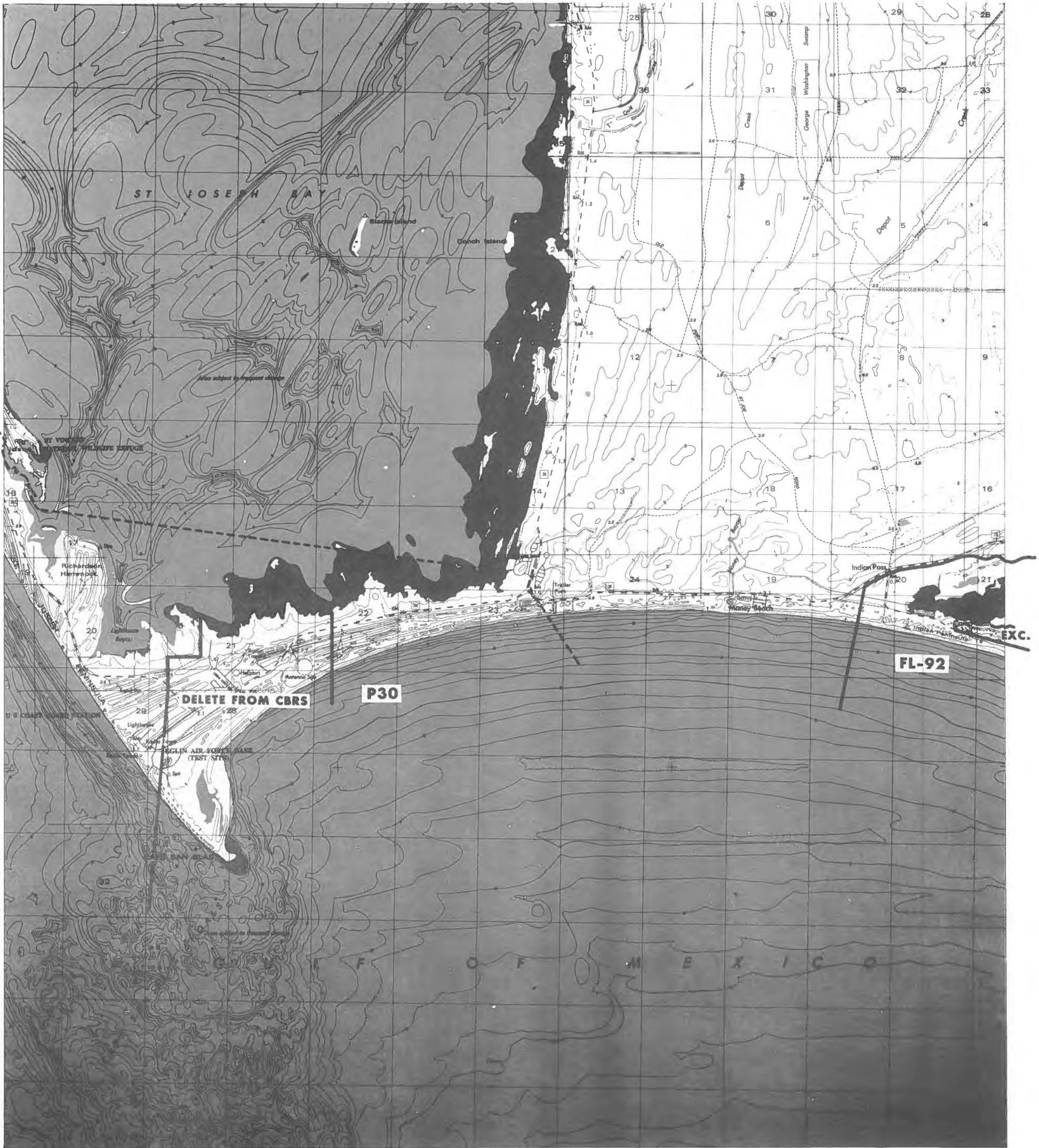
QUADRANGLE
INDIAN PASS
FLORIDA



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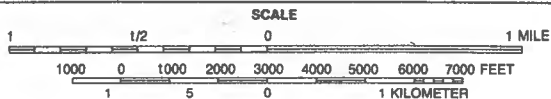


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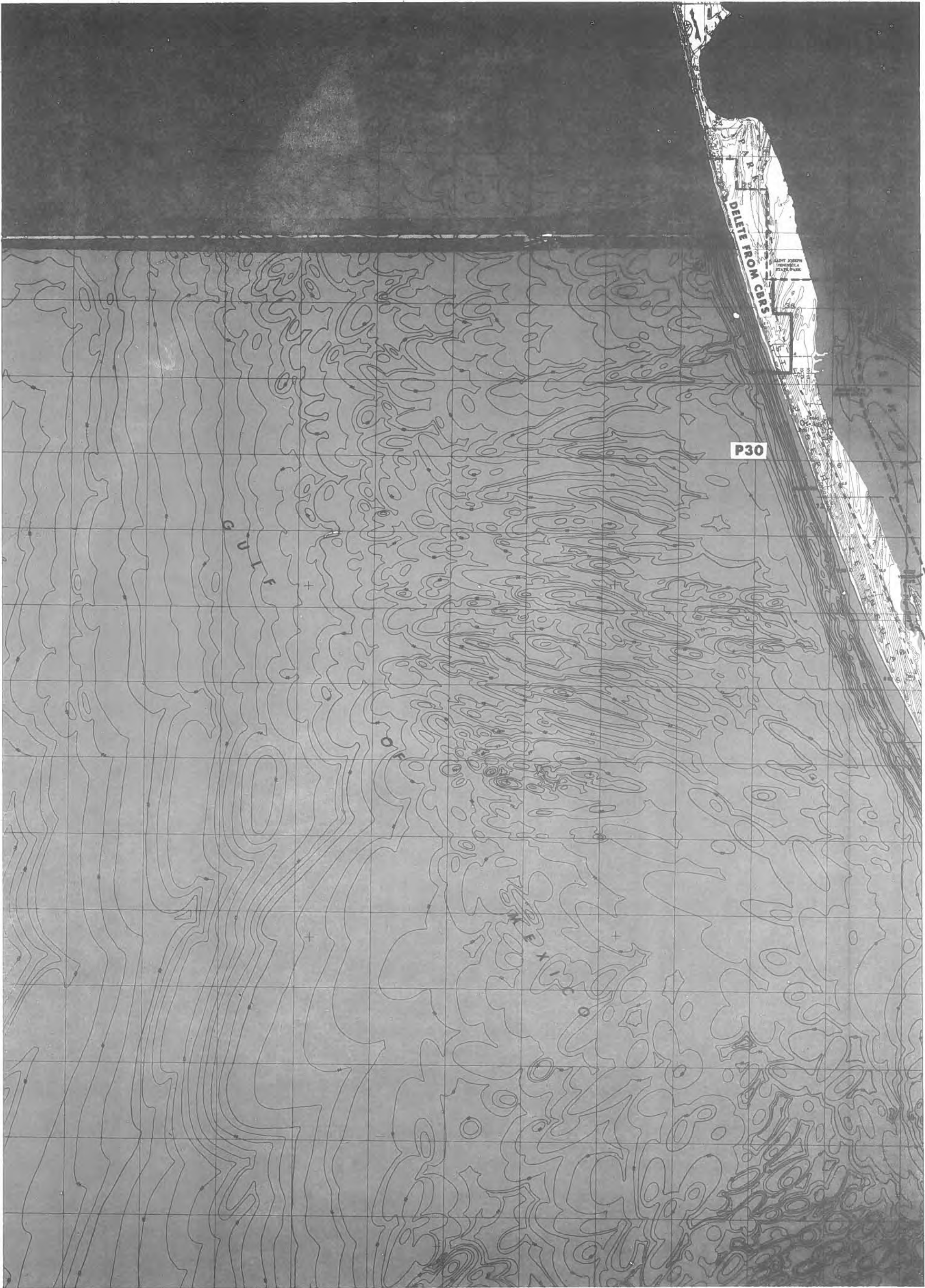
QUADRANGLE
CAPE SAN BLAS
FLORIDA



