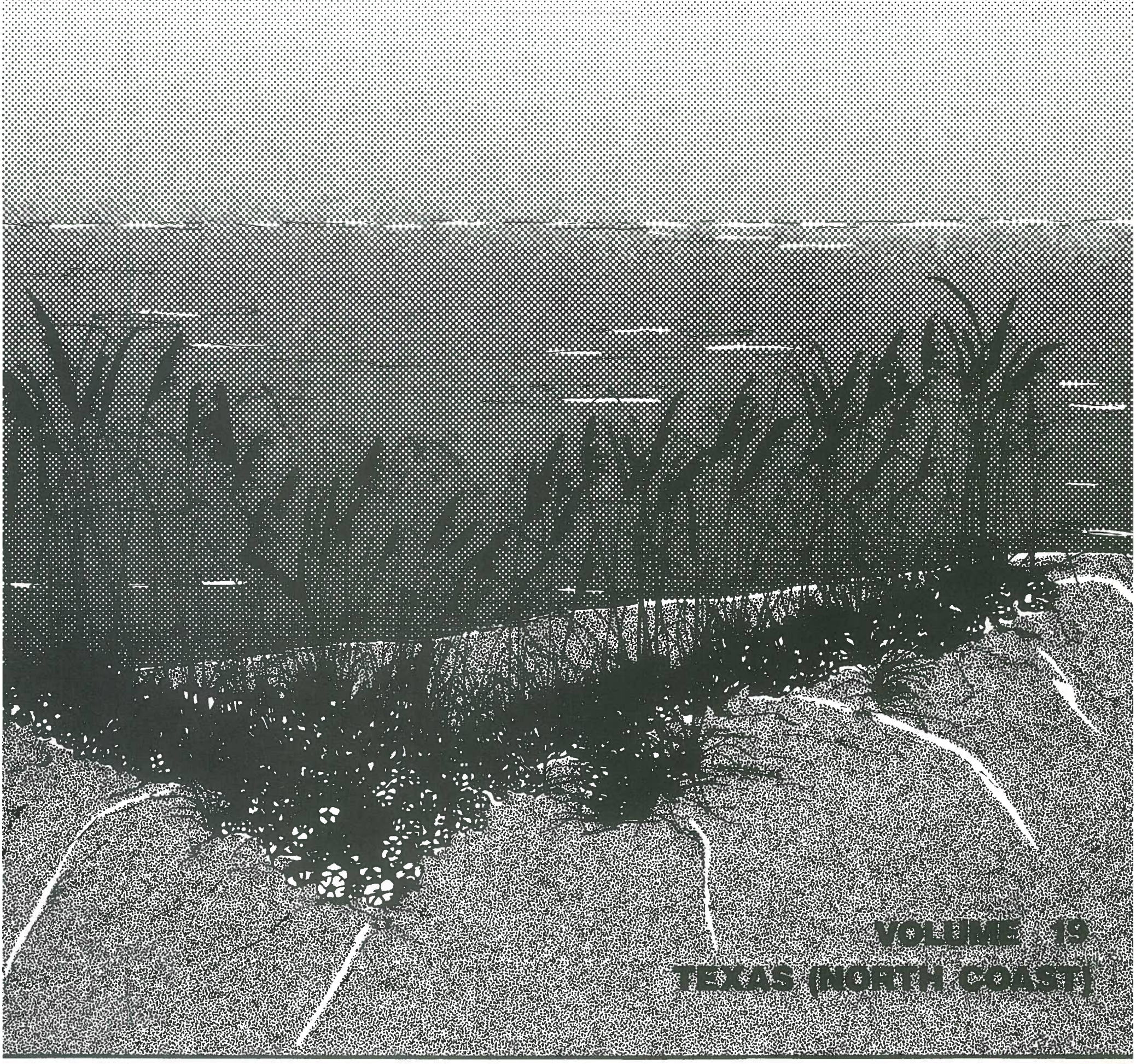
REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

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



VOLUME 19 TEXAS (NORTH COAST)

U.S. Department of the Interior

February 1987

REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

VOLUME 19

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

TEXAS (NORTH COAST)

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

United States Department of the Interior
William P. Horn, Assistant Secretary for Fish and Wildlife and Parks

February 1987

TABLE OF CONTENTS

TEXAS (NORTH 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 along the north coast of Texas 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 north coast of Texas 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

The Texas coast comprises 367 miles of barrier islands, spits, and deltaic shorelines. About 60 percent of this area is eroding (some of it at very rapid rates), 33 percent is essentially stable, and 7 percent is presently accreting. The accreting areas are mostly coastlines that are updrift of human-made obstacles to longshore sand transport, such as jetties and groins (McGowen et al. 1977).

Demographic studies show a rapid increase in the State's coastal population. In 1980, roughly one-third (about 4.3 million people) of the State's population lived within 50 miles of the coast (Davenport 1980). The rapid increase in development on Texas barrier islands over the last decade may be attributed both to the demand for housing by the growing population in the coastal cities and the availability of Federal flood insurance, development subsidies, and disaster relief, all of which reduced the financial risk of owning a second home on the beach.

The range of activities occurring in the Texas coastal zone includes agriculture, cattle ranching, fisheries production, oil production, shipping and transportation, heavy industry, and tourism. Balancing resource use with resource protection has proven a difficult challenge to resource managers working in the region.

COASTAL RESOURCE MANAGEMENT

Texas Coastal Resource Management

Texas coastal management began in 1937 with the establishment of a Coastal Division of the Texas Game and Fish Commission. This was also the year that the U.S. Congress passed the Pittman-Robertson Act, which established an excise tax on firearms and ammunition and earmarked the earnings for wildlife management.

The public trust doctrine forms the basis for State ownership of coastal wetlands: "All lands beneath tidal waters are held in trust for the use and benefit of the whole public." The seaward limit on State lands is the 3-league (9-mile) boundary. The landward limit, on the other hand, varies from place to place, depending on when the title was issued. The landward boundary on littoral parcels with a title issued by Spain, Mexico, or Texas prior to 1840 is mean higher high water. Since Texas adopted common law principles in 1840, titles issued after that date define the boundary as mean high tide. On many flat beaches, and particularly on the extensive wind-tidal flats of south Texas, the difference in these two elevation definitions may translate into large horizontal distances.

Texas Open Beaches Act. This Act, passed in 1959, was one of the first major pieces of Texas coastal legislation. The Act (Texas Natural Resources Code 61.001) states:

> It is declared and affirmed to be the public policy of this State that the public, individually and collectively, shall have the free and unrestricted right of ingress and egress to and from the State-owned beaches bordering on the seaward shore of the Gulf of Mexico, or if the public has acquired a right of use or easement to or over an area by prescription, dedication, or has retained a right by virtue of continuous use in the public, the public shall have the free and unrestricted right of ingress and egress to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico.

Initially a declaration of the public's right to unimpeded use of the State's beaches, the Act has, in effect, become a strong management tool. Public acquisition of private property can be accomplished either by "dedication," which implies formal dedication of title or commonly accepted public usage with the consent of the owner, or by "prescription," which implies that the public may take the land from the private owner.

The issue of State acquisition of private land becomes particularly relevant after a storm-induced shoreline retreat that leaves buildings standing on the public beach, i.e., seaward of the vegetation line.

Shortly after the passage of the Texas Open Beaches Act, the State's right to such land was settled in the "Seaway Company case." The issue in the case was whether barriers could be erected by a private company (on Galveston Island) to limit access to a section of existing beach. The court found that because the beach had been used unrestrictedly by the public for more than 100 years, that use, in effect, constituted an implied dedication of an easement to the public. The humanmade barriers were found to be in violation of this principle.

Other questions concerning public usage of the "historical" beach arose in the aftermath of Hurricane Alicia. Hurricane Alicia made landfall on August 8, 1983, just west of San Luis Pass, to the southwest of Galveston Island. The maximum onshore winds, storm surge, and wave energy were concentrated to the east of landfall, along the western half of Galveston Island. In this area, the vegetation line was eroded up to 130 feet landward; the vertical down-cutting of the beach amounted to about 5 feet. One year later a lot of sand had returned to Galveston Island beaches, presumably from the nearshore bars, yet the vegetation line had not moved seaward (Dupre, pers. comm.).

Two lawsuits were filed as a result of this hurricane; one was settled in October 1984 and the other is still pending. In the first case, the State attorney general filed a suit against those homeowners on Galveston beach whose property was more than 50 percent destroyed and was located between the water and the vegetation line after the hurricane. The State argued that structures in this zone were in violation of the Texas Open Beaches Act and should not be rebuilt. The State won the case with a directed verdict in an Austin court. The homeowners have appealed.

A countersuit has been filed in a Galveston court. In this litigation the plaintiffs (homeowners) argue that the Open Beaches Act does not imply a rolling easement. Hence, when the public beach erodes, so do the public rights. The case has yet to be heard, but the plaintiffs hope that Galveston will provide a court more sympathetic to their views.

Related litigation has been tried before on Galveston Island. In 1970, property owners along the West Beach were charged with violation of the Open Beaches Act. After a delayed trial, as late as 1975, three different judgments were agreed upon by the parties. Most of the defendants (homeowners) refused to concede any public rights to the receding beach, i.e., there was no acceptance of the rolling easement concept. A few homeowners accepted a qualified rolling easement, i.e., they accepted public access to the retreating beach but maintained that the structures on the beach would continue to be used by the owner. A minority of the landowners fully accepted the concept that public rights of beach access should move landward with the receding shoreline.

Coastal Public Lands Management Act (CPLMA). This Act, passed in 1973, pertains to State-owned submerged land and State-owned islands or portions of islands. Originally, coastal public lands were sold for navigation purposes for $1 per acre. In 1969, a moratorium was put on such sales, and in 1973, CPLMA revised the laws to permit only leasing, not purchasing. Also, this Act provided for comprehensive State management of all submerged

lands. It became the State's policy to protect the most biologically sensitive coastal land areas by keeping dredging permits to a minimum and by requiring dredged material to be disposed on upland areas "to the extent practicable."

Coastal Wetlands Acquisition Act. Texas took one more step to prevent wetlands damage with the passage of this Act in 1977. It authorized the Texas Parks and Wildlife Department to acquire, by purchase or condemnation, those coastal wetlands most essential to the public interest. As of 1984, however, no money has actually been appropriated for this use.

State agencies. The regulation of coastal activities, implementation of State and federally funded programs, and studies of coastal issues are distributed among a number of State agencies, including the following.

Governor's Budget and Planning Office. This office collects information and serves as the central coordinating agency for Federal, State, and regional planning.

General Land Office (GLO). This office is responsible for management of State-owned lands, including the submerged bay bottoms. The office collects State revenues accruing from lease of such lands.

School Land Board. This agency and GLO jointly manage leases for energy extraction from State lands.

Texas Coastal and Marine Council. The council was established by the legislature to act as an information agency and to help manage joint State and Federal programs.

Parks and Wildlife Department. The department manages all wildlife resources and operates an extensive State park system.

Department of Highways and Public Transportation. This department is responsible for State funds and Federal contributions to highway construction and maintenance. With the Corps of Engineers, the department is also responsible for administration of the Gulf Intracoastal Waterway (GIWW).

The Texas Catastrophe Property Insurance Association (CATPOOL) program. This program was created by the Texas Legislature in the 1960's, after Hurricanes Carla, Celia, and Beulah hit coastal settlements on the upper, central, and lower Texas coast. This widespread hurricane impact generated legislative support for a program to protect homeowners and persons with legitimate business interests along the coast who found that they were unable to secure insurance through conventional sources. CATPOOL requires all insurance companies licensed to write property insurance in Texas to share the risk of major natural catastrophes on a formula basis. The insurance covers wind, hail, and fire damage. The State of Texas does not offer flood insurance.

There is no rate subsidy in the Texas CATPOOL program, but insurance companies are entitled to a premium tax credit if the total aggregate payment after a disaster exceeds $100 million. After Hurricane Allen (1980), this provision did not come into effect because aggregate payments were only about $14 million (Dyer 1983). It appears, however, that after Hurricane Alicia (1983), the total payments from CATPOOL may be on the order of $150 to $200 million (Schwartz 1983). This would cause the tax credit provision to go into effect.

The CATPOOL program subsidizes coastal property owners at two levels: (1) other property owners subsidize high-hazard coastal development through escalated premiums, and (2) the taxpayers of the State subsidize the program through the premium tax credit for catastrophic losses. There are liability limits on individual policies. The limit for private homes is $200,000; for commercial properties the policies may go up to $1,000,000. The total current liability for the CATPOOL program is $2.75 billion (J. Douglas, State Insurance Board; pers. comm.).

The costly impact of Hurricane Alicia has encouraged a reassessment of the CATPOOL program. Some argue that the State should follow the Federal example set by CBRA and reduce the State subsidies for insurance on coastal barriers. Others argue that the State should step in to provide the insurance coverage being withdrawn through the passage of CBRA.

Sand Dune Protection Act. In 1970, the State passed a requirement that each county commission issue permits for the removal of sand, marl, gravel, and shell within 1,500 feet of any public beach. The Sand Dune Protection Act followed this requirement in 1973. This Act authorized those counties with jurisdiction over coastal barriers to establish a dune protection line 1,000 feet landward of the mean high tide line and to require developers to obtain a permit from the county commission to disturb a dune or vegetation seaward of the line.

Adoption of this Act by the individual counties is optional. To date, Nueces, Galveston, and Matagorda Counties have adopted dune protection lines; only Nueces County has included all of the barrier island sand dunes under its dune protection scheme. If a dune area under consideration for some alteration is judged as critical to the protection of State-owned lands, then the General Land Office may comment on the proposed activities. There is no required State permit, however, nor can the Land Office comment if the county has not adopted a dune protection line.

Local Actions

A unique approach to dune protection has been taken in Port Aransas (Nueces County), where the builders together with the city government, the county, and the local water district have agreed on deed restrictions placed on development in the first row of unstabilized dunes. They have also agreed that no seawalls or bulkheads are to be constructed.

New developments along the Texas coast increasingly face the bay margins rather than the open gulf. One particular case is the Packery Point yacht facility under construction at the northern tip of Padre Island near Corpus Christi. This $150 million facility will have a 40-acre marina and 60 acres of land development. Under present plans, the marina will connect with Packery Channel and the GIWW. Its nearest connection to the Gulf of Mexico, however, is Aransas Pass, some 30 miles away.

In return for Federal and State permits for the Packery Point Marina, the developer agreed to mitigation including a commitment to raise 2 acres of State-owned submerged land to a 3-foot elevation, and to lower another 7.6 acres to 1 foot below mean sea level and plant marsh grass for waterbird habitat there.

The Texas Open Beaches Act (see earlier discussion) has traditionally been interpreted to imply that the beaches should remain accessible for vehicular traffic. Consequently, traffic congestion and, at times, serious accidents have been common summer scenes on Texas beaches. The City of Galveston closed its beaches to summertime driving in 1984 and solved the accessibility issue by providing parking facilities and access roads at less than 1-mile spacing along shore. Concurrently, the city also purchased land for a large number of "pocket beach" parks along the island.

Private Sector Initiatives

Small parcels of land owned by private conservation organizations exist all along the Texas coast. One example is Bird Island in West Bay (Galveston Bay) behind the town of Jamaica Beach. This property is owned and managed by the National Audubon Society. At present, negotiations are underway regarding donation of the western end of the Matagorda Peninsula to The Nature Conservancy.

EXISTING CBRS UNITS

The Texas CBRS units are characteristically sandy barriers with grass and shrub-covered ridges. Because of the stability of the Texas coastal area, as compared to the Mississippi Delta region of Louisiana for example, the barriers are generally older. Galveston and Matagorda Islands date back nearly 4,000 years. The other wide barriers are probably of similar age.

A brief description of each existing CBRS unit along the north coast of Texas is provided below. Each unit is identified by its number, name, and county.

T01-Sea Rim (Jefferson). This unit is bounded on the east by Sabine Pass and the Port Arthur Ship Channel, and on the west by a line running south from Fence Lake. The northern boundary trends southwesterly near the shores of Keith Lake and Salt Lake. The coastal segment of T01 is situated between the Texas Point National Wildlife Refuge to the east and Sea Rim State Park to the west.

A modern strandplain and chenier system characterize this unit; cheniers do not occur elsewhere along the Texas coastline. These cheniers, or beach ridge deposits, occur within extensive salt and brackish marshes. The relief of the ridges generally does not exceed 5 feet. Because of the generally low regional elevation, storm surges generated by hurricanes can submerge the entire unit. An active processes map published by Fisher et al. (1973) indicates that the entire area was inundated by Hurricanes Carla (1962) and Beulah (1967).

T02A-High Island (Jefferson, Chambers, and Galveston). This unit extends from the western boundary of Sea Rim State Park to the community of Gilchrist, west of High Island. The community and industries of High Island are atop a salt dome and are excluded from the CBRS unit, but Horseshoe Marsh just north of High Island is part of the unit. The landward boundary of the High Island unit is the GIWW.

The beaches of T02A are low-lying, narrow (200 feet between the low-tide and first line of vegetation), and eroding; they contain much shell material. Storm-generated waves frequently leave washover fans in the back beach region (Fisher et al. 1973). The region landward of the beach is marked by freshwater to brackish marshes, with predominantly fine-grained, muddy substrate. A few mesquite and live oaks are found on the strandplain flats. Sites of active or potential washover channels have been identified west of the island. Hurricanes Beulah and Carla flooded the entire unit except for High Island itself.

T03A-Bolivar Peninsular (Galveston). This unit comprises six subunits and extends roughly from Rollover Pass to within a mile of the peninsula's southwestern tip. New land formed by spit accretion on the west side of the peninsula is considered State-owned (Fisher et al. 1973). The six subunits are contained between the gulf and the GIWW.

Bolivar Peninsula, the first detached landform observed west of the Louisiana-Texas border, is formed of prograded beach ridges. The source of sand for the peninsula is thought to be eroded deltaic headlands near High Island. The predominant southwesterly longshore sediment transport in this area supports that observation. Swales, the lower elevations between beach ridges, are sites for finer sediment accumulation and salt marsh communities.

