

REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

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



**VOLUME 17
MISSISSIPPI**

U.S. Department of the Interior

February 1987



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

MISSISSIPPI

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

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MISSISSIPPI

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 Mississippi 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 Mississippi 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 Mississippi coast is locally known as the "Riviera of the Gulf." Its many stately mansions and antebellum homes face wide, sandy (yet nourished) beaches and the Mississippi Sound. On clear days, the barrier islands of the Gulf Islands National Seashore can be seen from the mainland.

The major components of this coastal region are erosional mainland shores, marshes and swamps along rivers and bay margins, and the barrier island chain. The barrier island chain that begins with Dauphin Island, to the east in Alabama, continues west along the Mississippi coast with the following sequence of barriers: Petit Bois, Horn Island, eastern and western Ship Island, and Cat Island. Except for Cat Island, these are all part of the Gulf Islands National Seashore.

Local erosion and accretion occur to some extent on all gulf and sound shores of the islands. While erosion is intense at the eastern island tips, the western ends are rapidly prograding (Waller and Malbrough 1976). In recent years, the westward spit extension has been dramatically slowed by maintenance dredging of navigation channels through some of the tidal passes.

Hurricanes and tropical storms play a major role in the temporal changes of the barrier islands. The historical patterns of change for most islands are well known (Otvos 1979),

and the record shows that major changes have been brought about as sudden responses to hurricane impacts. Ship Island was temporarily cut at least five times during the last 130 years. Hurricane Camille (the most intense hurricane in recent U.S. history) formed a 3-km wide cut in 1969, separating the island into its present eastern and western parts.

COASTAL RESOURCE MANAGEMENT

Mississippi Coastal Resource Management

Mississippi has a federally approved coastal zone management program. State concern about the coastal wetlands and barriers became evident in 1973 when the State's Coastal Wetlands Protection Law was passed, 1 year after the Federal Coastal Zone Management Act.

Coastal Wetlands Protection Law. This law established a State policy to favor "the preservation of the natural state of the coastal wetlands and their ecosystems and to prevent the destruction of them, except where a specific alteration of coastal wetlands would serve a higher public interest in compliance with the public purposes of the trust in which these wetlands are held." Following passage of this law, Mississippi began developing its coastal zone management program. This program was approved by the National Oceanic and Atmospheric Administration's Office of Coastal Zone Management in September, 1980.

Mississippi Coastal Program. This program established the guidelines and specific procedures to be used in carrying out the mandates of the Coastal Wetlands Protection Law. Regulated activities specifically include dredging, filling, and the erection of coastal structures. Very few of the regulations affect the non-wetland areas of any CBRS units.

The Mississippi Commission on Wildlife Conservation is ultimately responsible for administering the Coastal Wetlands Protection Law and the Coastal Program and assuring that all State agencies comply with it. Daily management of the Coastal Program is in the hands of the Bureau of Marine Resources (BMR), a subdivision of the Department of Wildlife Conservation. Though BMR administers the major portions of the program, three other agencies also monitor decisions to ensure compliance with the Coastal Program objectives. These agencies include the Bureau of Pollution Control, the Bureau of Land and Water Resources, and the Department of Archives and History.

Local Actions

Even before the enactment of CBRA in 1982, Mississippi's barrier islands were the focus of major environmental controversies. For example, in early 1981, the Deer Island Development Corporation (DIDC) announced its intention to develop a portion of Deer Island with residential condominiums. Jarman and Mills (1982) provided the following description of

the island and the sequence of events which followed DIDC's announcement.