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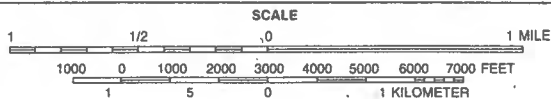


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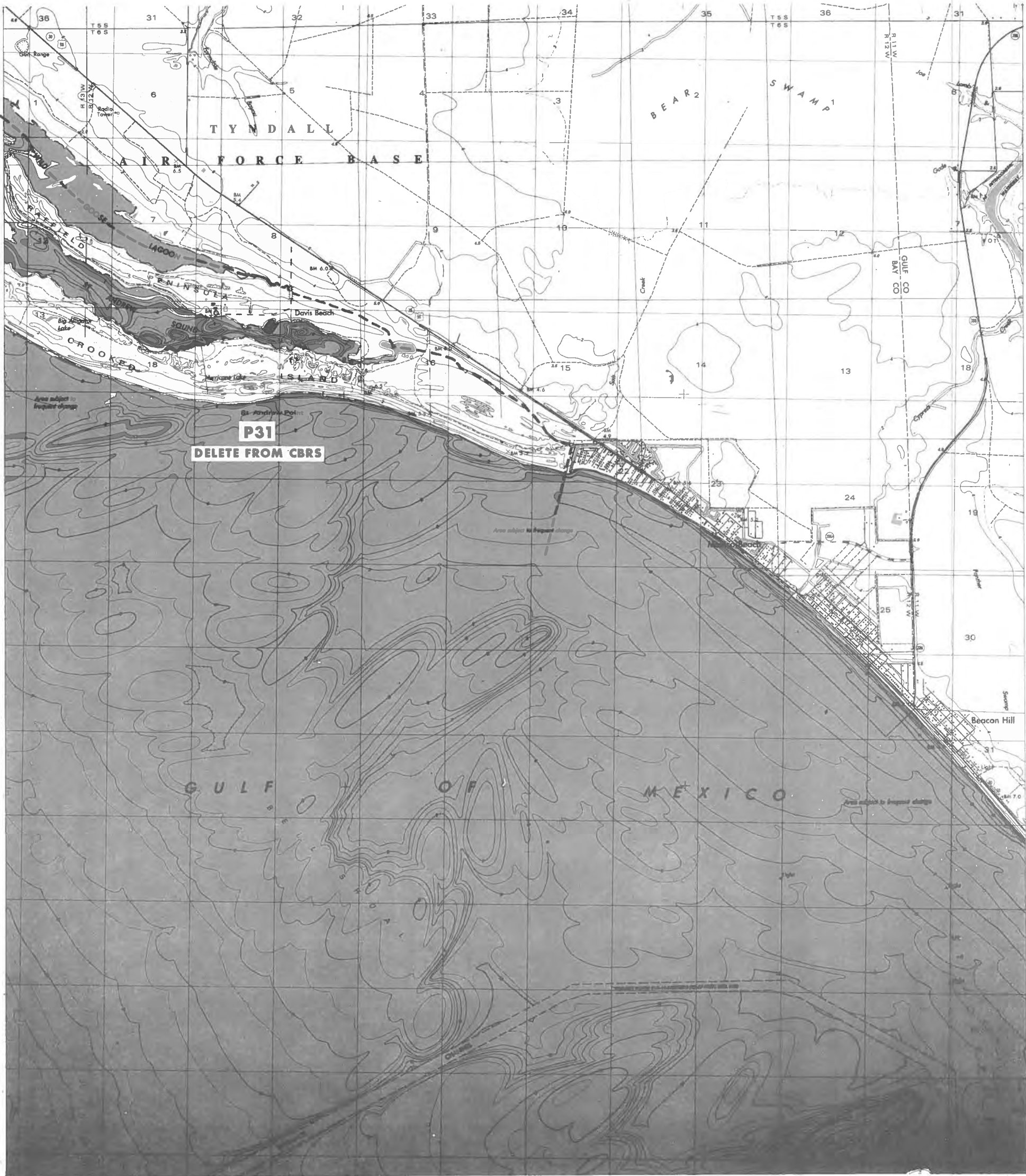
QUADRANGLE
ST. JOSEPH PENINSULA
FLORIDA