In the past, Bolivar Peninsula was incised by several tidal inlets, two of which have left noticeable deposits on the landward side of the beach ridge system. The saltwater marsh that extends in two lobate fans back into East Bay has grown over flood-tidal deltas deposited by past tidal inlets. Beach ridges that curve sharply landward are other evidences of past inlet locations. The saltwater marsh that borders the GIWW is separated from the beach ridge system by sparsely vegetated to unvegetated subaerial tidal flats that are characterized by seasonal evaporite crusts.

Topographic maps of the Bolivar Peninsula indicate that the highest point of the beach ridges does not, on average, lie much more than 5 feet above mean sea level. The susceptibility of this area to flooding was

CBRS UNITS IN TEXAS ESTABLISHED BY CONGRESS, 1982

Unit Name	Unit ID Code	County	Shoreline Length (miles)	Area (acres)
Sea Rim	T01	Jefferson	2.5	15,672.3
High Island	T02A	Jefferson		
		Chambers		
		Galveston	11.6	22,241.2
Bolivar Penisula	T03A	Galveston	6.0	6,941.9
Follets Island	T04	Brazoria	9.4	3,192.4
Brazos River Complex	T05	Brazoria	4.0	4,109.8
Sargent Beach	T06	Matagorda	4.5	616.8
Matagorda Peninsula	T07	Matagorda		
		Calhoun	52.6	25,613.5
San Jose Island				
Complex	T08	Calhoun		
		Aransas	32.9	49,359.4
Totals:			123.5	127,747.3

demonstrated by Hurricanes Carla and Beulah, when the entire peninsula was submerged. The beach along Bolivar Peninsula is narrow and erosive at the eastern end of the unit, but widens to the west. The beach is accreting near the inlet at the westernmost end of the peninsula bounding the Bolivar Roads Ship Channel.

T04-Follets Island (Brazoria). This unit lies between San Luis Island to the east and the community of Surfside Beach to the west. It is continuous for approximately 10 miles except for three breaks, or "corridors," which are established communities. Gulf beaches form the seaward boundary of the unit, and the State-owned submerged lands of Christmas and Drum Bays are the landward edge. The landward and westernmost portion of the CBRS unit is separated from Brazoria National Wildlife Refuge by the GIWW.

The susceptibility of this unit to wave attack and inundation is shown by the presence of at least five regions of frequent storm washovers. Although these channels quickly fill and are dry under regular wave conditions, they are easily reoccupied during storm wave conditions. The back side of Follets Island is covered with small, vegetated washover fans.

Follets Island is characterized by ridge and swale topography. The beach ridges may be lightly vegetated with grass while the swales are grass covered or mud filled. Bordering the beach ridges are wind-tidal flats (Fisher et al. 1973). These essentially barren flats support algae communities during infrequent, seasonal flooding. A large, unvegetated active washover fan is situated south of the western portion of Christmas Bay. Smaller, but still distinct, fanlike deposits are observable in the southwestern corner of Drum Bay and the easternmost portion of Swan Lake.

T05-Brazos River Complex (Brazoria). This unit is broken into three subunits. From east to west, they are Quintana Beach, Bryan Beach, and the area between the San Bernard River and the new Brazos River Channel. The accreting land of the new Brazos River Delta south of the westernmost subunit is not included. The Quintana Beach and Bryan Beach subunits are separated by a small coastal community about one-third of a mile wide. The Bryan Beach State Recreation Area is between the Bryan Beach subunit and the new Brazos River Channel. The GIWW is the unit's landward boundary.

The Brazos-Colorado River deltaic system supplied the sediment that formed the Texas coast between San Luis Pass and Brown Cedar Cut, including CBRS unit T05 and Sargent Beach, unit T06, further west-southwest. These beaches exhibit ridge and swale topography with elevations generally lower than 5 feet. As a result, this unit is highly susceptible to damaging storm surge and wave attacks. This region has been the site of landfall for two minor hurricanes, Fern (1971) and Delia (1973), which produced 6-foot and 4.5-foot surges, respectively.

Since the Brazos River was diverted to its new channel in 1929, the beachfronts of Quintana Beach and Bryan Beach have been eroding at an average rate of 6.3 feet per year. To the southeast of the new river channel, a delta is building out at an average annual rate of 19.6 feet (Morton and Pieper 1975b). The new Brazos River Delta land lies south of the westernmost subunit of T05 and is not included in it. This subunit, which has no beachfront exposure, is composed primarily of low elevation saltwater marsh, as are the landward portions of the eastern subunits from the rear of the barrier to the GIWW. The landward fringes of the unit are sites of spoil mounds dredged from the GIWW.

T06-Sargent Beach (Matagorda). This unit is a narrow stretch of coastline which extends 4.5 miles westward from the western edge of Cedar Lakes to a small, apparently expanding coastal community. The landward boundary is, again, the GIWW.

The dominant southwest transport of incident waves redistributed the sands from the

Brazos-Colorado Delta to form this stretch of coastline. Without a recent source, less sediment is moving into the system than is moving out (to the southwest) of the system. According to Morton and Pieper (1975b), Sargent Beach is eroding at rates in excess of 10 feet per year.

Sargent Beach is narrow and low in elevation (5 feet). Its discontinuous dune line is subject to overwash by hurricane storm surge and accompanying waves. There are records of extreme hurricane storm surges which inundated the entire shoreline between San Luis Pass and Brown Cedar Cut (U.S. Army Corps 1962). In fact, low elevations make this stretch of coastline one of those most affected by severe storms in the southern coastal States. At least a dozen damaging storms have affected the immediate vicinity of Freeport. Because most of this coastline is in a natural state, poststorm damage is limited to the blanketing of beach vegetation under a layer of overwashed sands.

T07-Matagorda Peninsula (Matagorda and Calhoun). This unit fronts East Matagorda and Matagorda Bays between Caney Creek to the east and Pass Cavallo to the west. The whole peninsula is included in the unit except for a small area adjacent to and east of the Colorado River. According to aerial photographs, a small development exists in this area.

The source of sand for Matagorda Peninsula was the Brazos-Colorado deltaic system and previously deposited innershelf sands. Matagorda Peninsula formed as a southwestwardly growing barrier spit. Between 1925 and 1935, the Colorado River built across and split Matagorda Bay. In 1936, a channel was dredged through the peninsula, connecting it with the gulf. The volume of sediment supplied by the river since then has been less than that eroded by longshore currents, causing the peninsula to remain in an eroding state.

Matagorda Peninsula is a low-profile barrier east of the Colorado River and a high profile barrier to the west. East of the Colorado, discontinuous dunes are low (5 feet); west of the river, some isolated dunes attain heights of 25 feet. More continuous dunes, from 10 to 15 feet high, are found between Greens Bayou and the Matagorda Ship Channel. From east to west along the peninsula, the beach width increases (100 to 400 feet) with a more abundant supply of sand.

Matagorda Peninsula is subject to damage from high waves and storm surge during hurricanes and tropical storms. When Hurricane Carla (1962) crossed the Texas coast at Pass Cavallo, its storm surge, in excess of 12 feet, submerged a large part of the Matagorda Peninsula. From the Colorado River east to the CBRS unit boundary, many washover channels have been observed. West of the Colorado to Green's Bayou, fewer washover channels are found. Only one washover channel was identified by Morton et al. (1976) between Greens Bayou and the westernmost extent of the unit at Decros Point (at Pass Cavallo). According to Morton et al. (1976), the Matagorda Peninsula is eroding at high rates on the western shore of Brown Cedar Cut (10 to 15 feet per year), the eastern shore of Greens Bayou (5 to 10 feet per year), and at Decros Point (5 to 15 feet per year). The north jetty of Matagorda Ship Channel has caused the updrift beach on Matagorda Peninsula to accrete. The remainder of the island is undergoing erosion at a rate of less than 5 feet per year.

T08-San Jose Island Complex (Calhoun and Aransas). This unit includes Matagorda Island from Panther Point Lake southward to Aransas Pass. The complex, with beaches between 200 and 350 feet wide, separates Aransas and Espiritu Santo Bays from the Gulf of Mexico. San Jose Island is also part of the unit. The more northern portion of lower Matagorda Island between Panther Point and Pass Cavallo is apparently included in Matagorda National Wildlife Refuge. The saltwater marsh on the bay side of Matagorda Island, north and east of Mesquite Bay, is also part of this refuge.

The foredune system of these high-profile barriers is relatively continuous and ranges up to 50 feet in elevation. However, the average elevation is between 15 and 20 feet. This tremendous bank of sand absorbs erosive waves during storm conditions. Storm waves break upon the foredune line and pull the sand to offshore deposits. Poststorm rebuilding of the beach and foredune ridges has been observed in this system. Few washover and potential washover channels were identified by Morton and Pieper (1976) for this region. Hurricane Carla, with its storm surge of over 12 feet, flooded 95 percent of Matagorda and San Jose Islands. Beulah, a hurricane of average intensity, caused extensive flooding in low-lying areas.

PROPOSED ADDITIONS AND MODIFICATIONS

This section identifies proposed recommendations for additions to and deletions from the Coastal Barrier Resources System on the north coast of Texas. 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 Texas reviewed these documents and is opposed to any additions to the Coastal Barrier Resources System. Several coastal counties and communities requested deletion of those units with highway access to allow development with Federal Government subsidies. Both the State and local arguments revolved around the need to offset declining oil and gas revenues with income from coastal recreational and residential development.

The Department received 682 comments (601 of which were petition signatures) from private individuals and organizations concerning the

entire State of Texas. The majority of these (including all of the petitions) opposed the CBRS expansion.

The Department of the Interior proposes to recommend that all undeveloped, unprotected coastal barriers and associated aquatic habitats, including secondary barriers within major embayments, be added to the Coastal Barrier Resources System. In Texas, most coastal aquatic habitats are under the jurisdiction of the State's General Land Office. The Department has carefully examined the legal status of these lands and concludes that they do not meet the definition of "otherwise protected." Indeed,the State argues against their addition to CBRS specifically to allow for development where it is feasible. The Department notes that if these lands are added by Congress as recommended, the State may still allow and/or subsidize development of these areas, but the State and/or the developer would assume the risk.

The Town of Crystal Beach requested that those segments of CBRS unit T03A, Bolivar Peninsula, within the town limits be deleted from the CBRS. The City of Quintana made a similar request for CBRS unit T05, Brazos River Complex. Political boundaries have never been a criterion for delineating CBRS units. All of T03A and T05 met the definition of an undeveloped coastal barrier in 1982; therefore, the Department recommends no deletions in either of these units.

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.

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS ON THE NORTH COAST OF TEXAS

Unit ID Code[a]	Unit Name[b]	County	Congress. Dist.[c]	Shoreline Length (miles)[d]	Area (acres)[e]	Proposed Recommendation[f]
T01	Sea Rim	Jefferson	9	2.50	15,672	Delete State/ federally (FWS) protected areas from inventory. No change to existing CBRS unit
T02A	High Island	Jefferson Chambers Galveston	9	11.60	23,454	Delete federally (FWS) protected area from inventory. Add wetlands to existing CBRS unit
T03A	Bolivar Peninsula	Galveston	9	9.60	21,497	Add new area to existing CBRS unit; no change from inventory
TX-01	Fort Travis	Galveston	9	—	—	Locally protected; no further consideration
TX-02	East Beach	Galveston	9	—	—	State protected; no further consideration
TX-03	West Pelican Spit	Galveston	9	—	—	State protected; no further consideration
TX-04	Swan Lake	Galveston	9	2.10	790	Add to CBRS; no change from inventory
TX-05	Galveston Island	Galveston	9	—	—	State protected; no further consideration

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS ON THE NORTH COAST OF TEXAS (CONTINUED)

Unit ID Code[a]	Unit Name[b]	County	Congress. Dist.[c]	Shoreline Length (miles)[d]	Area (acres)[e]	Proposed Recommendation[f]
TX-06	Snake Island	Galveston	9	—	—	State protected; no further consideration
TX-07	Bay Harbor	Galveston	9	—	—	Locally protected; no further consideration
TX-08	San Luis Pass	Galveston Brazoria	22	—	—	State protected; no further consideration
T04	Follets Island	Brazoria	22	9.40	27,374	Delete federally protected (FWS) area; add wetlands to existing CBRS unit
T05	Brazos River Complex	Brazoria	22	7.85	11,225	Delete State-protected area and developed area from inventory. Add new area to existing CBRS unit
T06	Sargent Beach	Brazoria Matagora	22 14	4.50	3,270	Delete State/ federally (FWS) protected area; add wetlands to existing CBRS unit
T07	Matagorda Peninsula	Matagorda Calhoun	14	55.62	88,713	Add new area to existing CBRS unit; no change from inventory
TX-09	Coon Island Bay	Calhoun	14	5.54	558	Add to CBRS; no change from inventory
TX-10	Shell Beach	Matagorda	14	1.29	775	Add to CBRS; no change from inventory
TX-11	Blackberry Island	Calhoun	14	5.37	11,512	Delete federally protected (FWS) area from inventory. Add secondary barrier to proposed unit
TX-12	Shoalwater Bay	Calhoun	14	10.63	15,715	Add to CBRS; no change from inventory
T08	San Jose Island Complex	Calhoun Aransas Nueces	14 27	34.55	71,167	Delete federally protected (FWS) area from inventory and from existing CBRS unit. Add new area to existing CBRS unit
TX-13	Goose Island	Aransas	14	—	—	State protected; no further consideration

(continued)

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS ON THE NORTH COAST OF TEXAS (CONCLUDED)

Unit ID Code[a]	Unit Name[b]	County	Congress. Dist.[c]	Shoreline Length (miles)[d]	Area (acres)[e]	Proposed Recommendation[f]
TX-14	Rockport Beach	Aransas	14	—	—	Locally protected; no further consideration
TX-15	Live Oak Point	Aransas	14	—	—	Locally protected; no further consideration
TX-16	Port Aransas	Nueces	27	—	—	Locally protected; no further consideration
TX-17	Mustang Island	Nueces	27	—	—	State protected; no further consideration
	Total - CBRS as Recommended			160.55	291,722	
	Existing CBRS			123.5	127,747	
	Net Change in CBRS			+37.05	+163,975	

[a]UNIT ID CODE - State initials (TX) plus a number identify a proposed new unit. An existing unit is identified by the legal code letter (T) and number established by Congress in 1982.

[b]UNIT 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.

[c]CONGRESSIONAL DISTRICT - U.S. Congressional District in which unit is located.

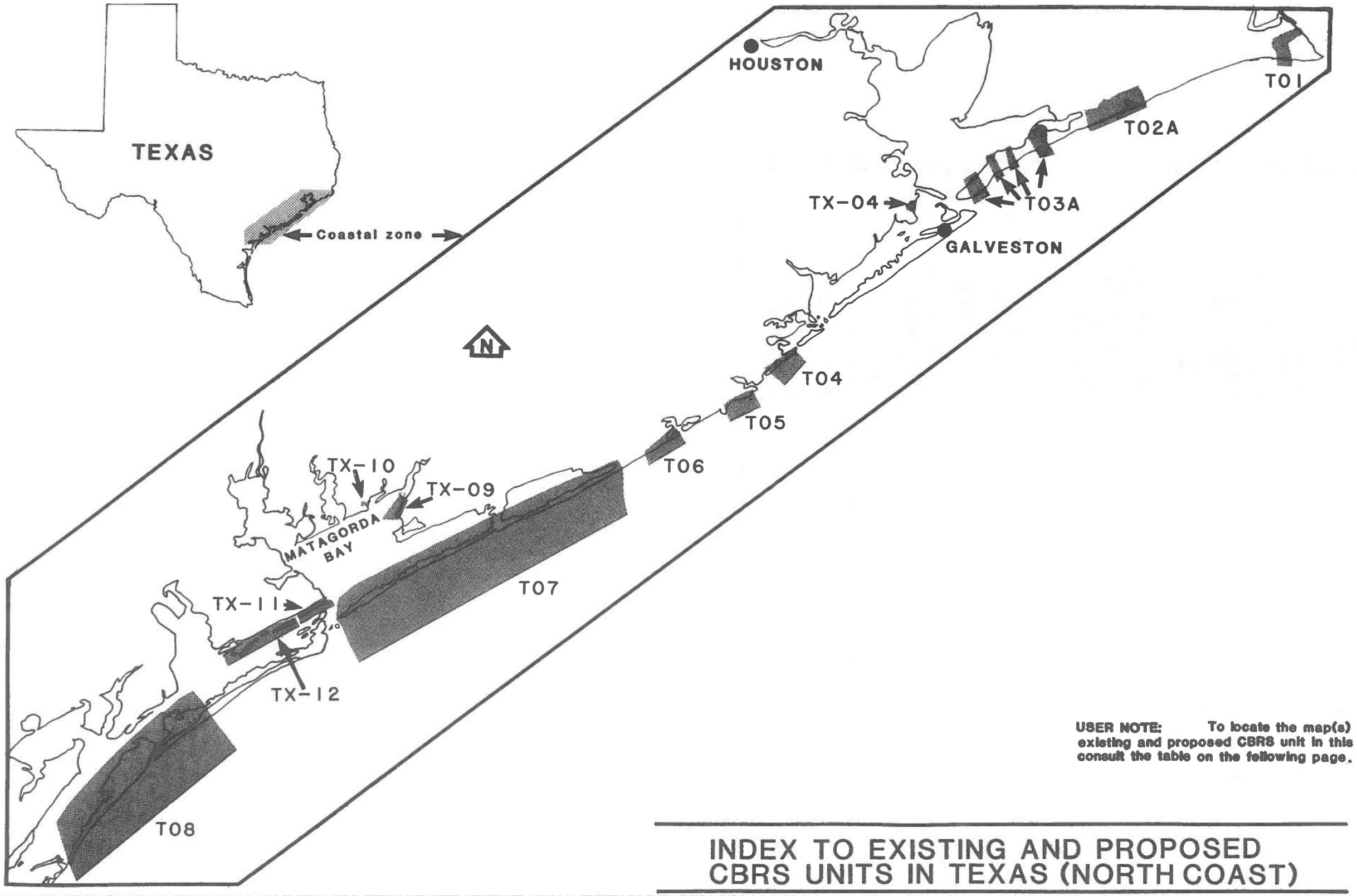
[d]SHORELINE LENGTH - For existing units with additions or deletions, this length is for the entire unit, as modified.