The island, which at one point is only a few hundred yards from the mainland of Biloxi, provides a protective storm buffer for the mainland. In addition, it is a nursery area for species important in commercial and sport fisheries, a waterfowl and shore bird breeding ground and a haven for a wide variety of other wildlife. It has for many years served as a major recreational area for coast residents. The proposed development was to consist of 160 to 300 condominium vacation cabins on stilts, a swimming pool, tennis courts, roadways and possibly a marina. In order to provide utilities and transportation to the island from the mainland, DIDC made application to BMR, pursuant to the Coastal Wetlands Protection Law and the Coastal Program, to build a pier and a subterranean utility corridor under the wetlands. Following BMR's evaluation of the merit of the application and a public hearing on the permit, the Commission unanimously denied DIDC's permit application because the proposed activities were inconsistent with the policies and goals of the Coastal Program, would adversely affect the coastal wetlands and, ultimately, the public interest.

EXISTING CBRS UNITS

The CBRS units in Mississippi are all pine-forested, sandy beach-ridge barriers. Round Island and Deer Island appear to be modified remnants of the preexisting Gulfport beach-ridge plain system. They both protect small wetland areas on their landward sides from the wave action of the open Mississippi Sound. The Belle Fontaine Point unit consists of a thin barrier spit sheltering a fairly extensive associated salt marsh system. Cat Island is a beach-ridge barrier island and the westernmost barrier of Mississippi's offshore chain.

A brief description of each CBRS unit in Mississippi is provided below. Each unit is identified by its number, name, and the county in which it is located.

R01-Round Island (Jackson). This unit is a teardrop-shaped island located directly south of Pascagoula Bay. The island appears to be a remnant of a larger island that has been eroded into its streamlined shape by currents running in a southeastern or northwestern direction. The sandy fringes of the island protect an internally vegetated region.

A naturally low elevation allows frequent flooding and submergence of this small island. Both Hurricanes Camille (1969) and Frederic (1979) inundated this island with over 10 feet of water. Because of its fragile nature, development of Round Island has not been attempted.

R01A-Belle Fontaine Point (Jackson). This unit is located east of Belle Fontaine Point, in the vicinity of Graveline Bayou. It

CBRS UNITS IN MISSISSIPPI ESTABLISHED BY CONGRESS, 1982

Unit Name	Unit ID Code	County	Shoreline Length (miles)	Area (acres)
Round Island	R01	Jackson	1.2	943.7
Belle Fontaine Point	R01A	Jackson	1.3	681.9
Deer Island	R02	Harrison	4.5	2,015.6
Cat Island	R03	Harrison	2.6	668.2
Totals:			9.6	4,309.4

includes the coastline west of the bayou outlet for a little more than a mile. The inland boundary of the unit contains wetland communities.

This stretch of coastline includes barrier beaches which protect marshlands and tidal bays. The coastline is eroding and there are insufficient updrift sediment sources to nourish it. Low elevation makes this area extremely vulnerable to flooding. Since 1900 this unit has been inundated 15 times, including 2 occasions (Hurricanes Camille and Frederic) when it was submerged more than 10 feet.

R02-Deer Island (Harrison). This unit, which encompasses Deer Island in its entirety, stretches from the island's most eastern point at the entrance of Biloxi Bay to its most landward point, very near the City of Biloxi, where the island protects the Biloxi Bay Bottoms. The unit's eastern boundary is the Harrison-Jackson County line.

Deer Island itself comprises low, linear beach ridges that protect saltwater/brackish marsh habitat on its bay side. Its low elevations make it subject to flooding from storm surge and wave attack. Both Hurricanes Frederic and Camille totally inundated this island. Limited development of the island has been attempted.

R03-Cat Island (Harrison). Only two segments of Cat Island are part of this unit: the western sixth of the island from West Point inland 1 mile, and a portion of the central "armpit" extending from Spit Cove to the eastward-facing beach.

The crossbow shape of Cat Island suggests that it has been subject to two different dominant wave attacks opposed at right angles. The beach ridges which coalesce to form the main body of Cat Island do not exceed elevations of 6 feet. The beaches are narrow and storm surges have overwashed them, forming washover fans and terraces in the backbeach area. Although Hurricane Camille submerged the entire island, post-storm surveys indicated that nearly all of the island remained intact, losing only 0.05 percent to underwater shoals (U.S. Army Corps of Engineers 1970). There is no new sand entering the system, so the island must maintain itself by using its own sand. Sand from the north-south trending part of the island is eroding, and incidental waves are using that material to extend South Spit.