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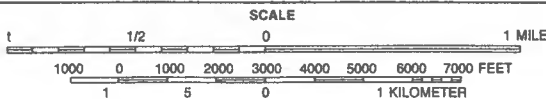


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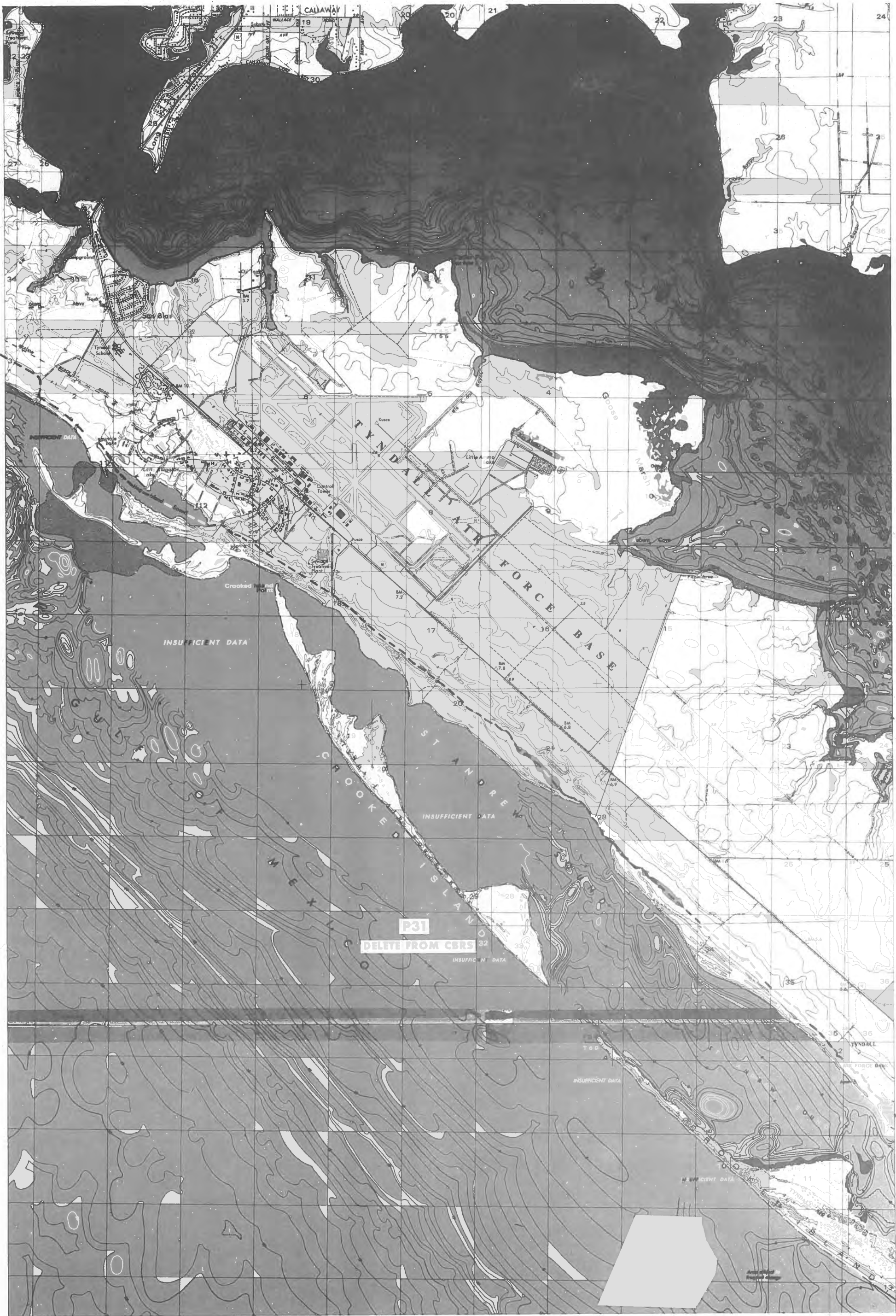
QUADRANGLE
BEACON HILL
FLORIDA



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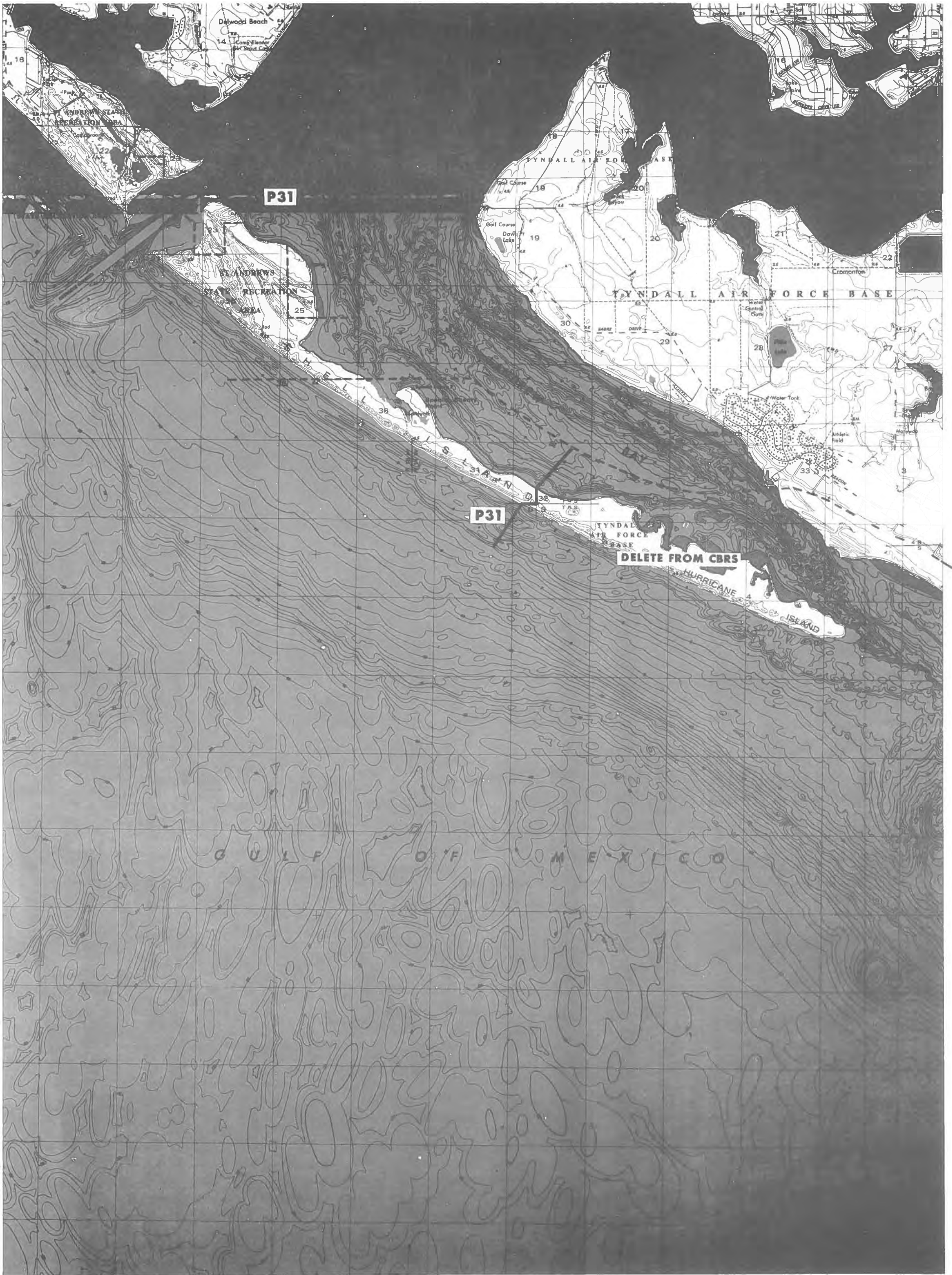
QUADRANGLE
LONG POINT
FLORIDA