[e]AREA - For existing units with additions or deletions, this area is for the entire unit, as modified.

[f]PROPOSED 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.

EXISTING AND PROPOSED CBRS UNITS AND THEIR LOCATION IN THIS VOLUME

Unit ID Code	Unit Name	USGS Topographic Map or Map Composite	Page
T01	Sea Rim	Sabine Pass	14
		Clam Lake	15
T02A	High Island	Mud Lake	16
		High Island	17
T03A	Bolivar Peninsula	Flake	18
		Frozen Point	19
		Port Bolivar	20
TX-04	Swan Lake	Virginia Point	21
T04	Follets Island	Christmas Point	22
		Oyster Creek	23
		Freeport	24
T05	Brazos River Complex	Freeport	24
		Jones Creek	25
T06	Sargent Beach	Cedar Lakes West	26
T07	Matagorda Peninsula	Brown Cedar Cut	27
		Dressing Point	28
		Matagorda	29
		Palacios SE	30
		Palacios Point	31
		Decros Point	32
		Port O'Connor	33
T08	San Jose Island Complex	Panther Point	38
		Mesquite Bay	39
		St. Charles Bay	40
		St. Charles Bay SE	41
		St. Charles Bay SW	42
		Allyns Bight	43
		Estes	44
		Port Aransas	45
TX-09	Coon Island Bay	Palacios	36
TX-10	Shell Beach	Turtle Bay	37
TX-11	Blackberry Island	Port O'Connor	33
TX-12	Shoalwater Bay	Port O'Connor	33
		Long Island	34
		Mosquito Point	35

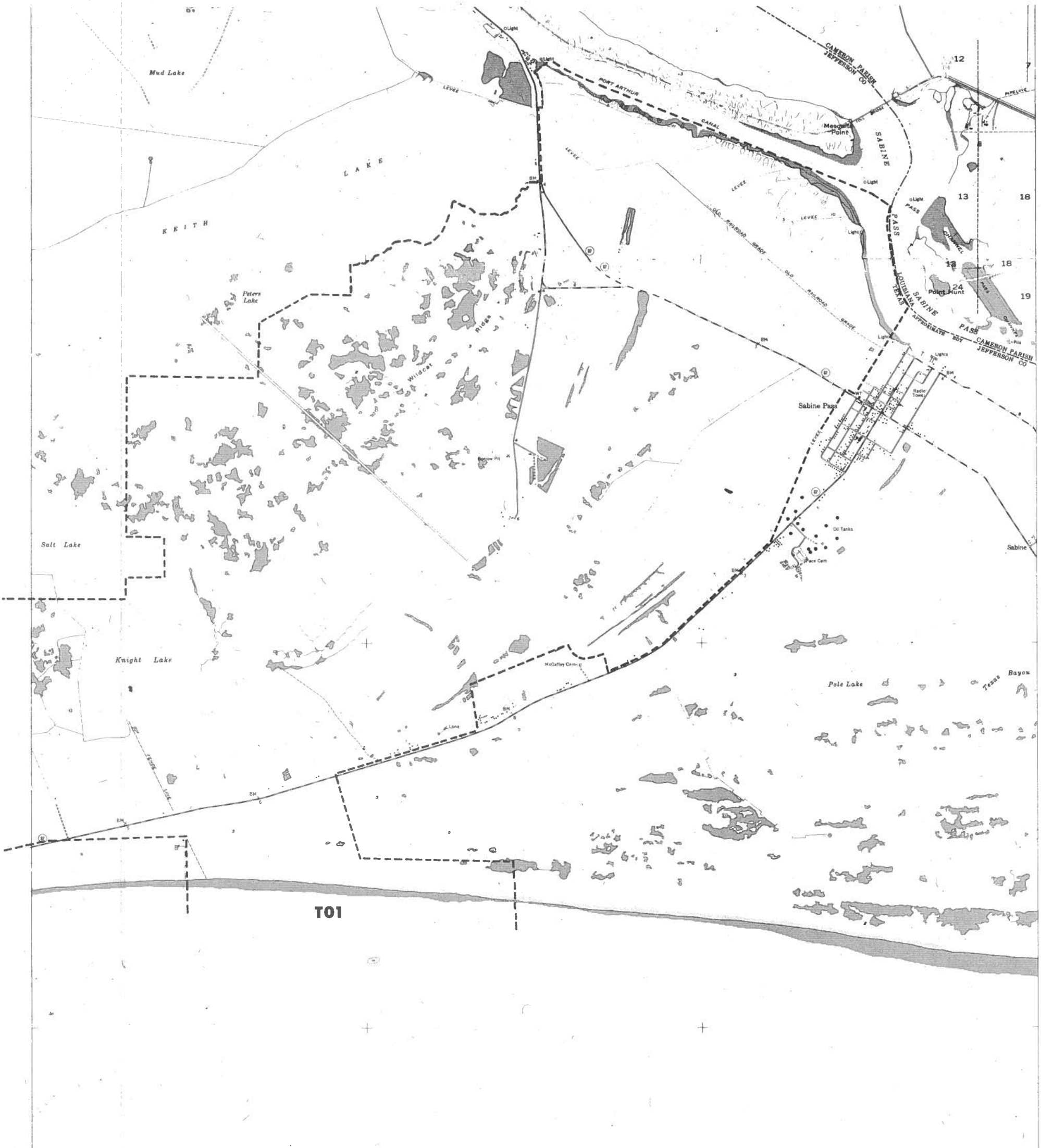


USER NOTE: To locate the map(s) of each existing and proposed CBRS unit in this volume, consult the table on the following page.

INDEX TO EXISTING AND PROPOSED CBRS UNITS IN TEXAS (NORTH COAST)

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



Report to Congress on the Coastal Barrier Resources System

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

14

North

QUADRANGLE

SABINE PASS

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

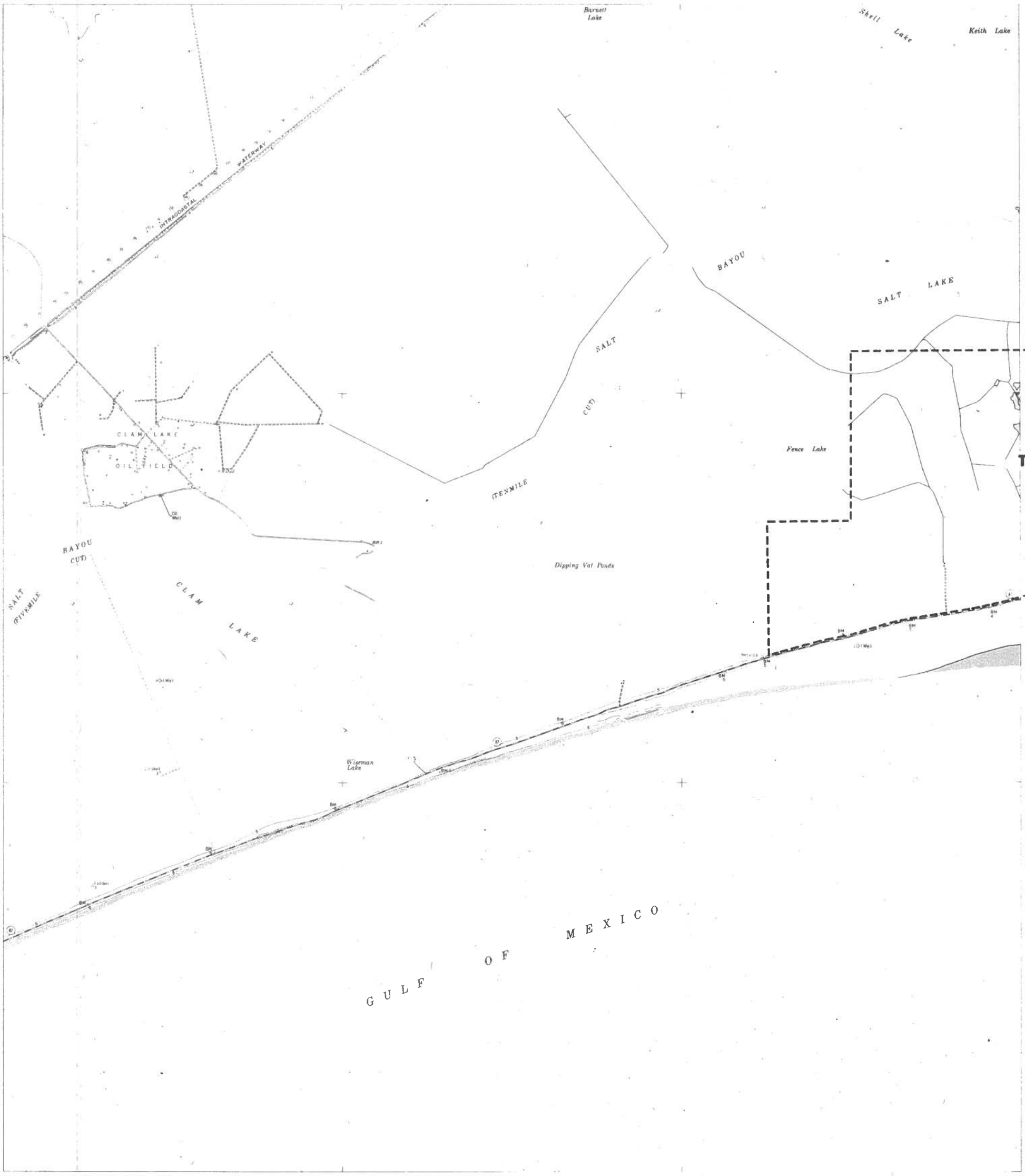
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

15

North

QUADRANGLE

CLAM LAKE

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

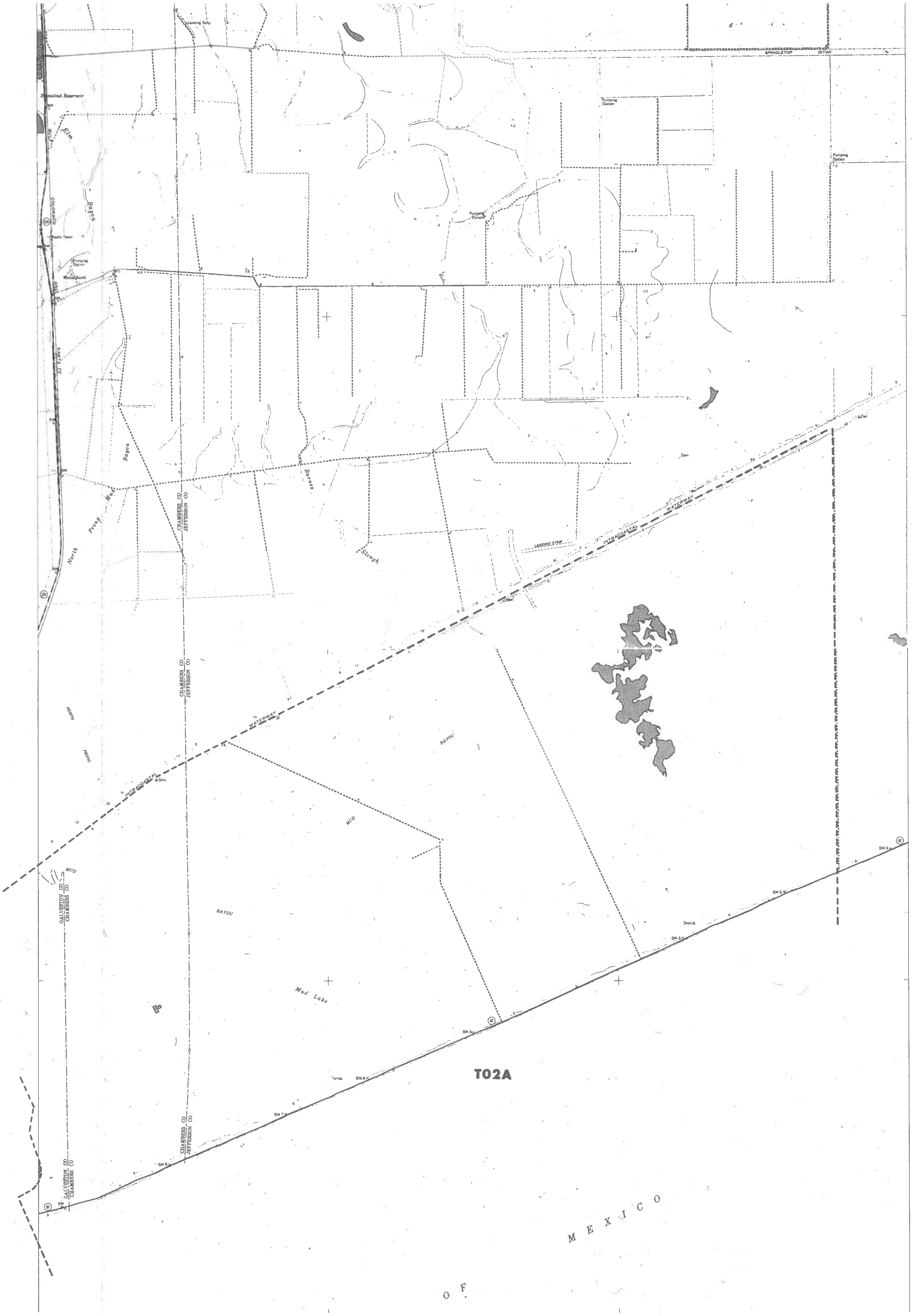
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

16

QUADRANGLE

MUD LAKE

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

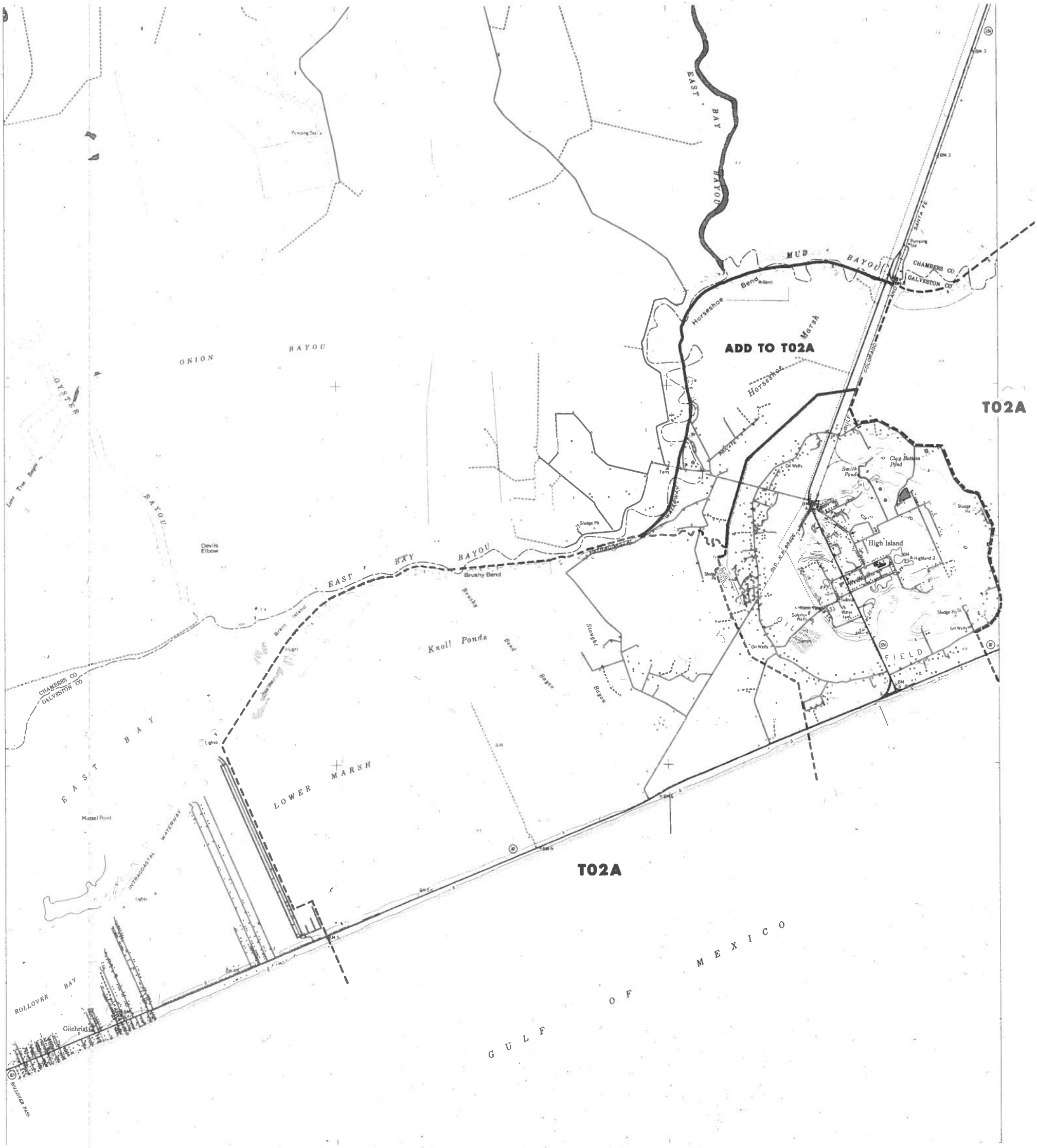
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