Present development on the island is limited to a few dredged channels in its northern "armpit" and to some citrus agriculture and sparse residential development in the south.

PROPOSED ADDITIONS AND MODIFICATIONS

This section identifies proposed recommendations for additions to the Coastal Barrier Resources System. 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. These 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 Mississippi reviewed these documents and supports the addition of all units in the inventory except MS-03, Buccaneer. The State is concerned that the addition of this unit would prevent the State from using Federal funds to widen the road that runs through the unit.

The Department received 21 other comments concerning Mississippi; all related to keeping Deer Island in CBRS. A petition with 67 signatures opposing deletion of Deer Island from CBRS was also received.

The Department of the Interior proposes to recommend that all undeveloped, unprotected coastal barriers and associated aquatic habitat identified in the inventory be added to the Coastal Barrier Resources System. Since MS-03 is an "otherwise protected" unit, the Department concurs with the State's request for deletion. In 1982, the Department recommended that all of Cat Island, R03, be placed in the System; however, Congress included only two small parts of the island. The entire island meets the geological definition of a coastal barrier, and none of it is developed or under a phased development. Therefore, the Department proposes to recommend again that all of Cat Island be included in the CBRS. A table presenting the Department's current position on each unit identified in the inventory follows this discussion.

SUMMARY OF PROPOSED RECOMMENDATIONS FOR COASTAL BARRIERS IN MISSISSIPPI

Unit ID Code ^a	Unit Name ^b	County	Congress. Dist. ^c	Shoreline Length (miles) ^d	Area (acres) ^e	Proposed Recommendation ^f
MS-01	Gulf Islands	Jackson Harrison	5	—	—	Federally protected (NPS); no further consideration
R01	Round Island	Jackson	5	1.20	944	No change to existing CBRS unit
R01A	Belle Fontaine Point	Jackson	5	1.30	1,547	Add new area to existing CBRS unit
MS-02	Marsh Point	Harrison	5	2.26	1,173	Add to CBRS; no change from inventory
R02	Deer Island	Harrison	5	4.50	2,016	No change to existing CBRS unit
R03	Cat Island	Harrison	5	5.00	6,567	The entire island qualifies as an undeveloped, unprotected coastal barrier; add rest of island to existing CBRS unit
MS-03	Buccaneer	Hancock	5	—	—	State protected; no further consideration
MS-04	Heron Bay Point	Hancock	5	0.90	72	Add to CBRS; no change from inventory
Total - CBRS as Recommended				15.16	12,319	
Existing CBRS				9.6	4,309	
Net Change in CBRS				+5.56	+8,010	

^aUNIT ID CODE - State initials (MS) plus a number identify a proposed new unit. An existing unit is identified by the legal code letter (R) 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 changes 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.

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.

REFERENCES

Jarman, M.C., and C.L. Mills. 1982. The Mississippi Coastal Program: a review.

Miss.-Ala. Sea Grant Consortium Publ. MASGP-023.