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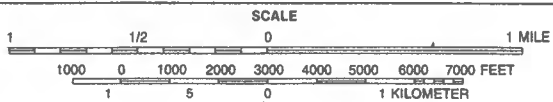


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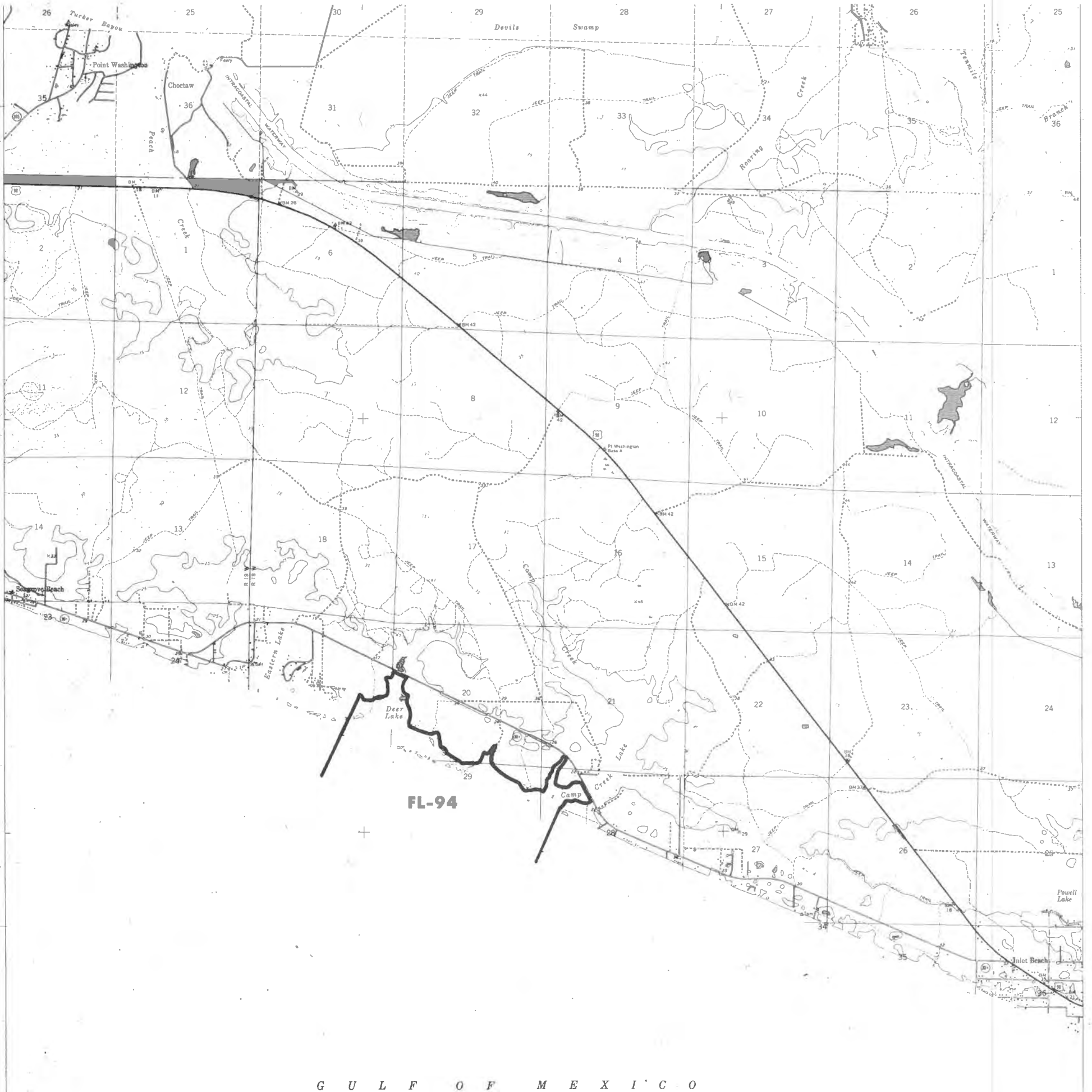
QUADRANGLE
BEACON BEACH
FLORIDA



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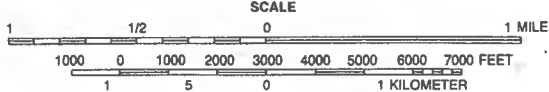


