ACCESS NUMBER: 30036

STUDY TITLE: Southwest Florida Shelf Coastal Ecological Characterization

REPORT TITLE: Southwest Florida Ecological Characterization: An Ecological Atlas; Map Narratives

CONTRACT NUMBERS: BLM: MU0-48; MMS: 14-12-0001-30036

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREAS: Straits of Florida and Eastern Gulf of Mexico

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KEY WORDS: Straits of Florida; Eastern Gulf; Southwest Florida Shelf; Florida; baseline; biology; socioeconomics; characterization; terrestrial; estuarine; mangroves; freshwater; seagrasses; habitat; recreation; maps; narratives; literature review; synthesis

BACKGROUND: The Southwest Florida Ecological Characterization Atlas is one of a series of characterizations of coastal ecosystems sponsored by the Minerals Management Service and produced by the U.S. Fish and Wildlife Service. Federal and State decisionmakers, among others, may use these maps and narratives for coastal planning and management, and in planning for Outer Continental Shelf oil and gas development.

OBJECTIVES: (1) To compile existing information about the biological, social, and physical sciences for the Gulf coastal counties of Florida from Pasco County to Monroe County, including the Florida Keys and Dry Tortugas.

DESCRIPTION: The study area is the southwest Florida coastal region from the northern boundary of Pasco County and southeast to the Dade-Monroe County line, including all of the Florida Keys and Dry Tortugas. The offshore area includes the region from the State-Federal demarcation to the shoreline and the inland areas of Pasco, Pinellas, Hillsborough, Manatee, Sarasota, DeSoto, Charlotte, Lee, Collier, and Monroe Counties. The products of this atlas are 16 U.S. Geological Survey base maps with topic information in overlays producing a total of 80 maps and a map narrative. The information compiled in

the atlas is existing information on biological resources; socioeconomic features; soils and landforms; oil, gas, and mineral resources; and hydrology and climatology.

SIGNIFICANT CONCLUSIONS: Southwest Florida is divided into two ecoregions, the Everglades Ecological Province and the Outer Coastal Plain Forest Ecological Province. The former is a flat expanse containing hardwood swamps and emergent marshes with broad, poorly defined streams. These habitats support a highly diverse animal population. The latter is an area of gentle slopes with numerous sluggish rivers and creeks. Swamps, marshes, and lakes are abundant and support a wide variety of animal life.

STUDY RESULTS: Major habitats in southwest Florida include: (1) estuarine tidal marshes with dominant vegetation of needlerush and smooth cordgrass; (2) estuarine scrub/shrub composed of the three mangrove species: red, white, and black; (3) palustrine (freshwater) marshes generally subdivided in deep and shallow marshes, each composed of many different species; (4) palustrine forest dominated by cypress; and (5) seagrass beds composed of turtle grass, manatee grass, shoal grass, widgeon grass, and three species from the genus Halophila. The distribution and roles of these habitats in southwest Florida are discussed. Other important habitats discussed include the Florida Reef Tract off the Florida Keys and artificial reefs being built throughout southwest Florida. Shellfish harvest areas depicted on the atlas include fishery areas for several species of invertebrates including oyster beds, scallop beds, clams, shrimp, spiny lobster, stone crab, and blue crab. Finfish spawning, nursery, and harvest areas represent areas of habitat for estuarine-dependent and coastal pelagic species of commercially and recreationally important species of fish. Plant species having special attention and status are located and described in the atlas. Colonial bird nesting sites for seabirds, shorebirds, wading birds, and migratory waterfowl are located and described. Listed threatened and endangered species are described and legally defined areas established for their judicious protection are indicated on the maps.