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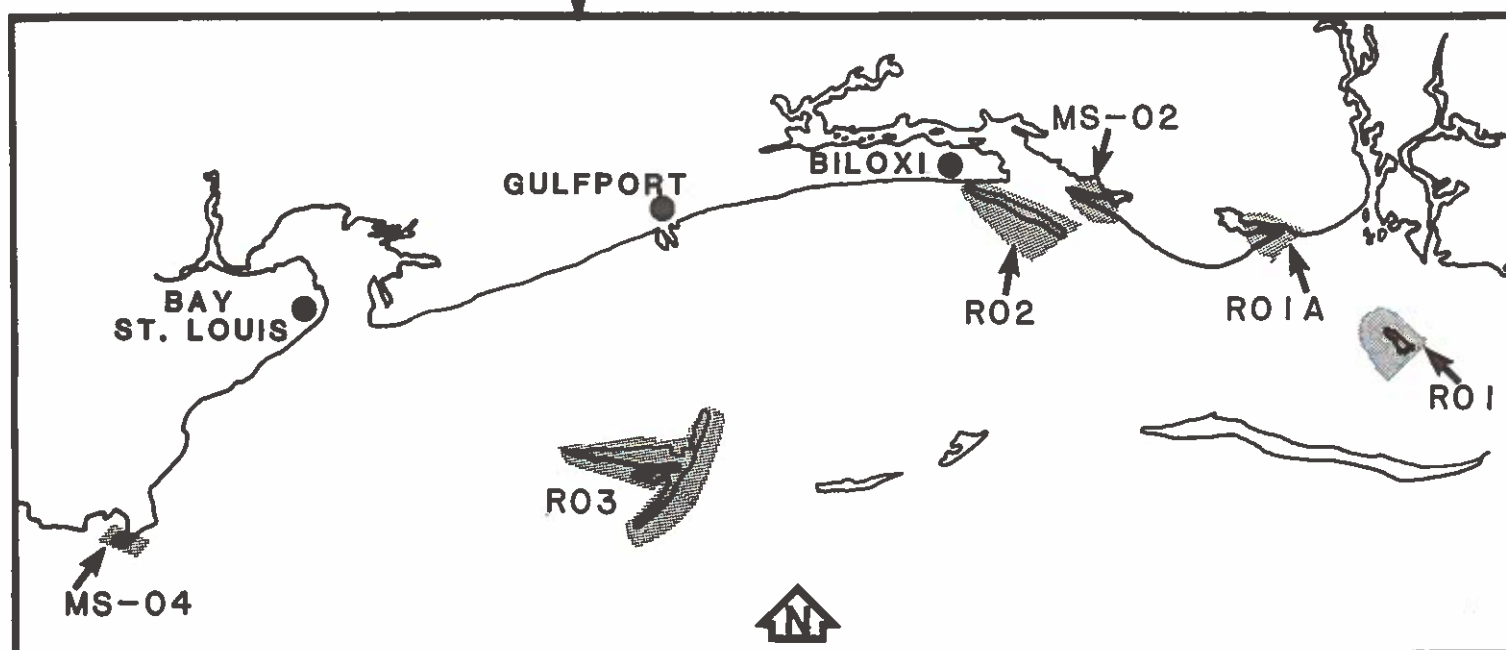
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INDEX TO EXISTING AND PROPOSED CBRS UNITS IN MISSISSIPPI