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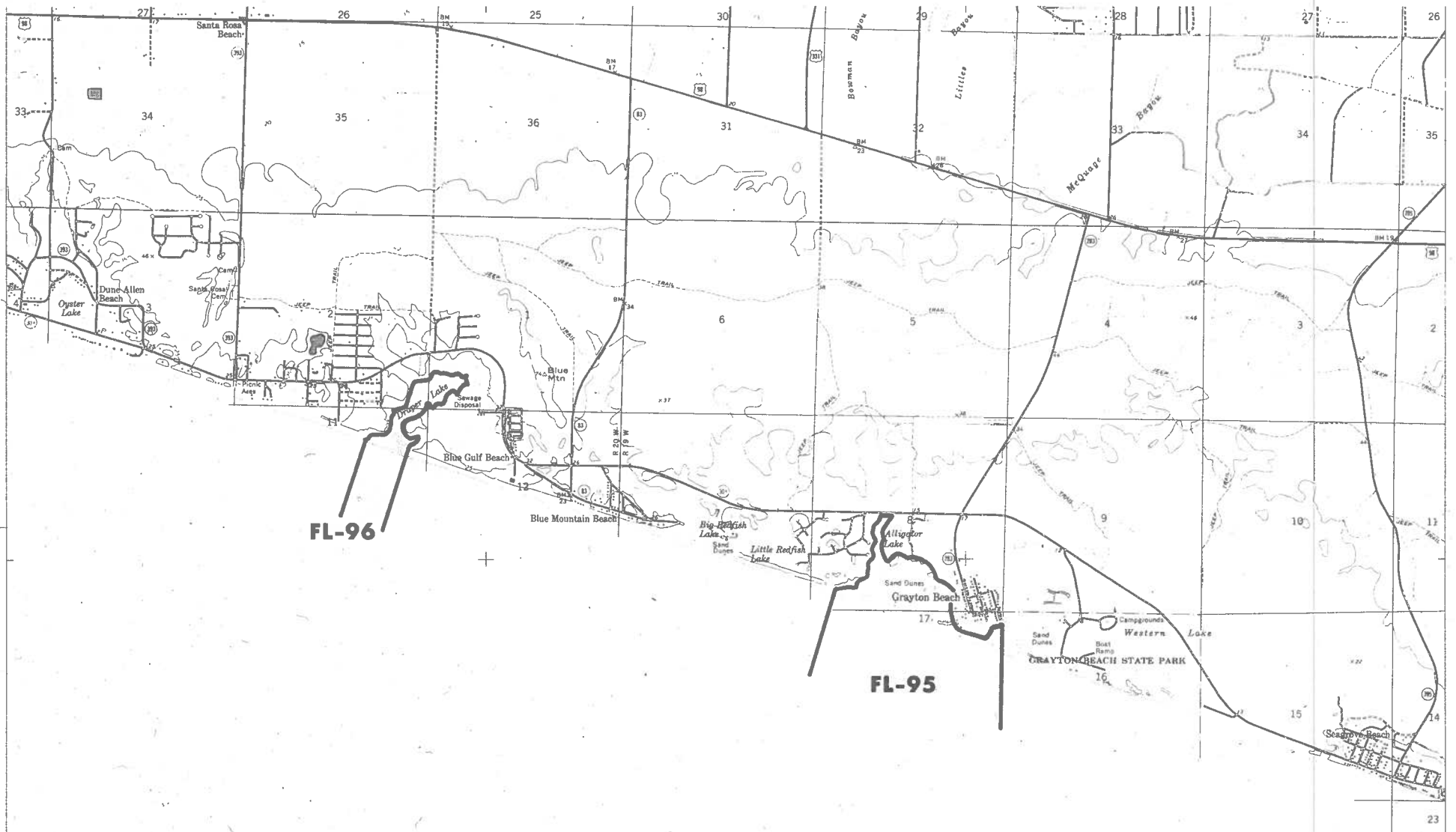
QUADRANGLE
POINT WASHINGTON
FLORIDA



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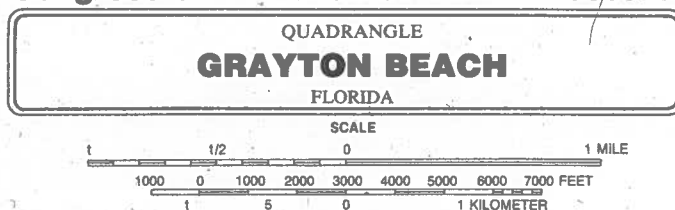
G U L F O F M E X I C O

Report to Congress on the Coastal Barrier Resources System

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DEPARTMENT OF THE INTERIOR
DONALD P. HODEL, SECRETARY



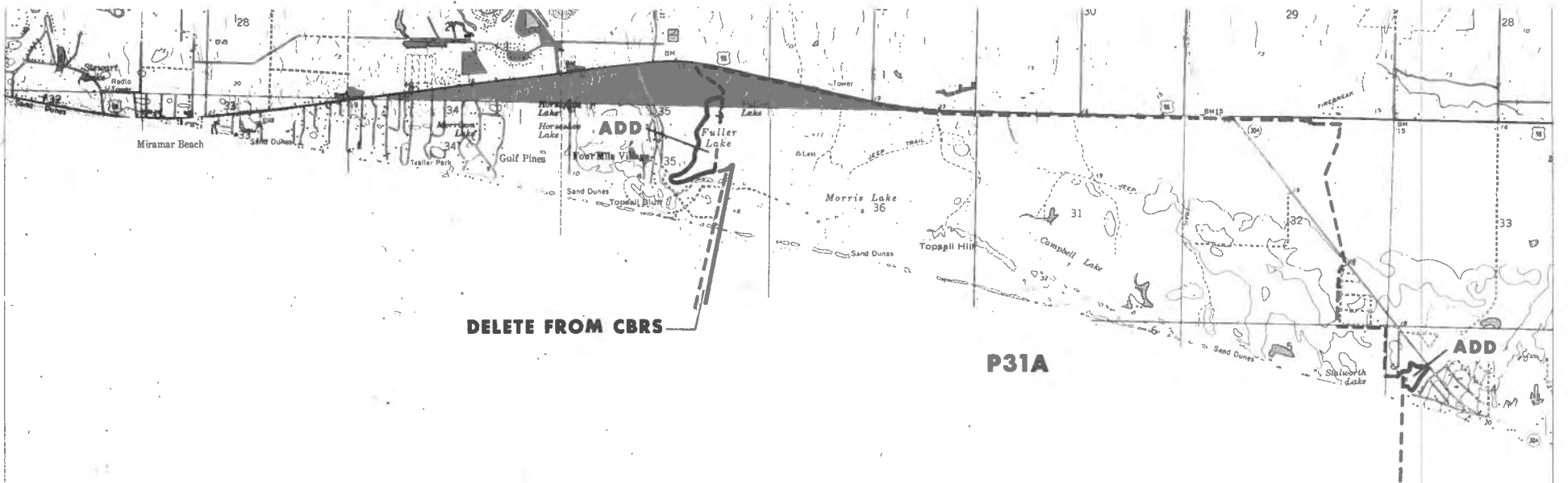
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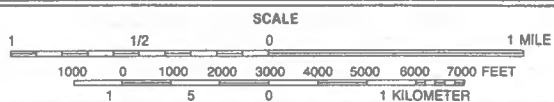
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QUADRANGLE
MIRAMAR BEACH
FLORIDA