17

QUADRANGLE

HIGH ISLAND

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

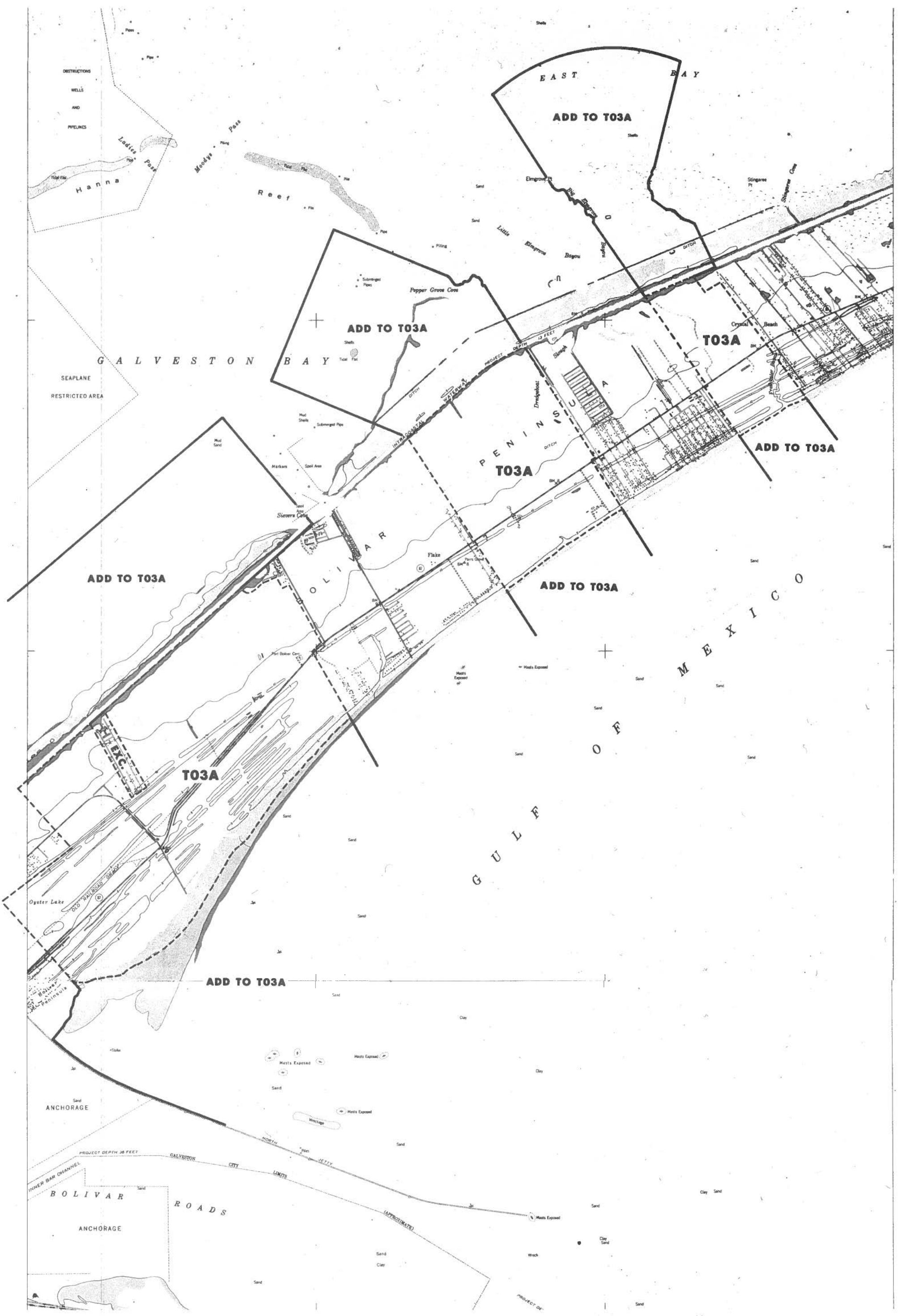
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

18

North

QUADRANGLE

FLAKE

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

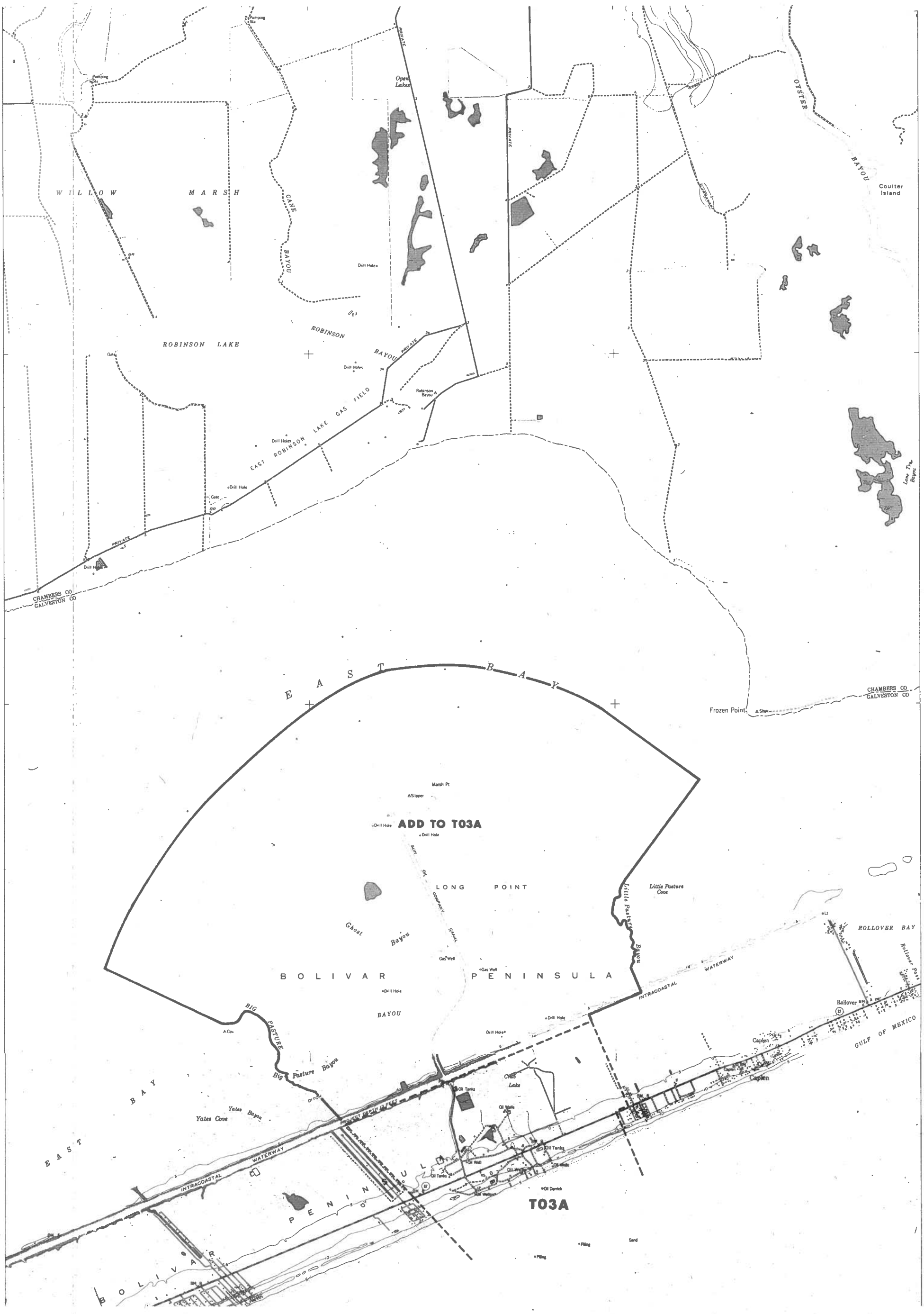
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

19

QUADRANGLE

FROZEN POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

Report to Congress on the Coastal Barrier Resources System

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

20

QUADRANGLE

PORT BOLIVAR

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

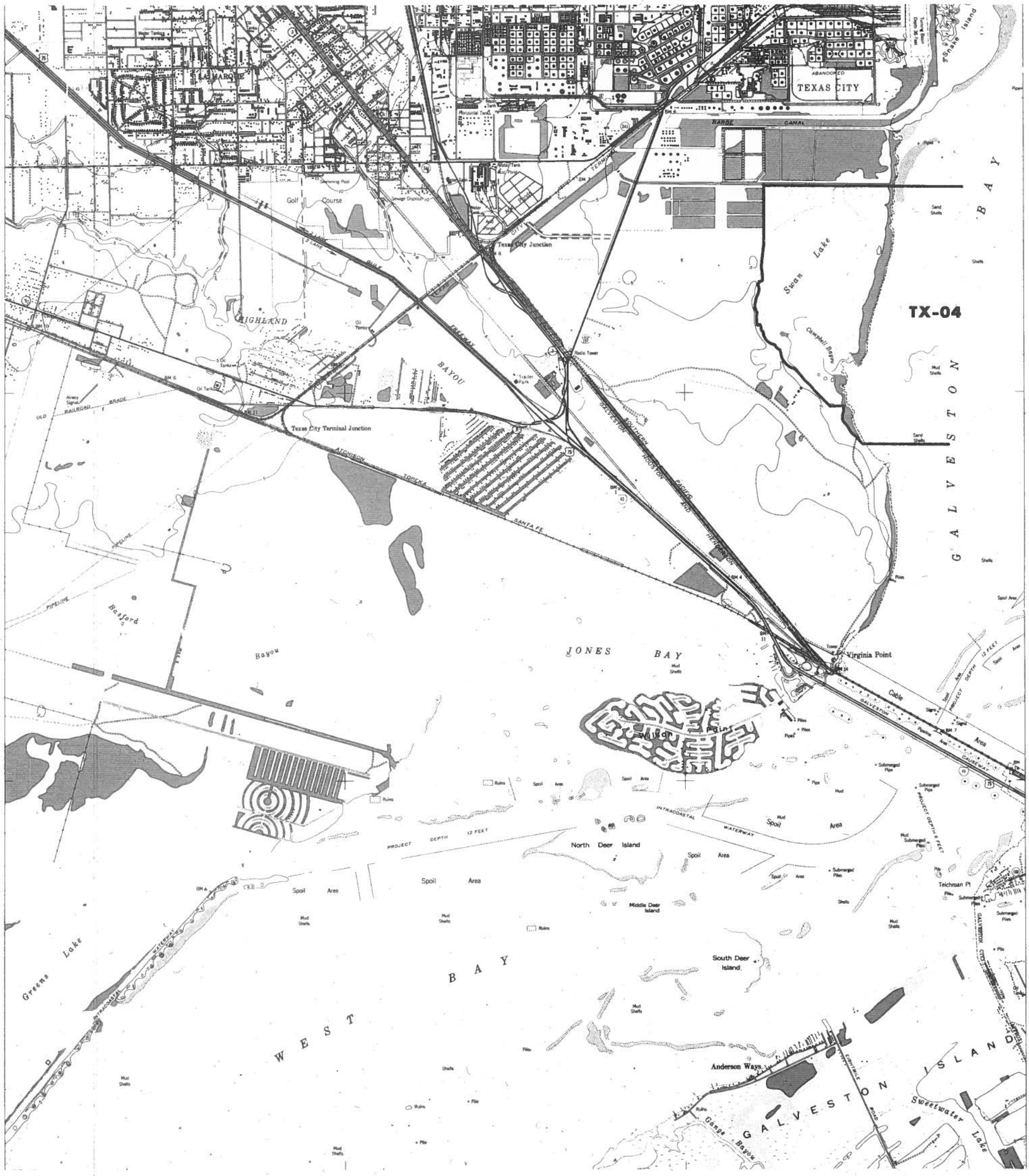
- - - - Dash lines depict approximate boundaries of existing units in the Coastal Barrier Resources System, for reference purposes only.

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

ADD TO T03A

TO



Report to Congress on the Coastal Barrier Resources System

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

21

QUADRANGLE

VIRGINIA POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

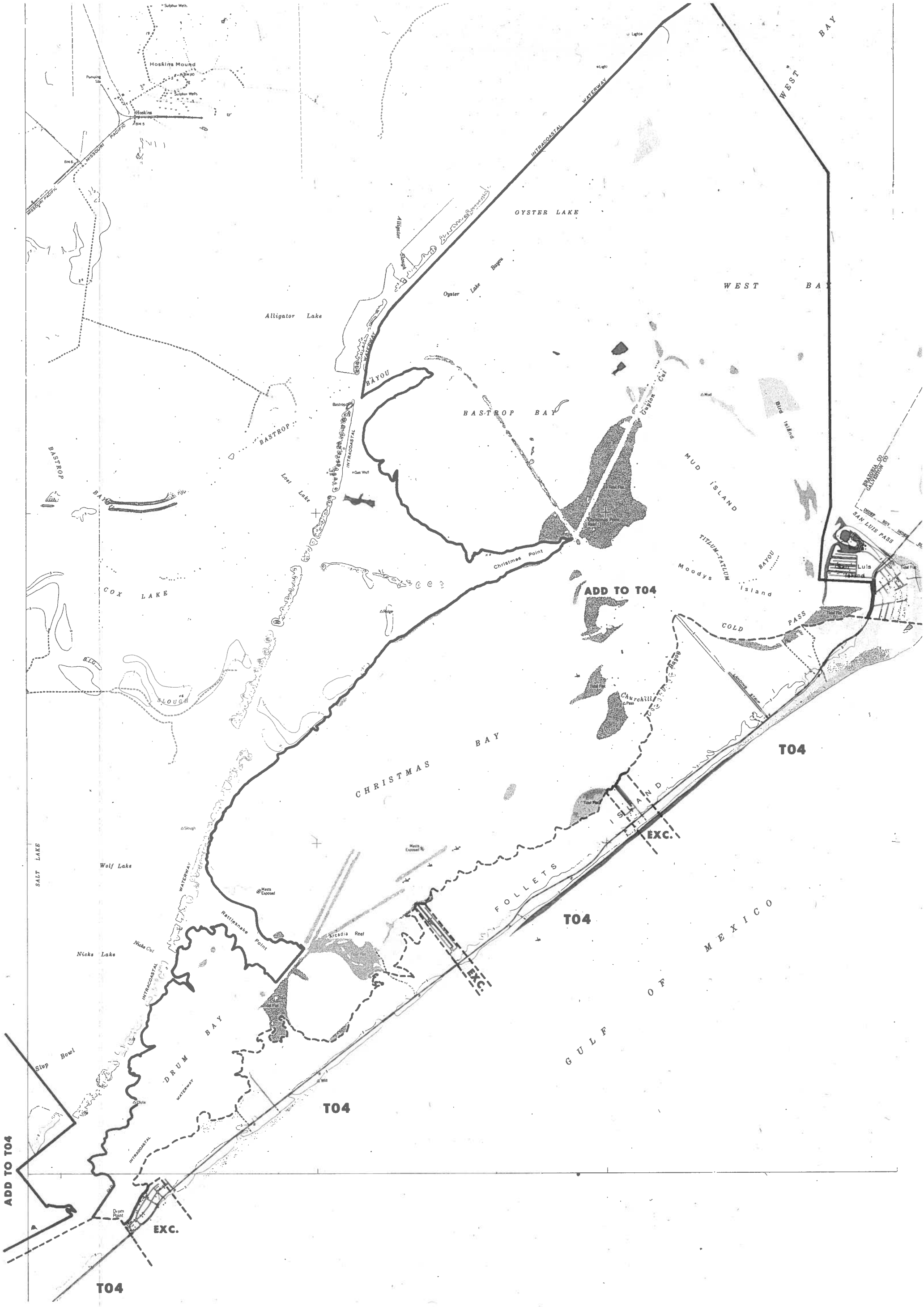
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

22

QUADRANGLE

CHRISTMAS POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

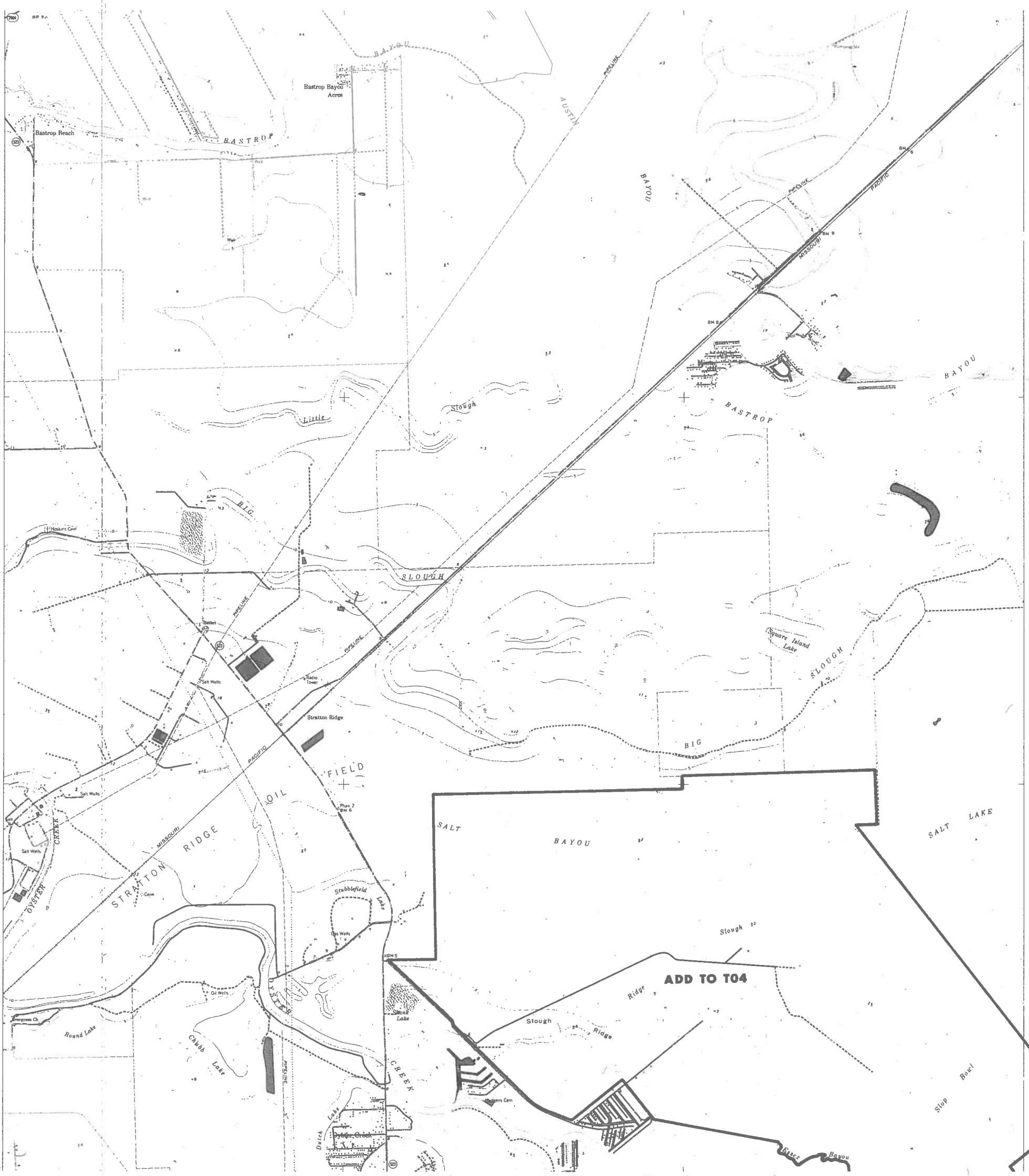
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