Southwest Florida's population has nearly doubled between 1970 and 1980. Demographic profile data are provided in the atlas narrative. National lands (National parks, preserves, monuments, wilderness areas, wildlife refuges, and marine and estuarine sanctuaries) are described and located in the atlas along with National Audubon Sanctuaries. State lands (parks, recreation areas, wilderness areas, wildlife management areas, and preserves) are described and located. Other socioeconomic features described and located in the atlas are State-owned conservation lands, recreation lands, intensively utilized recreational beach access points, marinas, charter and head boat locations, public boat ramps, Florida canoe trail systems, major public fishing piers, artificial reefs, shipwrecks, major offshore structures, land use, landfills, dredge point disposal sites, industrial and municipal point source discharges, national natural landmarks, historic places designated on the National Register, and archeological and historical sites.

Study area soils reflect a pattern of soil associations. Soil associations consist of one or more major soils and at least one minor soil and are classified according to a U.S. Soil Conservation Service system. Soil associations and physical properties of each association are located and described in the atlas products. The study area is located in

the central (or mid-peninsular) and southern (or distal) physiographic regions. The central region legend units include Coastal Swamps, Gulf Coast Lowlands, Polk Upland, Brooksville Ridge, Western Valley, DeSoto Plain, Gulf Barrier Chain, and Caloosahatchee Valley. The southern region terrain is composed mostly of seawater derived lime sediments. The southern region legend units include the Immokalee Rise, Southwestern Slope, Big Cypress Spur, Reticulate Coastal Swamps, Everglades, High Coral Keys, Low Coral Keys, Oolite Keys, Distal Atolls, and Cape Sable. Existing data on beach erosion rates and locations of active dunes and high energy beaches are provided in the atlas products.

Florida is the sixth largest State in the nation. In dollars, phosphate is the leading mineral resource, followed by petroleum, cement, and stone. Mineral resources in the study area are oil and gas, sand and gravel, clay, phosphate, uranium, limestone, dolomite, and peat. The atlas provides locations of surface mineral resources. Number and location of oil and gas pipelines and drilling sites are provided in the atlas. Locations, origin, nature, and development of surface mineral deposits and environmental constraints on minerals mining in the study area are provided in the atlas.

The study area hydrologic cycle is linked to the warm subtropical climate of southwest Florida. Fifty percent of the rainfall occurs during the summer rainy season and over 80% of summer rainfall is associated with convective thunderstorms. Two principal groundwater aquifers are present in the study area, the Floridan Aquifer and a small portion of the Biscayne Aquifer. A surficial aquifer underlies most of the study area. A potentiometric contour map of the Floridan Aquifer is located in the atlas, providing data on the relative size, storage, and direction of flow of subsurface waters. Study area annual monthly precipitation can be described as bimodal with summer and late winter rainy seasons and fall and spring dry seasons. Three primary wind seasons occur in the study area: fall-winter with generally moderate northeasterly winds; spring with moderate south winds; and summer with light and variable southerly winds. Wind roses are provided on the atlas map. There is a lack of reliable water current data available in the study area. Generally, a moderate south-southeast current prevails in the spring, light southern-southeast current in the summer, and northeast current during the fall and winter months. Current roses are provided on the atlas maps. Florida is the most vulnerable State in the U.S. to hurricanes. The atlas maps depict maximum areas subject to flooding for Saffir/Simpson category 1-5 hurricanes. Hydrologic unit water budgets, measuring change in unit storage capacity from inflow and outflow of water, are calculated using existing U.S. Geological Survey (USGS) data. USGS stream gauging stations, USGS monitoring wells and Florida Department of Environmental Regulation water quality stations are located on the map atlas and data from these stations are provided in the atlas narrative. Study area primary water users-agriculture, municipal water supply systems, and industry are listed in the atlas.

STUDY PRODUCTS: Palik, T. F. and R. R. Lewis, III. 1983. Southwest Florida Ecological Characterization: An Ecological Atlas. Map Narratives. 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 Office, Metairie, LA. FWS/OBS-82/47. Contract No. 14-12-0001-30036. 329 pp.

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*P.I.'s affiliation may be different than that listed for Project Managers.