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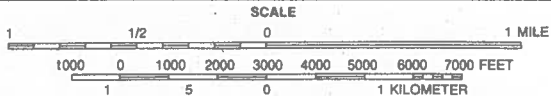


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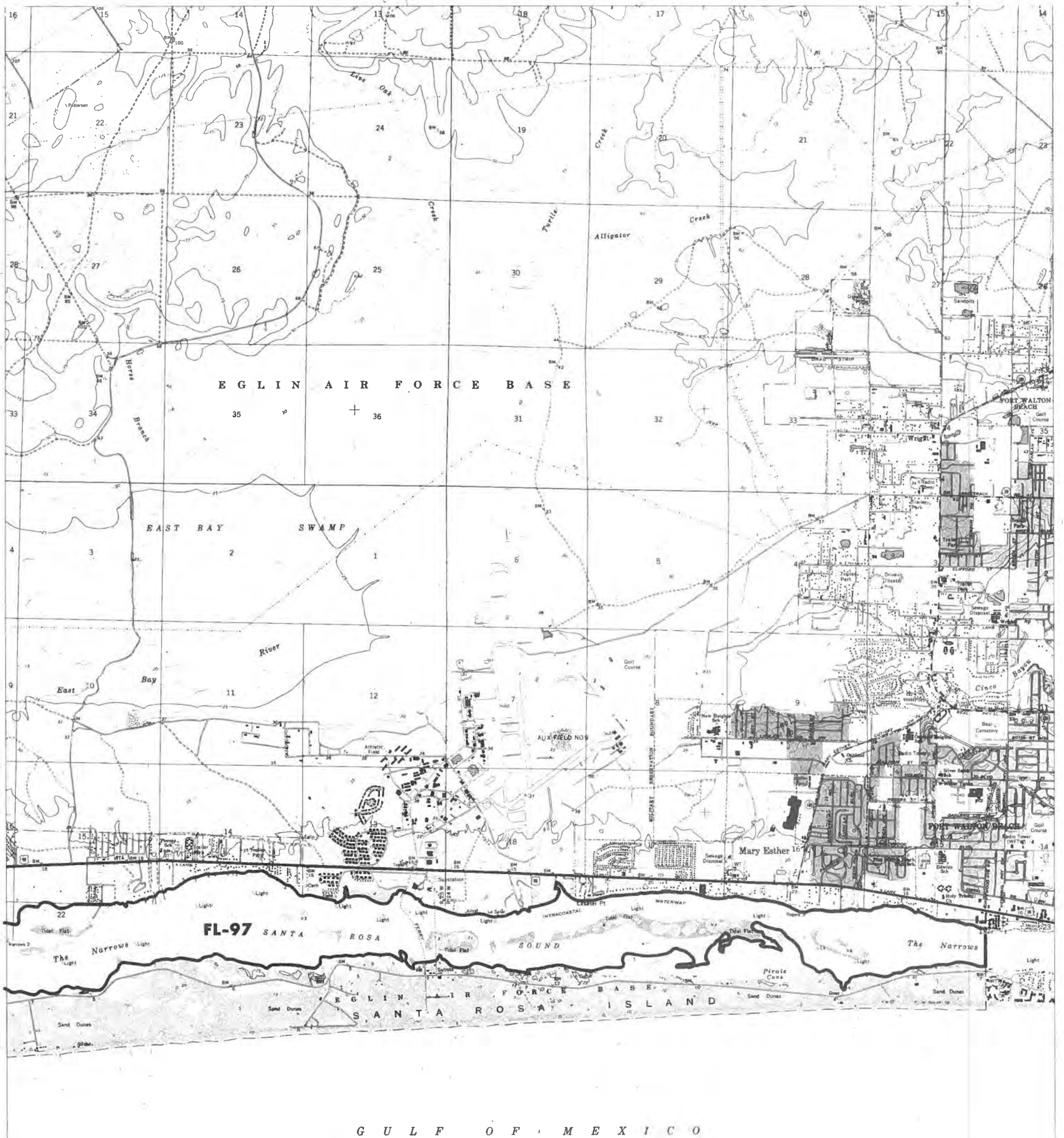
QUADRANGLE
DESTIN
FLORIDA



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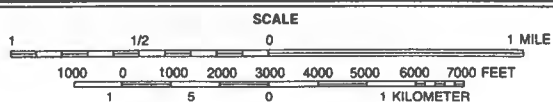


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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
MARY ESTHER
FLORIDA



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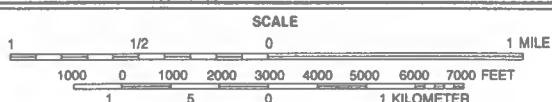
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QUADRANGLE
NAVARRE
FLORIDA



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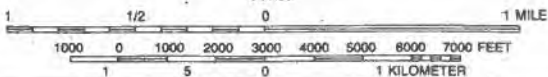


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Report to Congress on the Coastal Barrier Resources System