23

QUADRANGLE

OYSTER CREEK

TEXAS

North

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

ADD TO T04

EXCLUDED

T04

ADD TO T05

T05

T05

Report to Congress on the Coastal Barrier Resources System

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

24

North

QUADRANGLE

FREEPORT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

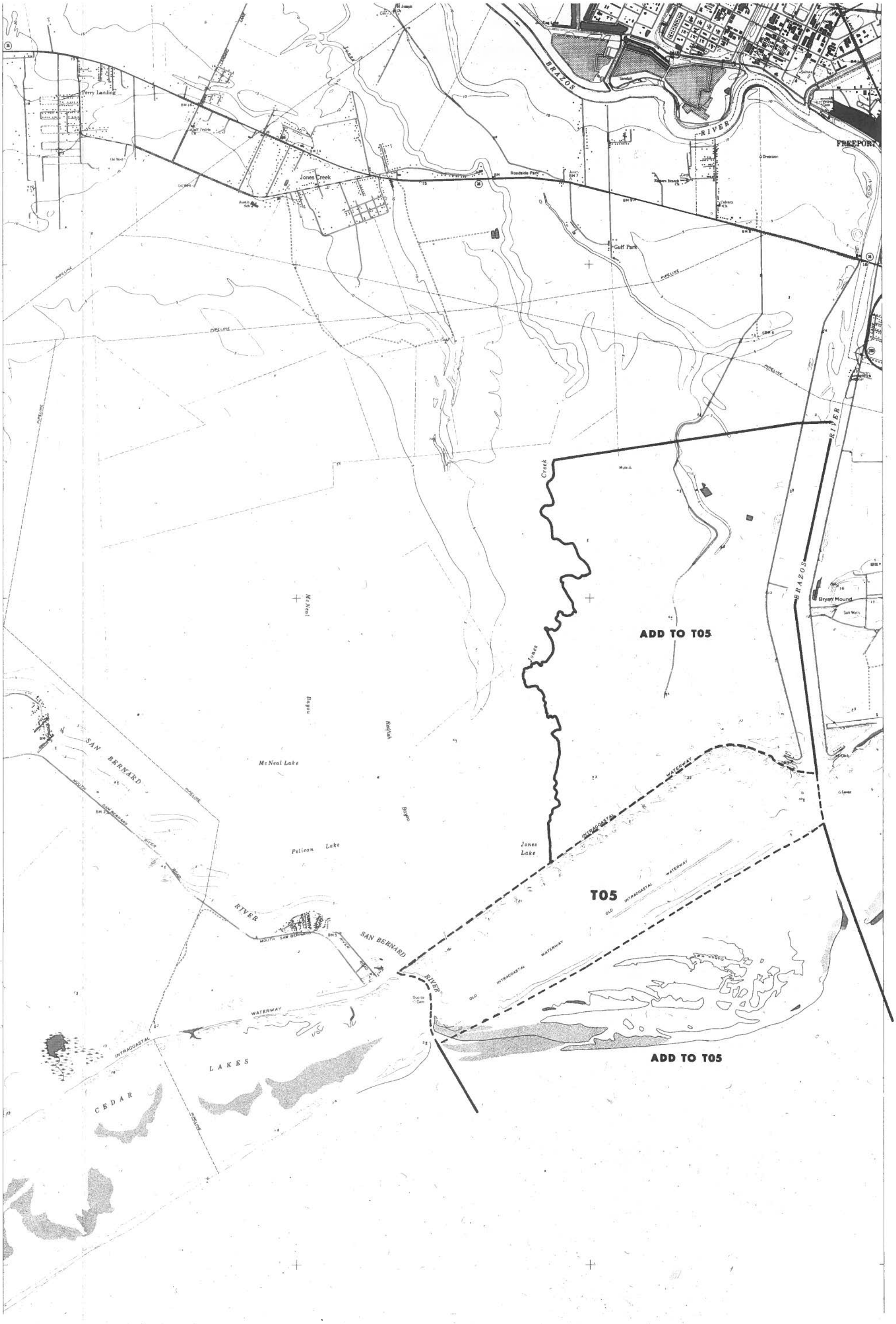
1 5 0 1 KILOMETER

—— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

25

QUADRANGLE

JONES CREEK

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

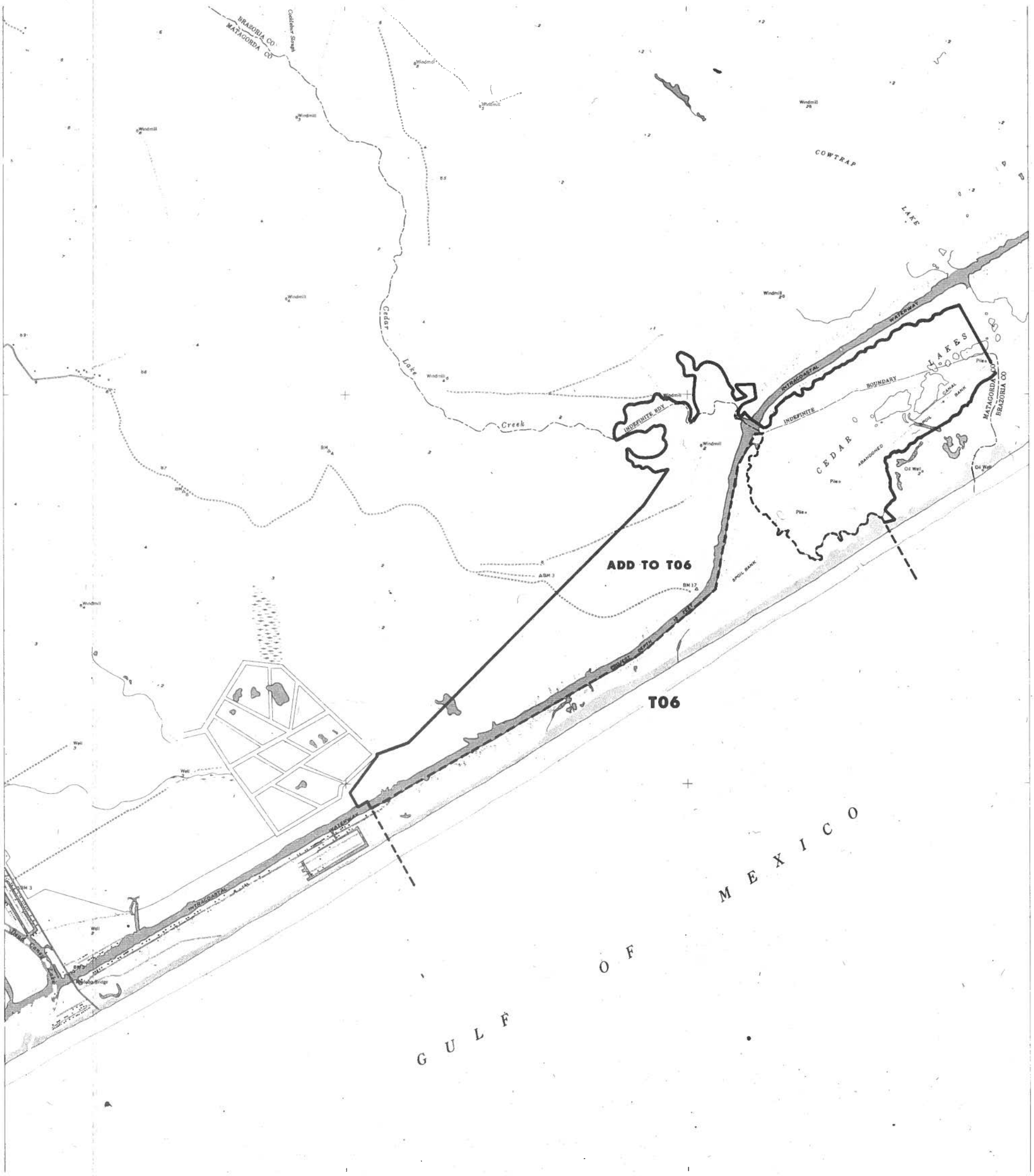
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

26

North

QUADRANGLE

CEDAR LAKES WEST

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

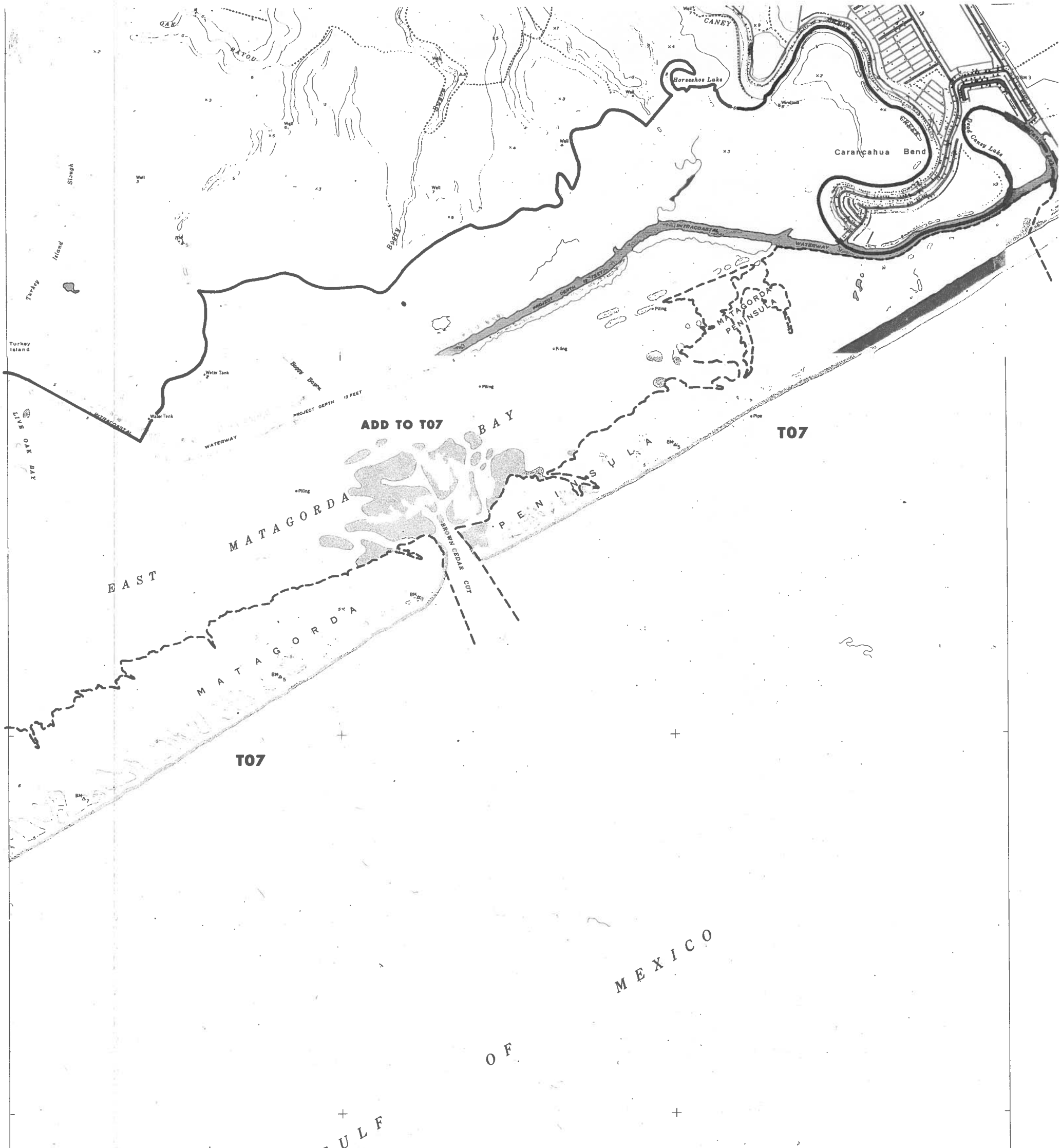
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

27

QUADRANGLE

BROWN CEDAR CUT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

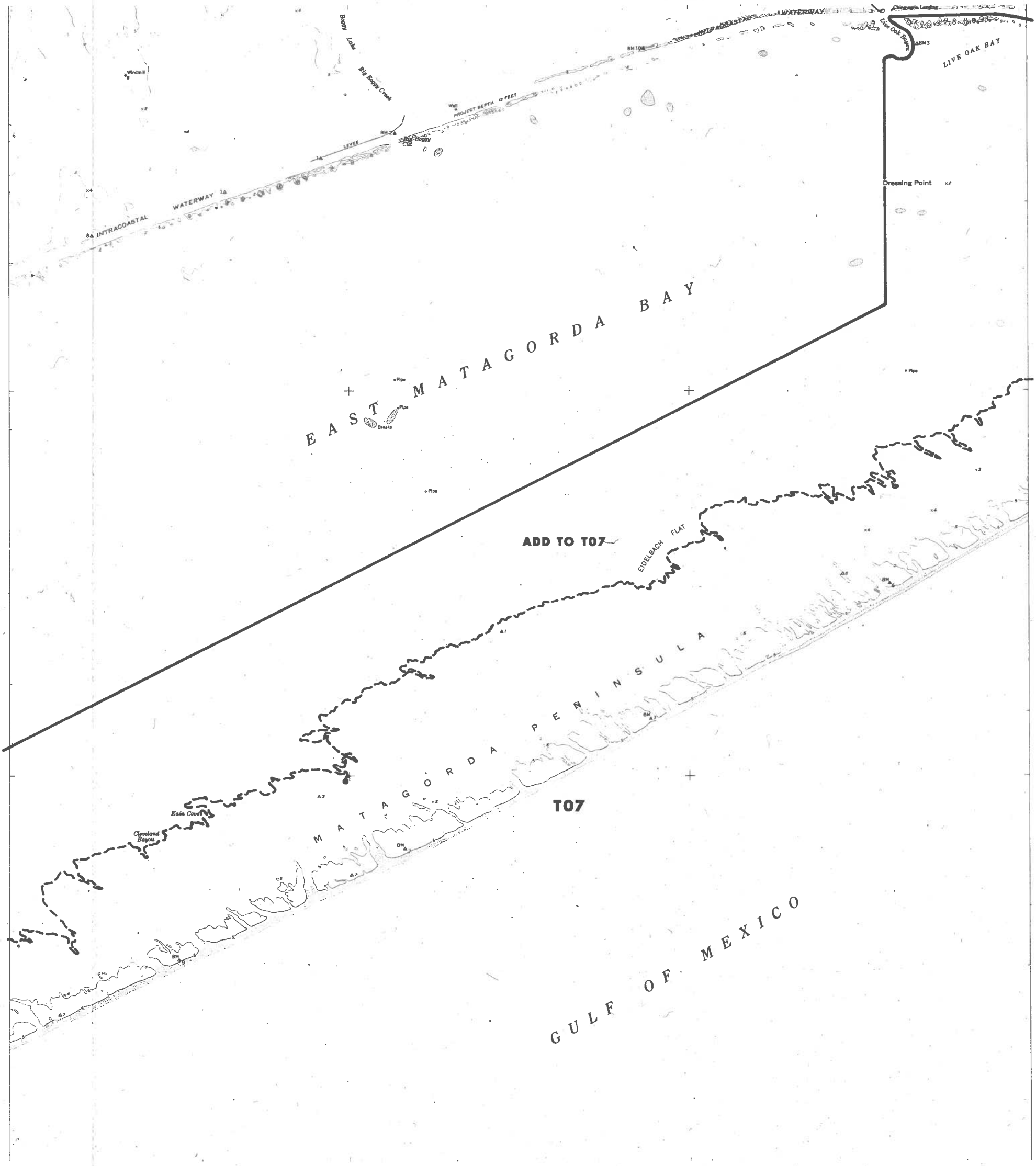
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