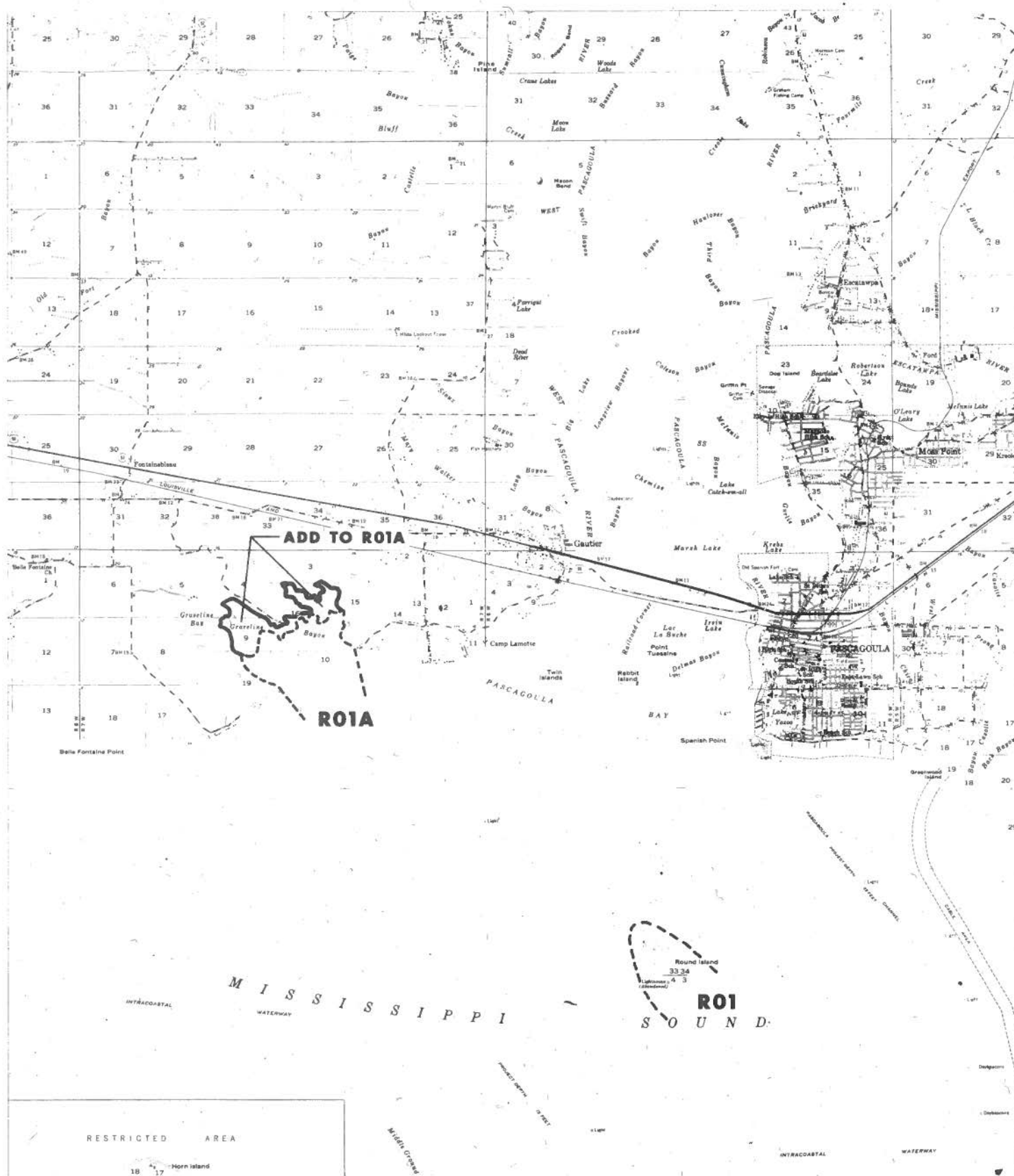
USER NOTE: To locate the map(s) of each existing and proposed CBRS unit in this volume, consult the table below.



EXISTING AND PROPOSED CBRS UNITS AND THEIR LOCATION IN THIS VOLUME

Unit ID Code	Unit Name	USGS Topographic Map or Map Composite	Page
R01	Round Island	Pascagoula	8
R01A	Belle Fontaine Point	Pascagoula	8
R02	Deer Island	Ocean Springs	9
MS-02	Marsh Point	Ocean Springs	9
R03	Cat Island	Cat Island	10
MS-04	Heron Bay Point	Grand Island Pass	11