QUADRANGLE
HOLLEY
FLORIDA

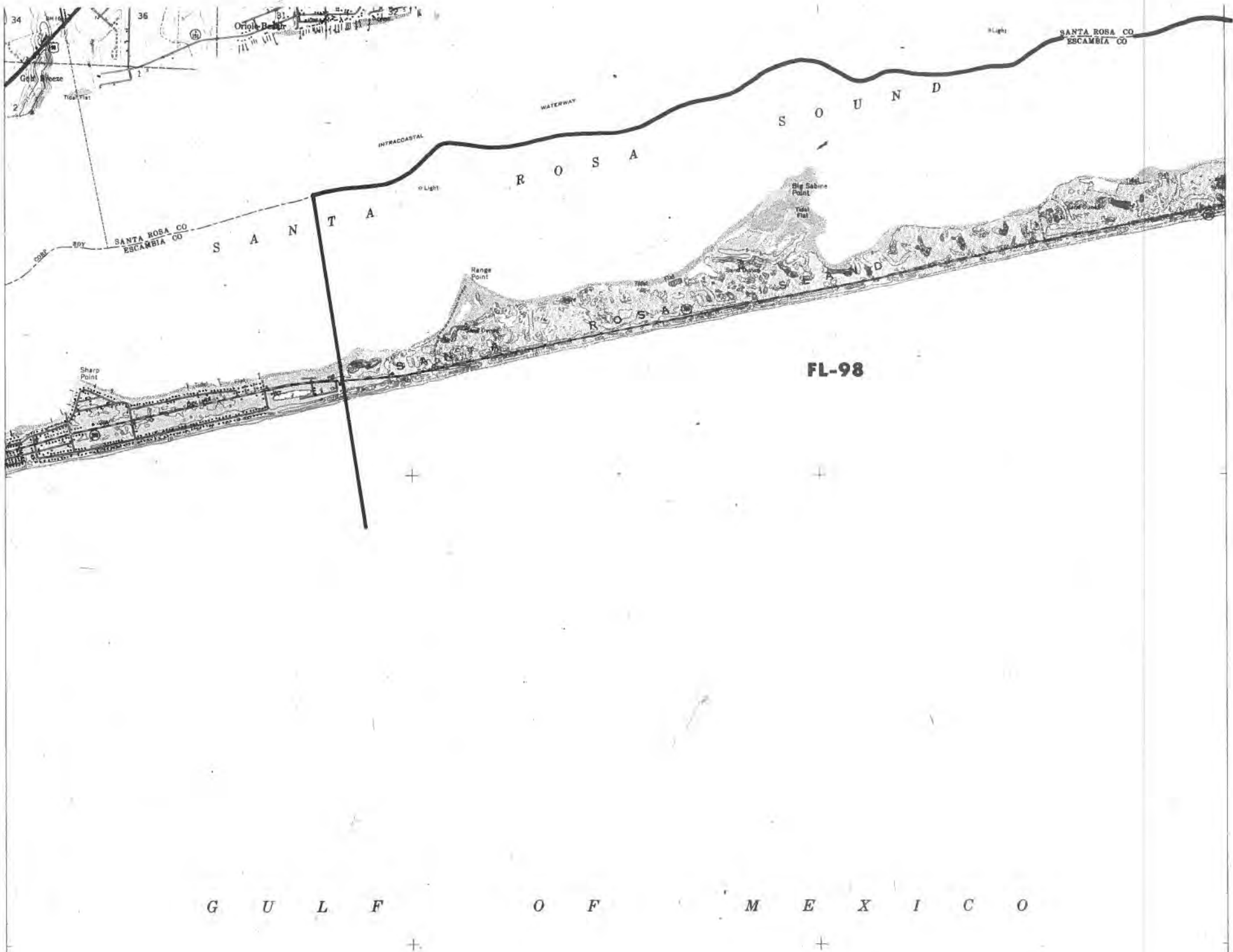
SCALE



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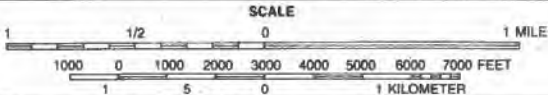


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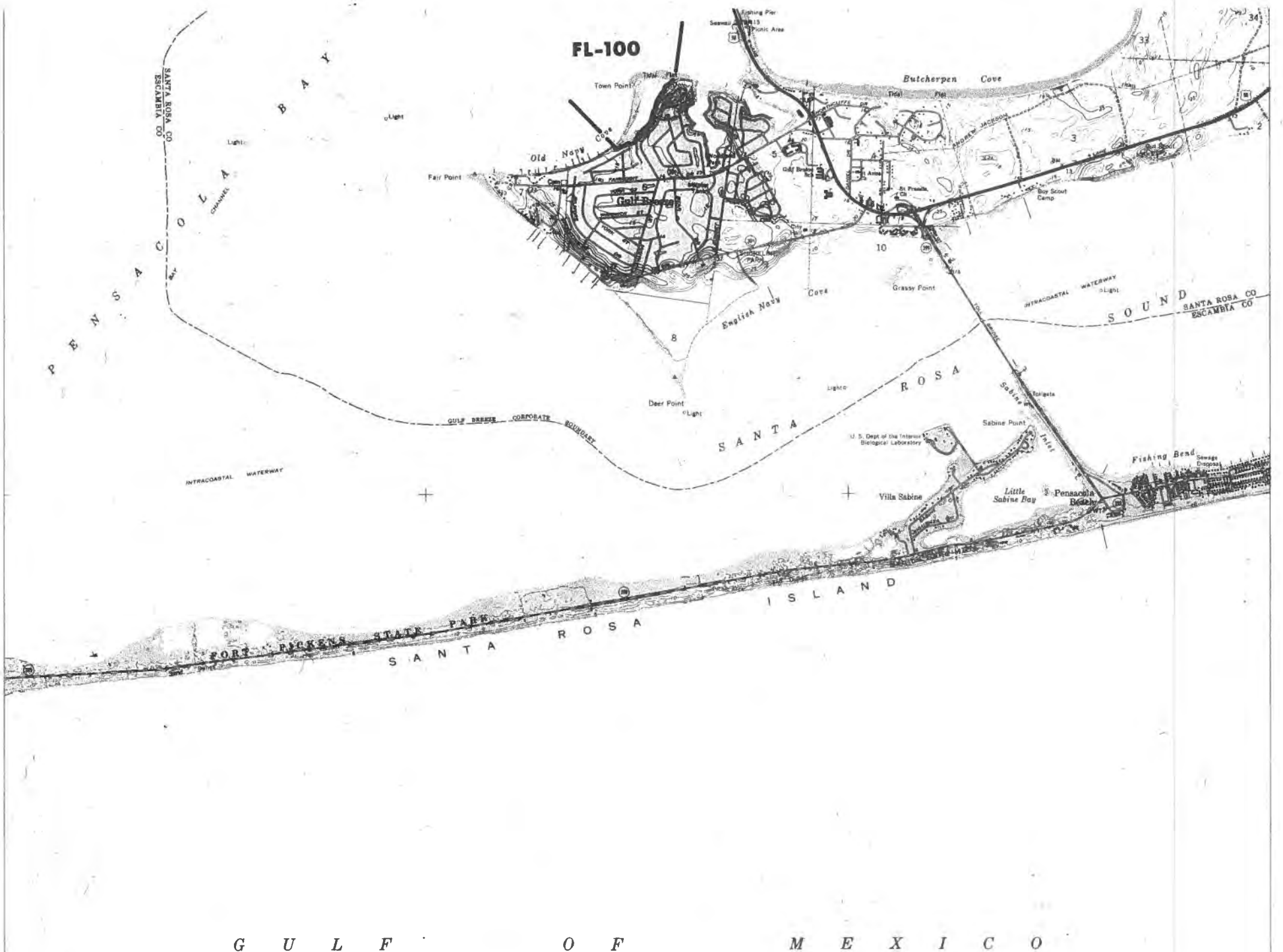
QUADRANGLE
ORIOLE BEACH
FLORIDA