28

QUADRANGLE

DRESSING POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

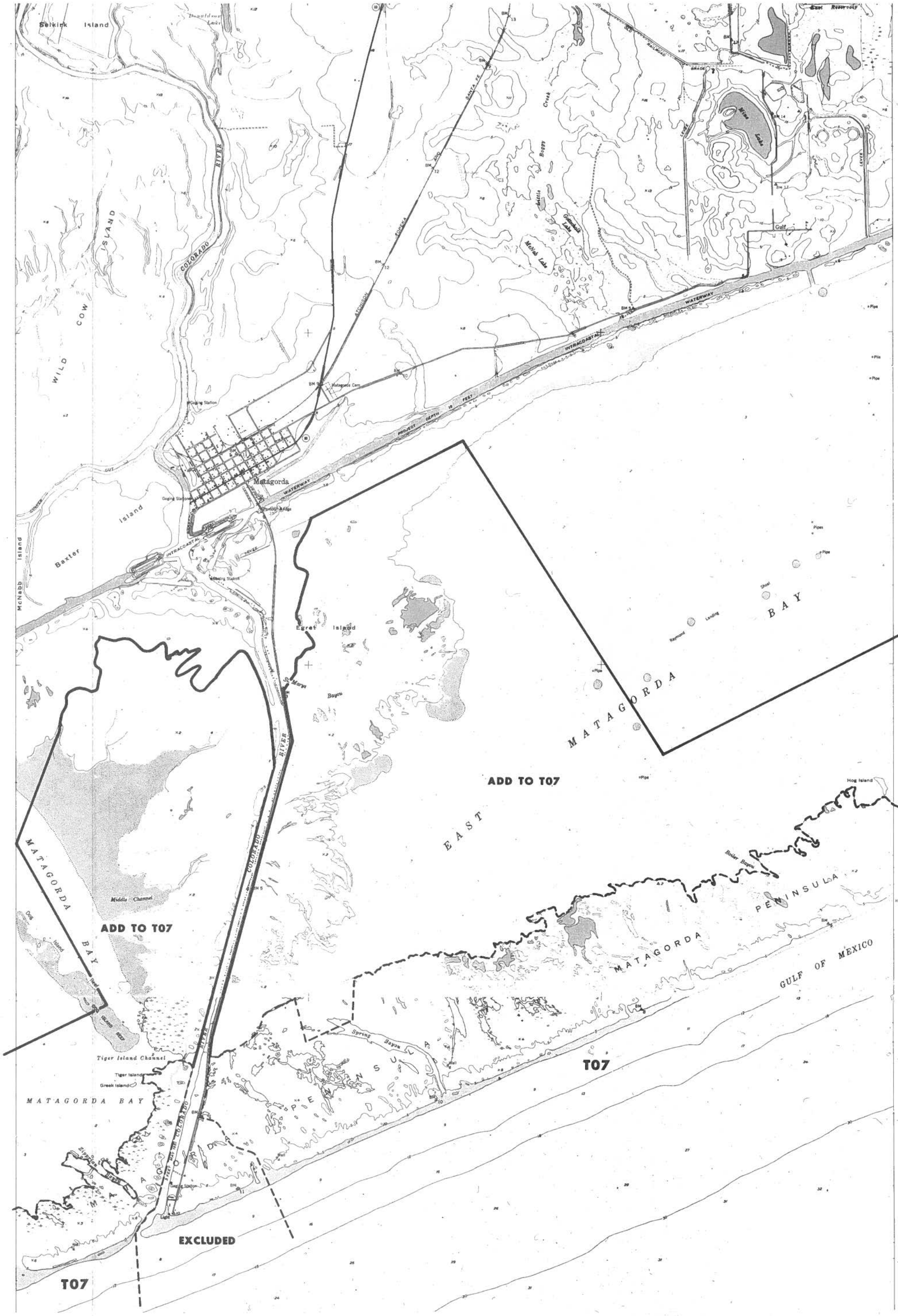
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

29

QUADRANGLE

MATAGORDA

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

Mad Island Lake

LEVEE

INTRACOASTAL WATERWAY

BM_6

Log

MAD ISLAND REEF

SHELL ISLAND REEF

Submerged Iron Rails

M A T A G O R D A B A Y

ADD TO T07

T07

Big Boggy

Matagorda Bayou

BM_18

M A T A G O R D A P E N I N S U L A

BM_6

BM_10

T07

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

Report to Congress on the Coastal Barrier Resources System

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

30

North

QUADRANGLE

PALACIOS SE

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

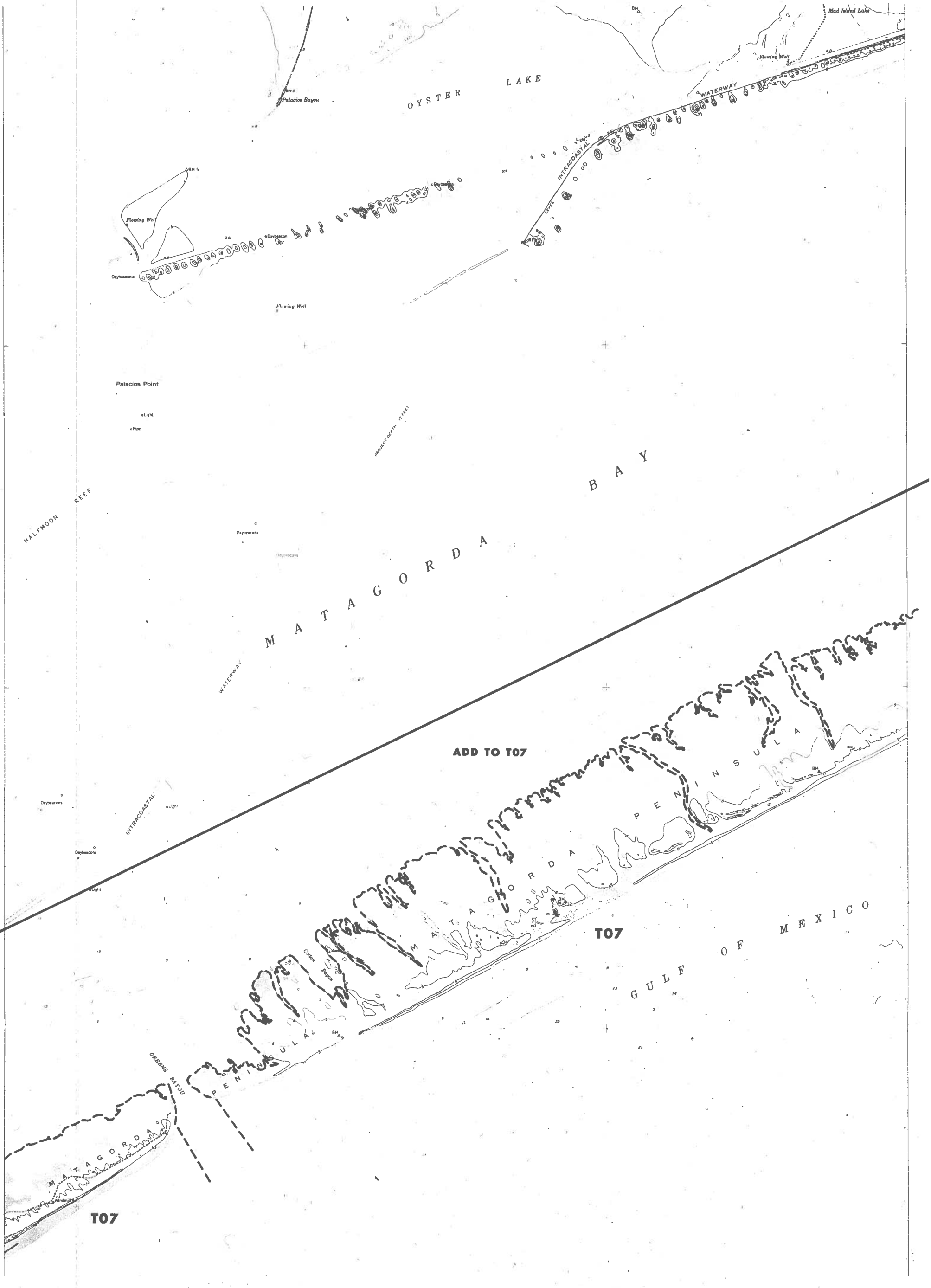
1 5 0 1 KILOMETER

—— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

31

North

QUADRANGLE

PALACIOS POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

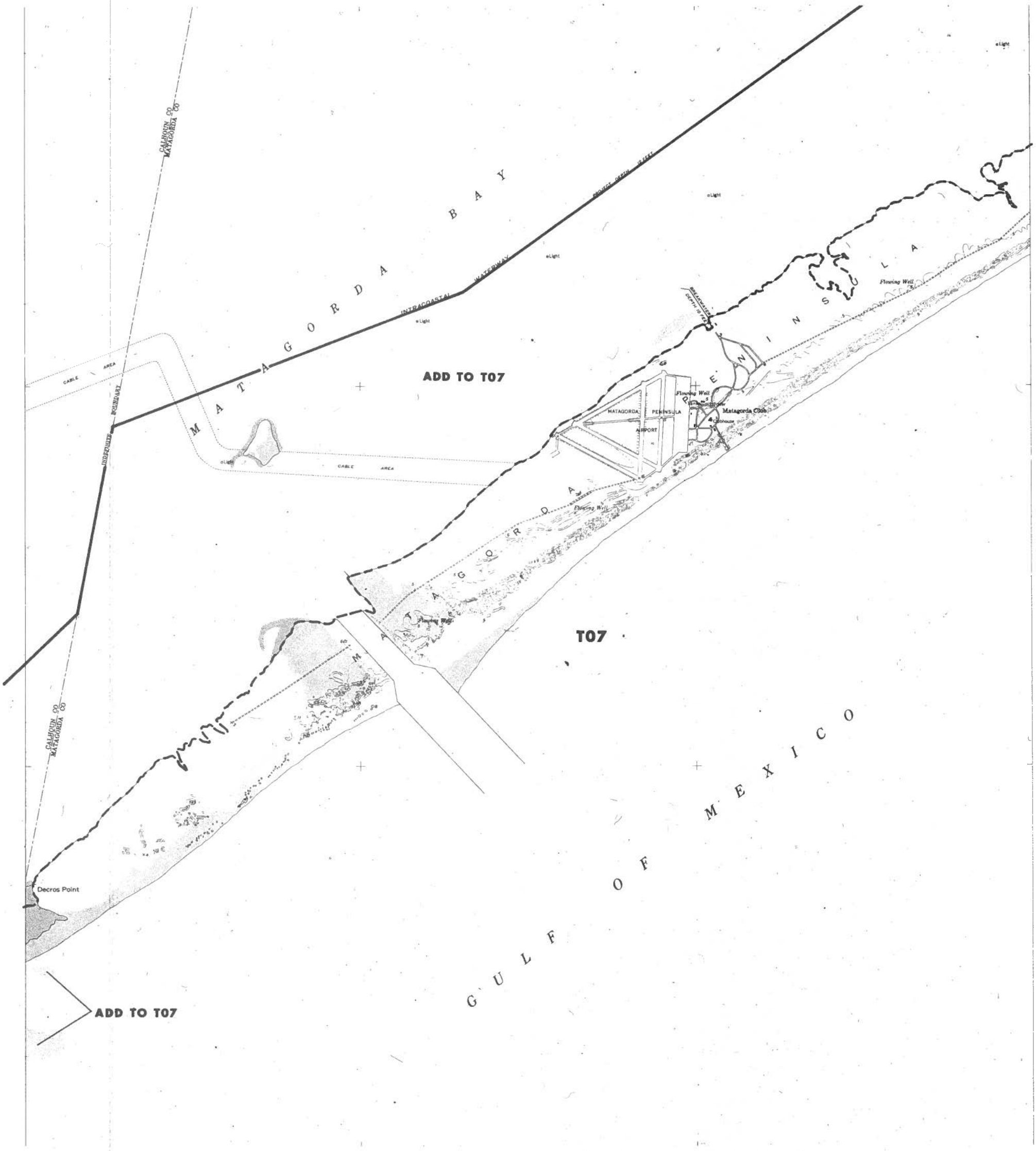
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

32

QUADRANGLE

DECROS POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

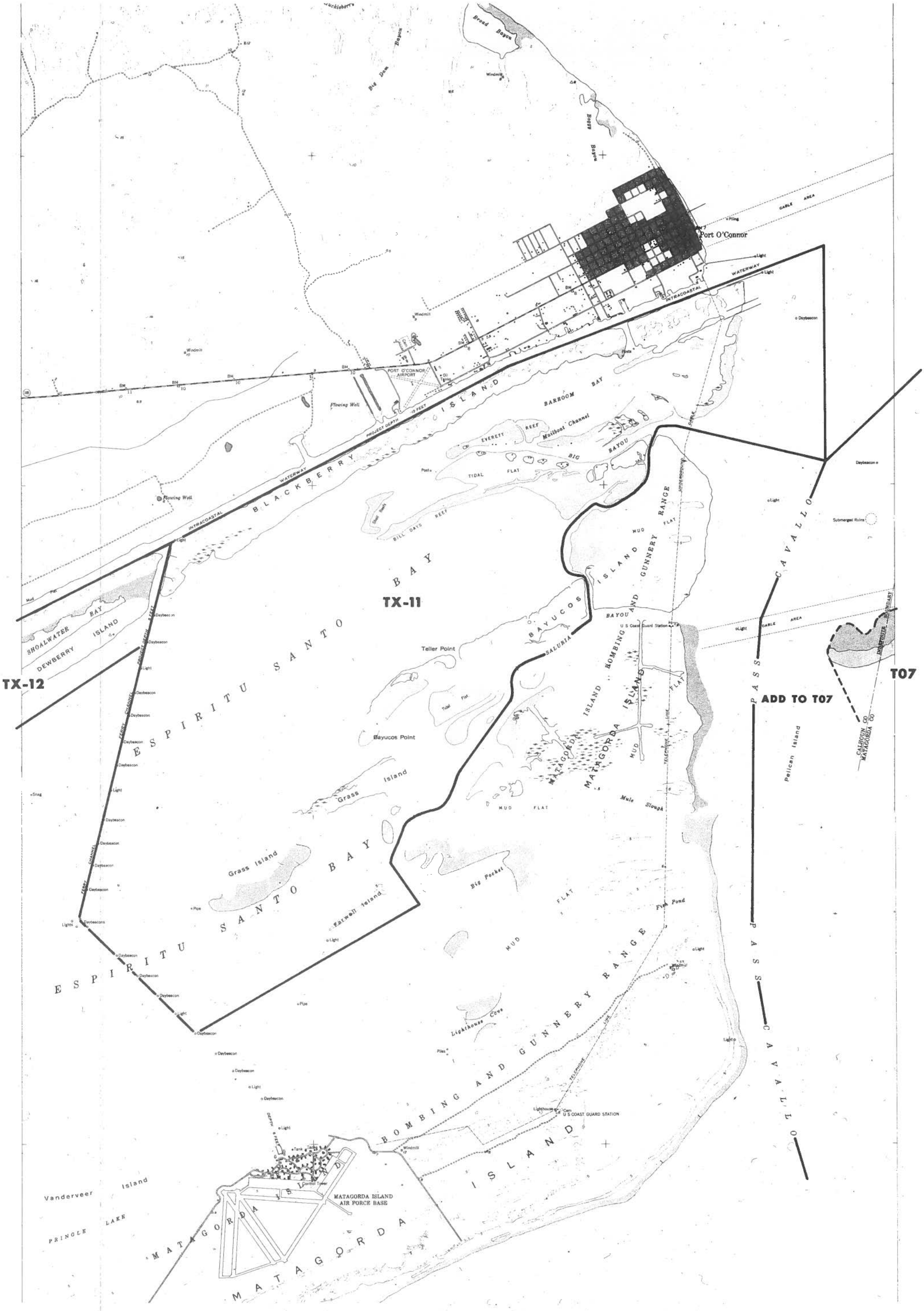
North

—— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

33

QUADRANGLE

PORT O'CONNOR

TEXAS

SCALE

1 . 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

North

— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

TX-12

Report to Congress on the Coastal Barrier Resources System

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

34

QUADRANGLE

LONG ISLAND

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

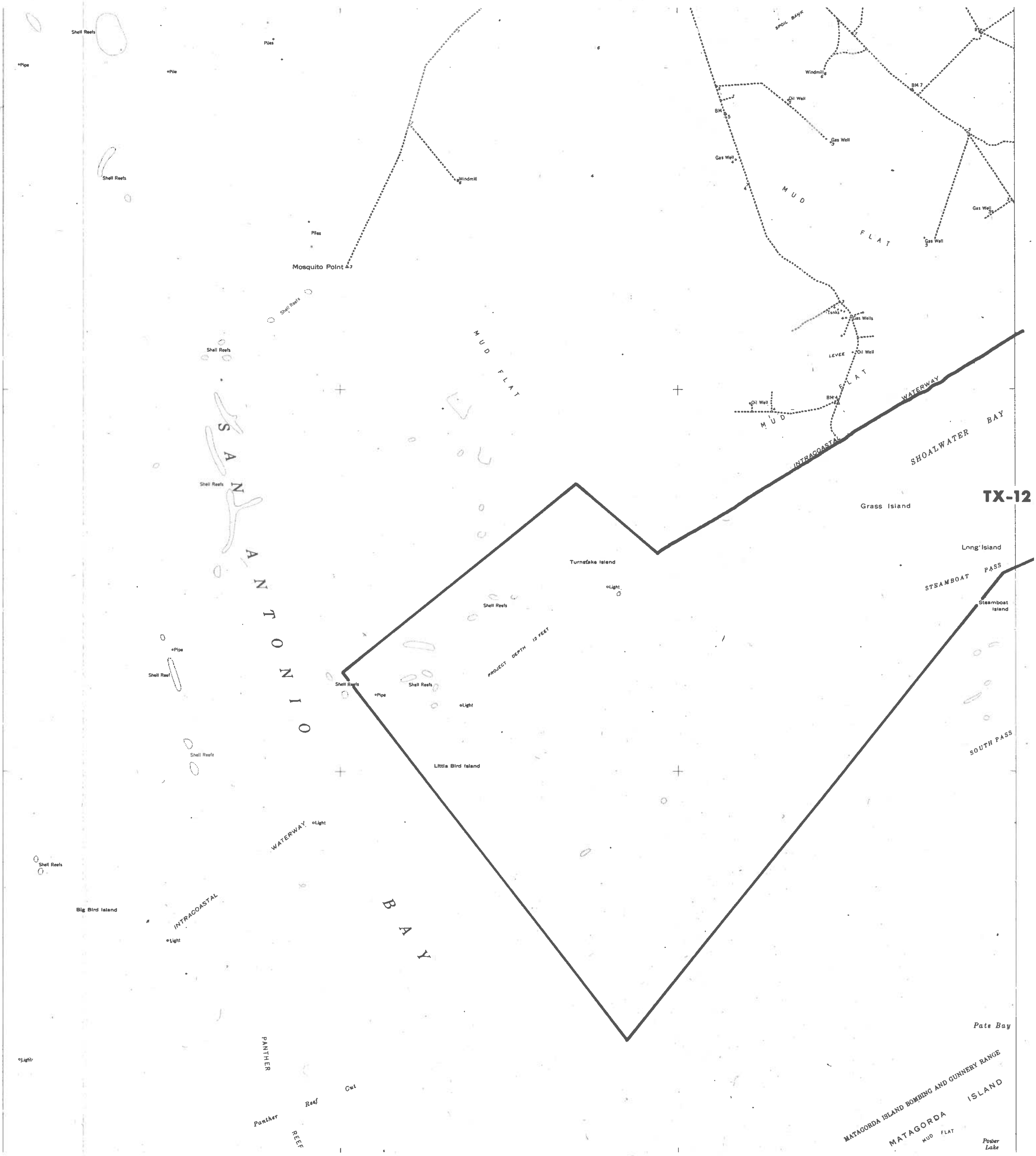
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

