

STUDY TITLE: Northeastern Gulf of Mexico Coastal Ecological Characterization

REPORT TITLE: Ecological Characterization Atlas of Coastal Alabama: Map Narrative

CONTRACT NUMBERS: BLM: MU0-20; MMS: 14-12-0001-30037

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREAS: Eastern Gulf of Mexico; Central Gulf of Mexico

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KEY WORDS: Eastern Gulf; Central Gulf; Alabama; baseline; biology; characterization; terrestrial; habitat; socioeconomics; recreation; tourism; commercial fishing; recreational fishing; soil; minerals; birds; hydrology; wetlands; endangered species; maps; narratives; literature review; synthesis

BACKGROUND: The Ecological Characterization Atlas of Coastal Alabama is one of a series of characterizations of coastal ecosystems cosponsored by the Minerals Management Service and produced by the U.S. Fish and Wildlife Service to provide coastal planning and management personnel with information relative to coastal ecology.

OBJECTIVES: (1) To provide a compilation of existing information concerning the biological, physical, and coastal conditions in Mobile and Baldwin Counties, Alabama.

DESCRIPTION: The study area includes the region from the State-Federal demarcation line to the shoreline, and the inland area of Mobile and Baldwin Counties. The atlas consists of composite overlay information provided on six 1:100,000-scale base maps with five main subject maps, totaling thirty maps. A narrative accompanying the maps discusses the mapped topics. Atlas topics include biological resources; socioeconomic features; soils and landforms; oil, gas, and mineral resources; and hydrology and climatology.

SIGNIFICANT CONCLUSIONS: Total wetland acreage in the study area is 692,000 acres, or 38% of the area, and is dominated by palustrine forest and scrub/shrub. Topics discussed and mapped in the biological resources section include bird nesting sites, submerged aquatic vegetation, shellfish harvesting areas, and recreational and commercial finfish. Topics discussed and mapped in the socioeconomic section include man-made and natural areas

having ecological or economic significance. Topics discussed and mapped in the soils and landforms section include regional surface landforms, soils, beach erosion and accretion, faults, high-energy beaches, and active dunes. Past and existing oil, gas, and minerals mining activities are discussed and mapped in that section. Information on availability and use of water is provided in the climatology and hydrology section.

STUDY RESULTS: Wetland habitats are essential nesting, breeding, rearing, nursery, and feeding grounds for many species of fish, birds, and other wildlife in coastal Alabama. Three wetland categories are mapped and described in the atlas; estuarine intertidal emergent wetlands, palustrine emergent wetlands, and combined palustrine forested and scrub-shrub wetlands. In the study area, total wetland acreage was calculated to be 692,000 acres, or about 38% of the two counties. Palustrine forest and scrub-shrub is dominant, occupying 621,000 acres or 34% of the area. Nesting sites for seabirds and wading birds, shorebirds, and migratory waterfowl are located on the atlas maps. The most important wading bird nesting site is Cat Island. The Point Aux Chenes-Grand Bay Swamp and Lower Mobile Bay are important wintering locations for migratory waterfowl. Submerged aquatic vegetation occurs within the study area and is indicated on the atlas maps. Tape grass is a freshwater species. Widgeongrass, shoalgrass, and turtlegrass are estuarine species. Shellfish harvest areas indicated on the atlas maps include shrimping areas, blue crab harvesting areas, and oyster reefs. Recreational and commercial finfish include Florida pompano, mackerels, Gulf menhaden, southern flounder, croaker, groupers, snappers, mullets, red drum, sardines, and sea trout. Study area endangered and threatened species are not mapped but listed in the atlas narrative.

Socioeconomic elements mapped and discussed include man-made features and natural areas having either ecological or economic significance, such as wildlife refuges, State park recreational areas, barrier islands, and historical or archeological sites. Man-made features include solid waste landfills, navigation channels, and dredge-spoil disposal areas. Four land use categories are mapped; forested, urban, agricultural, and uncategorized (mostly wetlands). Other mapped and discussed socioeconomic features include intensively used recreational beaches; charter and head boat services; permitted artificial fishing; public piers; public access areas and marinas; barrier islands and spits; point source discharges; solid waste landfills and onshore disposal sites; man-made land; historic places; archeological sites; navigation channels; dredge spoil disposal areas; and offshore obstructions and structures.

The soil and landforms atlas topic deals with regional surface landforms, soils, beach erosion and accretion areas, faults, high-energy beaches, and active dunes. The basic soil unit in the atlas is soil associations, a group of soil series found in the same geographic area. The study area is located in the lower Coastal Plain of the Gulf Coastal Plain physiographic province. Offshore, coastal waters belong to the Mississippi-Alabama Shelf Section of the Continental Shelf physiographic province. The lower Coastal Plain is subdivided into the Southern Pine Hills and Coastal Lowlands. The lowlands include both alluvial and deltaic plains. Coastal areas experiencing critical and non-critical erosion are mapped and described in the atlas. Faults shown on the atlas maps are marked as to their upthrown and downthrown sides. Several faults exist in the area, but probability of damage from an earthquake is unlikely. Active dunes are sand landforms influenced by wave action and/or aeolian (wind) processes that are in a constant state of change. Active dunes areas are delineated on the maps.

The oil, gas, and mineral section provides information on these activities in coastal Alabama including pipeline routes, refineries, and drilling sites. Significant mineral deposits (e.g., clay and gravel) are located and discussed.

The climatology and hydrology section relates information on water availability and use in the study area. Climate is primarily humid subtropical, due to the warming influence of the Gulf of Mexico. Normal annual rainfall for the study area is the State's highest and among the highest in the U.S., averaging 162.5 cm (64 in). Prevailing surface winds are southerly for March through July, easterly for August and September, and northerly for remaining months. Annual wind roses are given on the maps. Coastal Alabama is susceptible to hurricanes; information on the probability of hurricanes striking the area and past hurricane damage is discussed in the atlas. Hydrologic units are geographic areas representing part or all of a surface drainage basin or distinct hydrologic feature delineated by the U.S. Geological Survey (USGS). Stream flow of each unit is measured at USGS gauging stations (indicated on maps). Summaries of flows are in the atlas. Surface water quality is measured at these stations and data are summarized in the atlas. Quantities of high quality groundwater are available in the study area. Groundwater quantity and quality are summarized from USGS wells (indicated on maps) in the atlas. Currents and circulation patterns along the Alabama coast are influenced by tides, freshwater discharges, shoreline configurations, winds, longshore currents, and the Coriolis effect. Currents within Mobile Bay and Mississippi Sound and coastal areas are summarized in the atlas.

STUDY PRODUCT: Smith, M. F., Jr. (ed.). 1984. Ecological Characterization Atlas of Coastal Alabama: Map Narrative. A final report by the U.S. Fish and Wildlife Service for the U.S. Department of the Interior, Minerals Management Service Gulf of Mexico OCS Region, Metairie, LA. NTIS No. PB85-247492. FWS/OBS-82/46. MMS Report 84-0052. Contract No. 14-12-0001-30037. 207 pp. maps (1:100,000).