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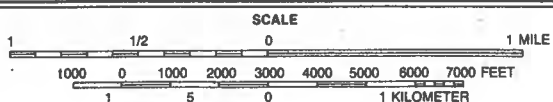


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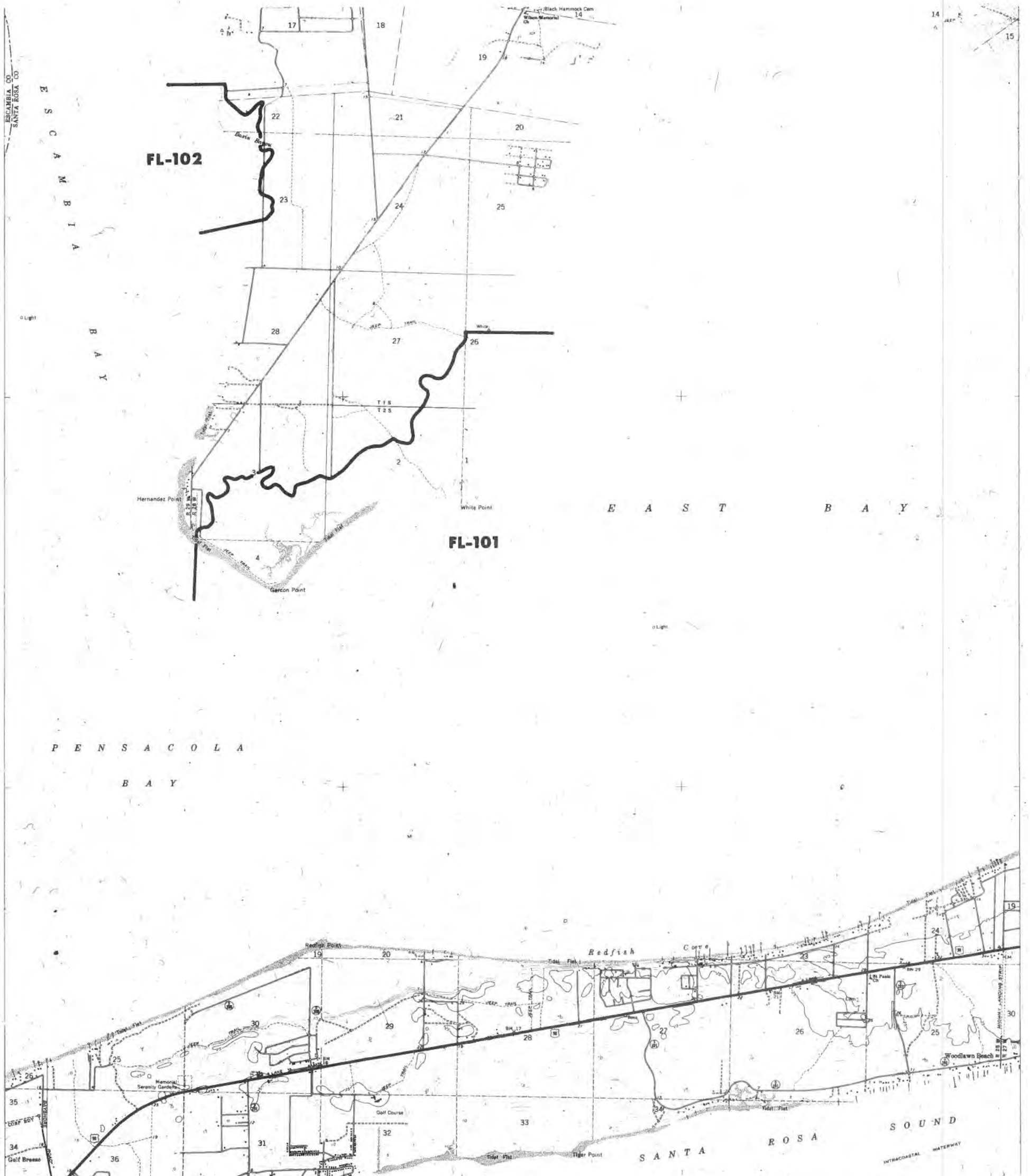
QUADRANGLE
GULF BREEZE
FLORIDA



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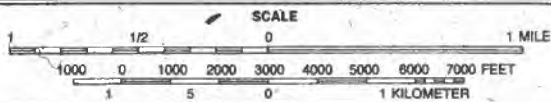


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QUADRANGLE
GARCON POINT
FLORIDA



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