QUADRANGLE
MOSQUITO POINT
TEXAS

SCALE
1 — 1/2 — 0 — 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

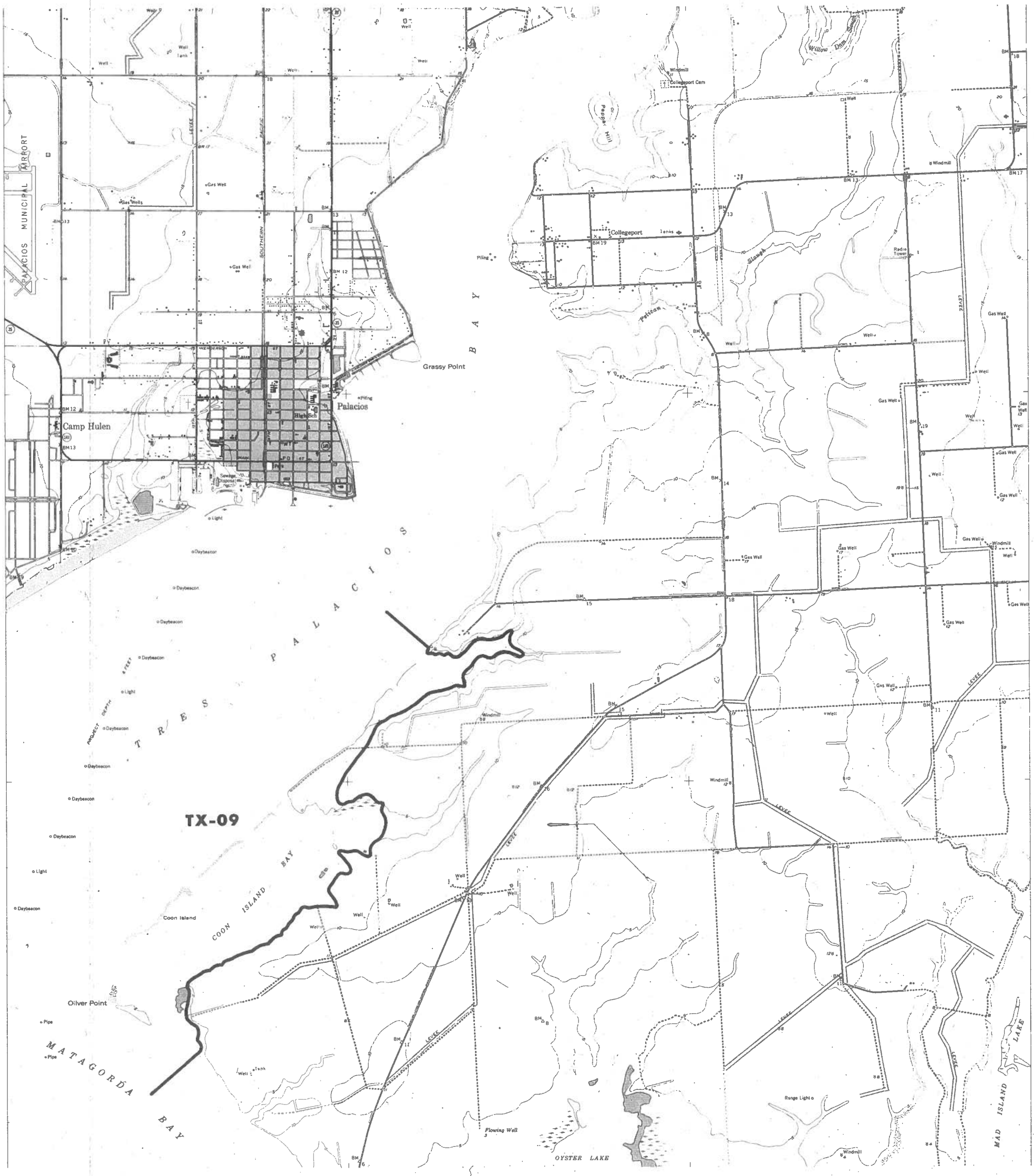
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

36

QUADRANGLE

PALACIOS

TEXAS

SCALE

1 0 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

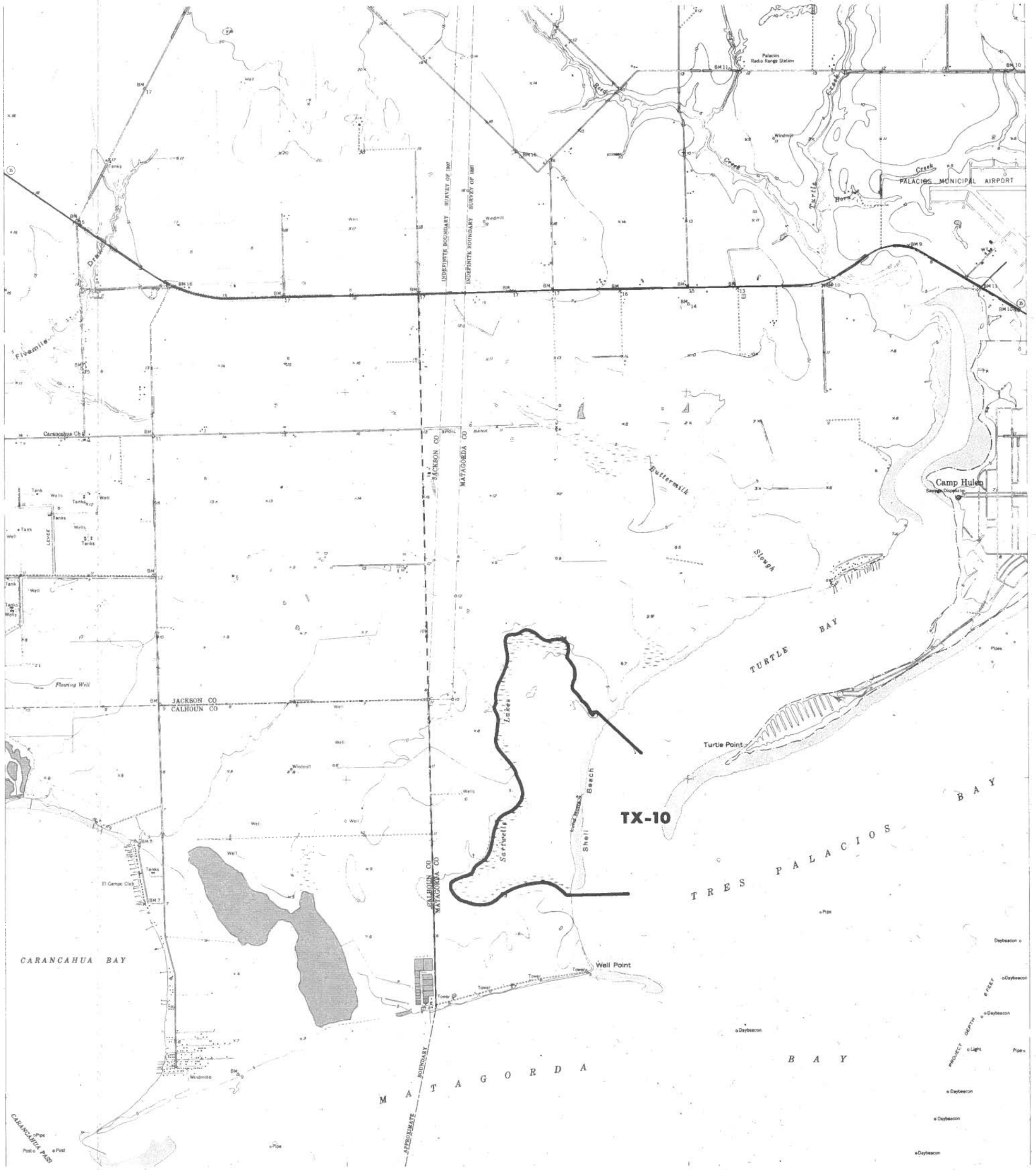
North

Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



TX-10

Report to Congress on the Coastal Barrier Resources System

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

37

North

QUADRANGLE

TURTLE BAY

TEXAS

SCALE

1 0 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

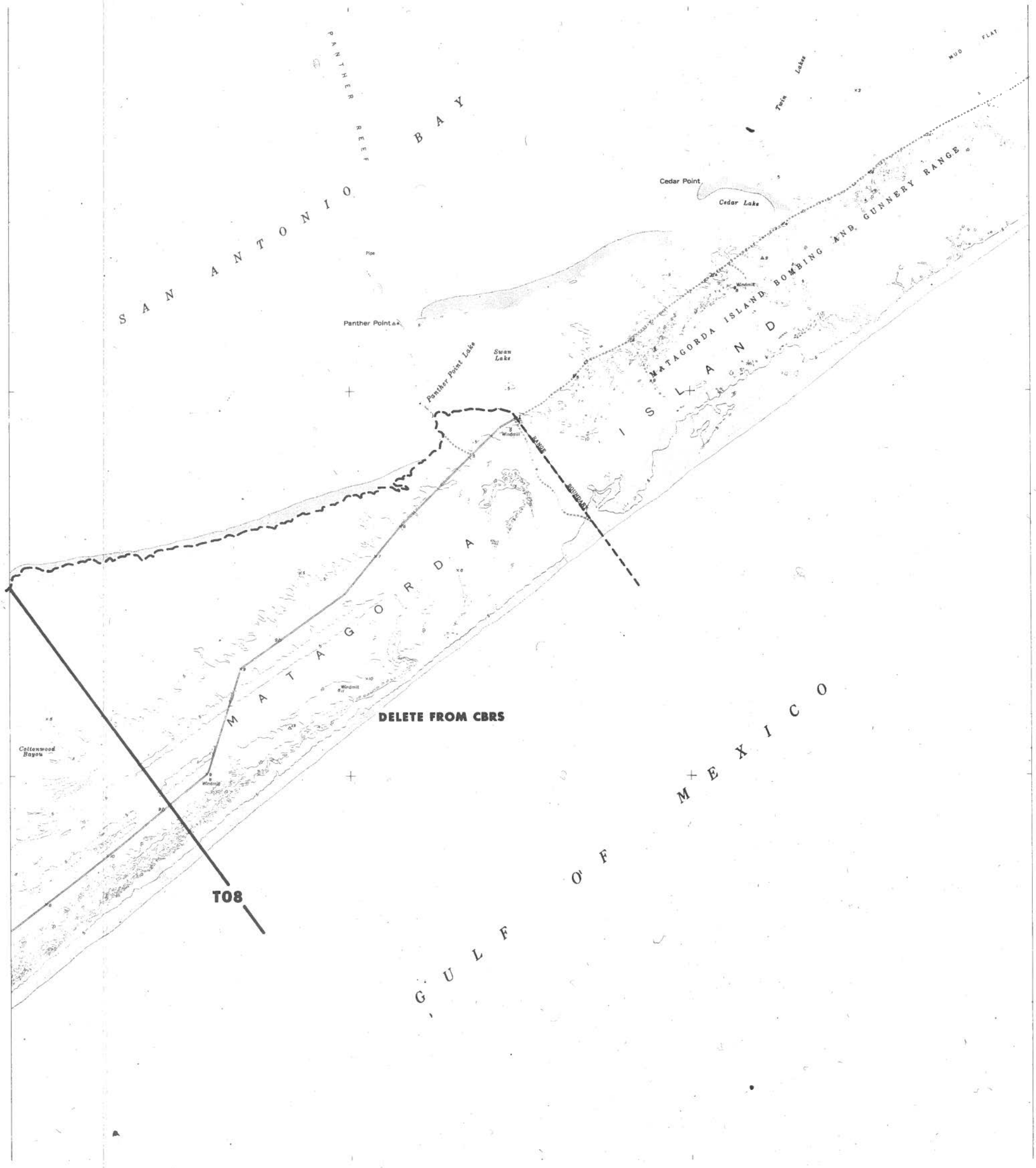
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

38

North

QUADRANGLE

PANTHER POINT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

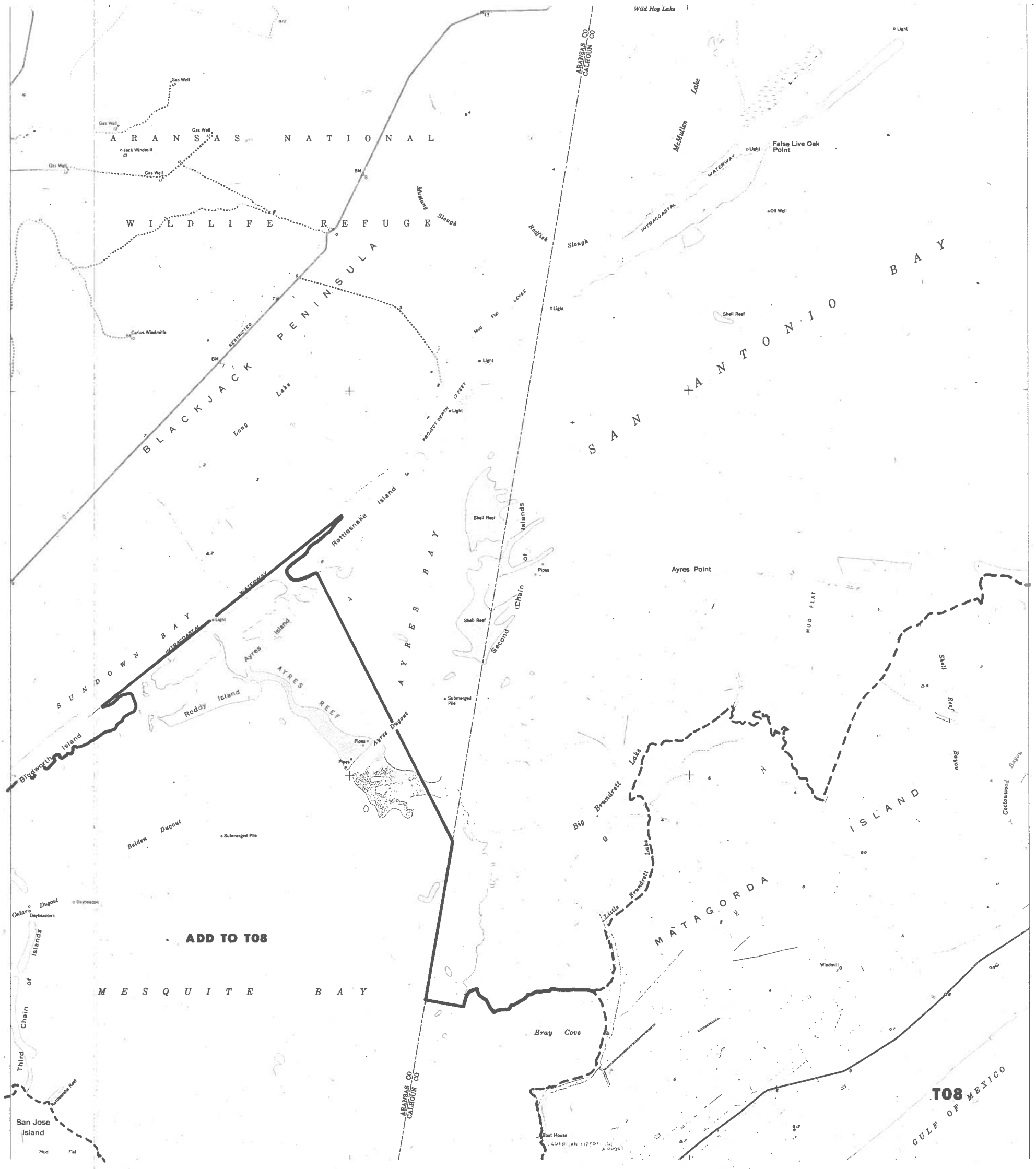
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

39

QUADRANGLE

MESQUITE BAY

TEXAS

North

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

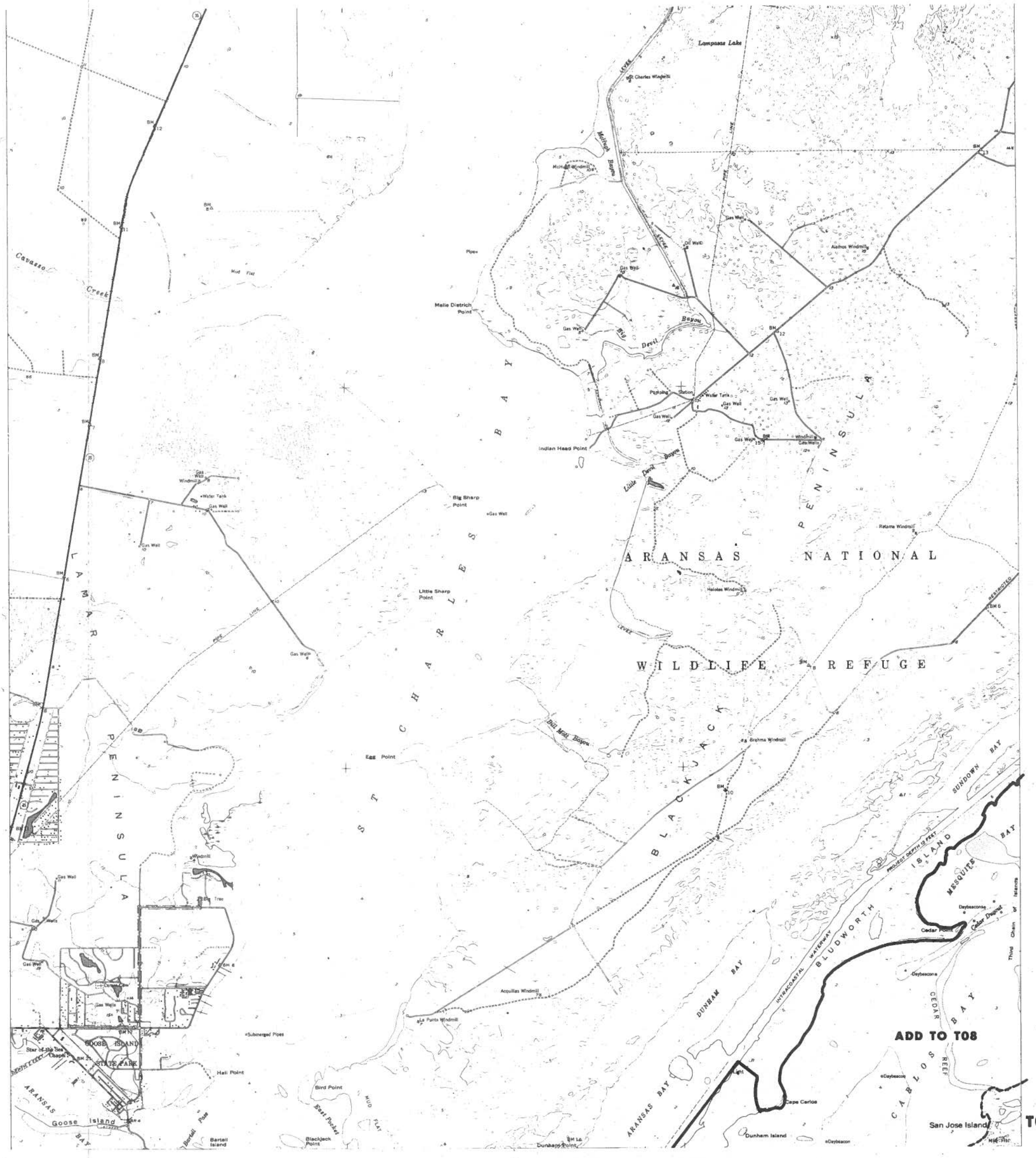
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