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



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



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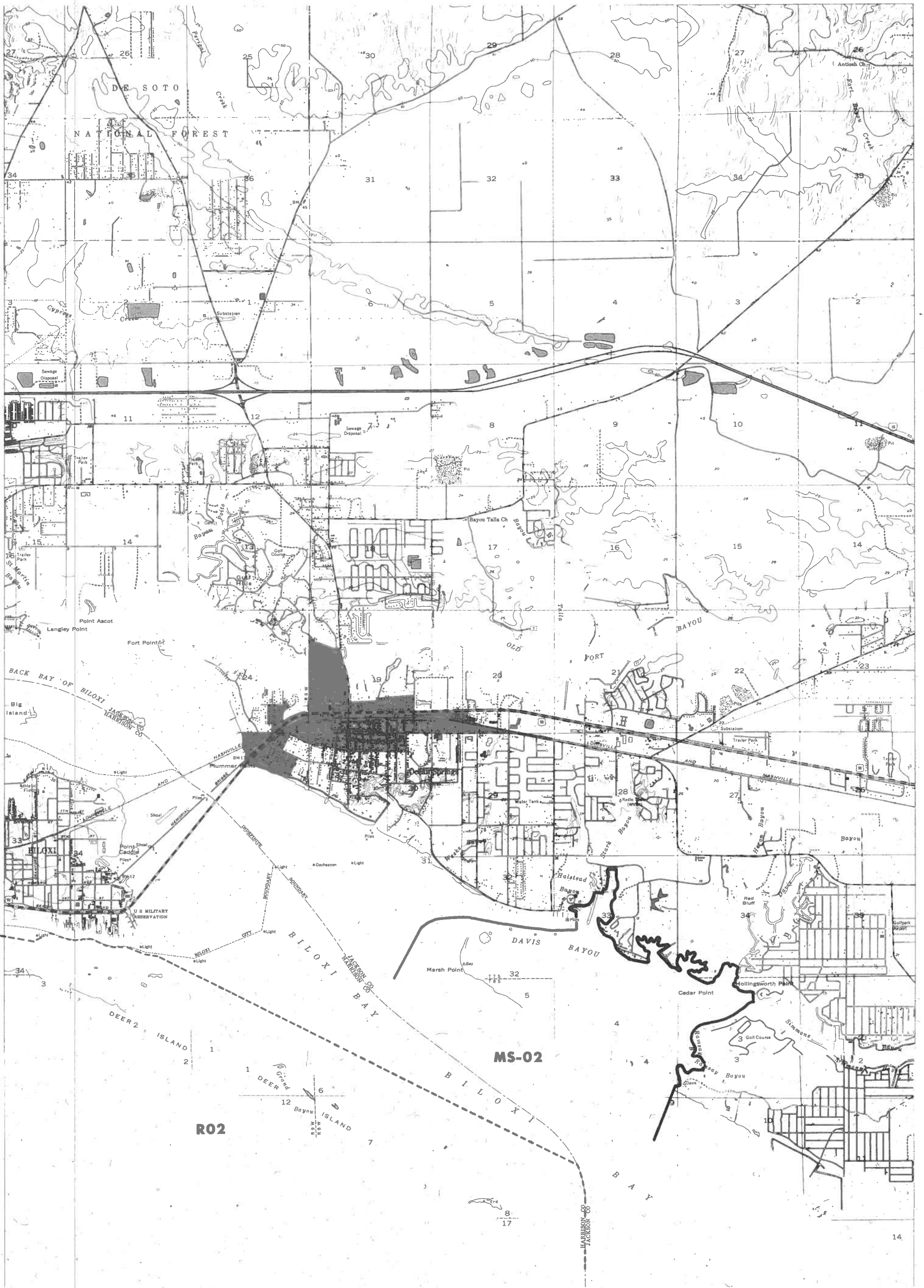
QUADRANGLE
PASCAGOULA
MISSISSIPPI

SCALE
1 1/2 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

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.

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Washington, D.C. 20240

Base Map is the U.S. Geological Survey 1:62,500 scale quadrangle.



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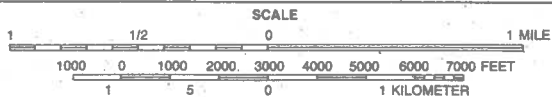
UNITED STATES
DEPARTMENT OF THE INTERIOR
DONALD P. HODEL, SECRETARY



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QUADRANGLE
OCEAN SPRINGS
MISSISSIPPI



Solid lines depict proposed recommendations for additions or deletions to the Coastal Barrier Resources System. (Section 10 of P.L. 97 - 348.)
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Base Map is the U.S. Geological Survey 1:24,000 scale quadrangle.