40

QUADRANGLE

ST. CHARLES BAY

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

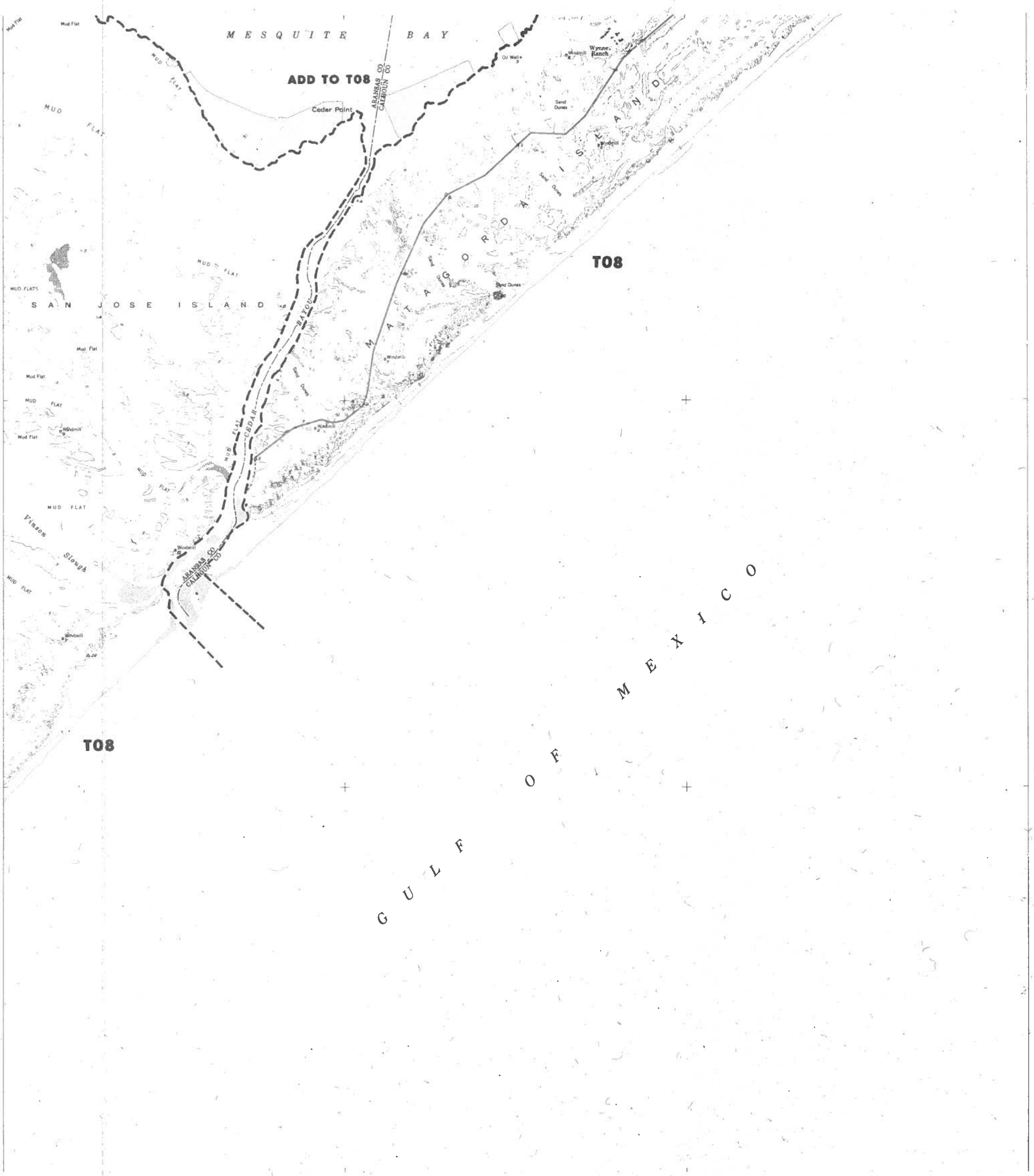
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

41

QUADRANGLE

ST. CHARLES BAY SE

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

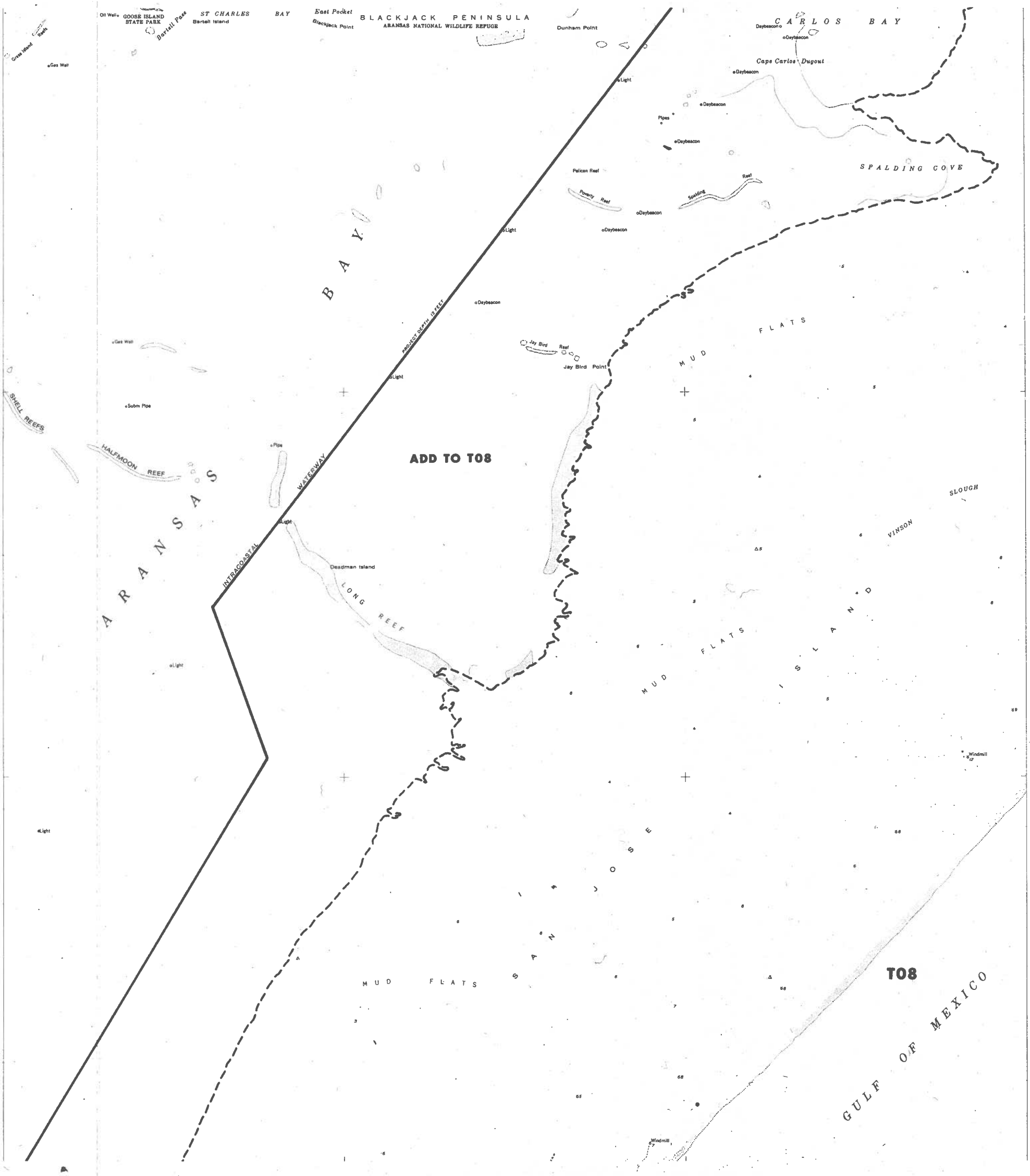
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

42

QUADRANGLE

ST. CHARLES BAY SW

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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

ARANSAS BAY

ALLYNS BIGHT

Allyns Lake

Wildlife Obs Station

ADD TO T08

T08

ISLAND

SAN JOSE

MUD ISLAND

Pass

Blind

Lake

Lake

Light

Landing Field

Ford

Oil Well

GULF OF MEXICO

Report to Congress on the Coastal Barrier Resources System

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

43

North

QUADRANGLE

ALLYNS BIGHT

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

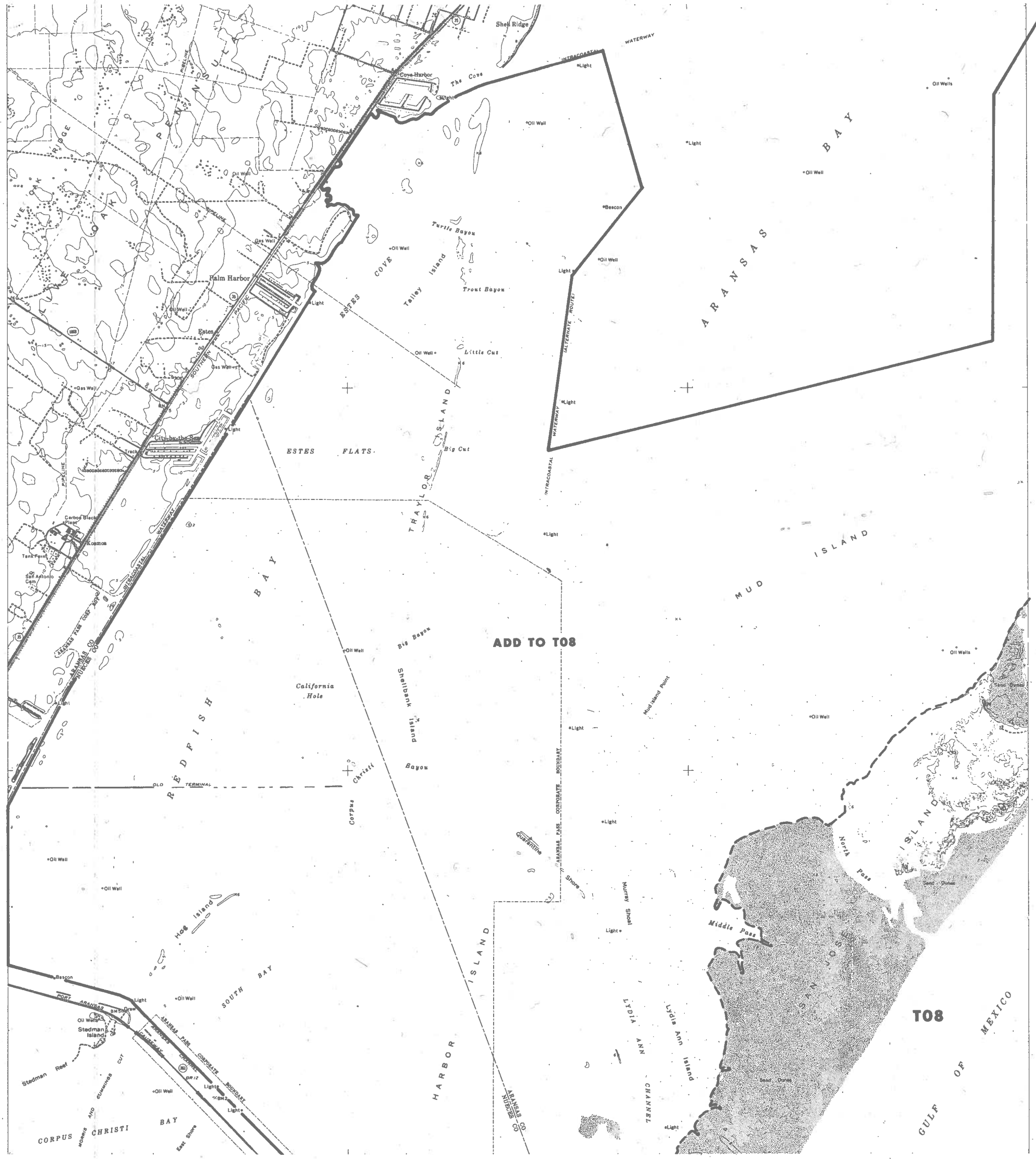
1 5 0 1 KILOMETER

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

44

QUADRANGLE

ESTES

TEXAS

SCALE

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

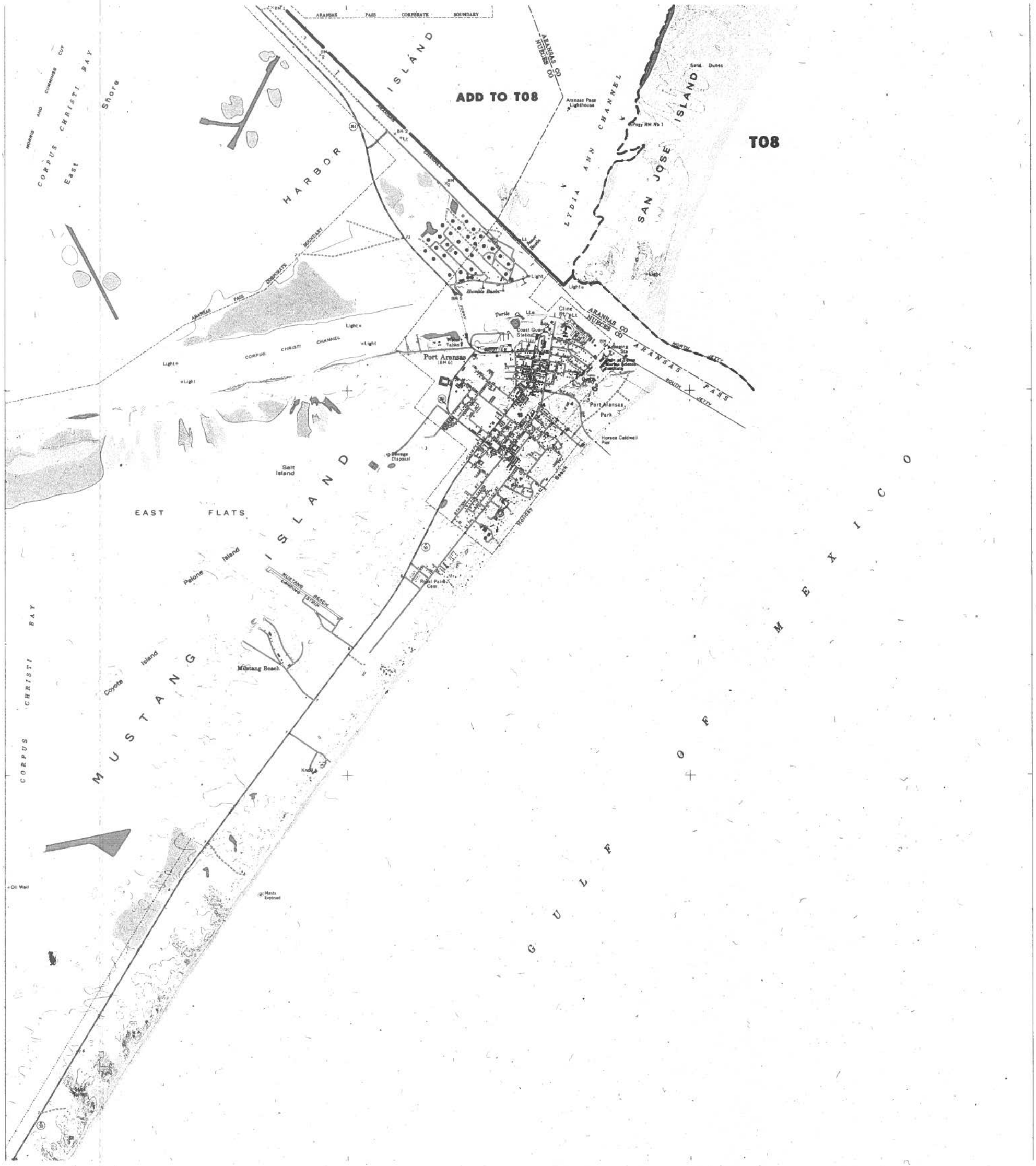
North

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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



Report to Congress on the Coastal Barrier Resources System

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

45

QUADRANGLE

PORT ARANSAS

TEXAS

——— Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)

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

Mapped, edited and published
by the Coastal Barriers Study Group
U.S. Department of the Interior
Washington, D.C. 20240

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