

STUDY TITLE: Ecological Characterization of the Mississippi Delta Plain Region

REPORT TITLE: Mississippi Deltaic Plain Region Ecological Characterization: A Socioeconomic Study, Volume 1: Synthesis Papers and Volume 2: Map Narratives

CONTRACT NUMBERS: BLM: MU8-28; MMS: 14-12-0001-29085

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREAS: Central Gulf of Mexico

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CUMULATIVE PROJECT COST: \$892,250

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BACKGROUND: Within the complex Mississippi Deltaic Plain Region (MDPR), there has been rapid economic growth and development during the past half century. Much of this growth has been associated with hydrocarbon development both onshore and, more recently, offshore. As the MDPR has developed, there has been increasing concern over potential for serious environmental impact. In a Memorandum of Understanding, the Bureau of Land Management and the U.S. Fish and Wildlife Service agreed that in the course of the Ecological Characterization Study for the MDPR, socioeconomic programs should receive special attention because of extensive oil and gas activities and their impacts on the area.

OBJECTIVE: To develop and synthesize a broad information base that represents the MDPR in terms of oil and gas, social demographic characteristics, land use, transportation, commercial fishing and trapping, recreation and tourism, and agricultural production activities.

DESCRIPTION: The study includes three products: seven synthesis papers (Volume 1); map narratives (Volume 2); and a detailed map atlas (Volume 3). The seven

synthesis or status papers on socioeconomic conditions in the MDPR include overviews on oil and gas activities, social demographic characteristics, land use, transportation, commercial fishing and trapping, recreation and tourism, and agricultural production. The map atlas depicts socioeconomic variables across the entire study area at a scale of 1:125,000. Thirteen separate base maps cover the region. The companion volume contains narratives for the five topic overlays contained in the atlas: oil and gas, pipelines, transportation, pollution sources, and conservation/preservation/recreation. In addition, a comprehensive data appendix and an extensive resource bibliography for the MDPR study area were developed.

SIGNIFICANT CONCLUSIONS: Without question, development of the hydrocarbon industry in the MDPR has had significant socioeconomic impacts. The direct impacts are important but the secondary and tertiary impacts that have occurred throughout the region may be more important. Development of transportation networks provided the sophisticated access needed for diversified urban/commercial/industrial development of an area. Increases in incomes of residents helped to provide stimulus for more services and goods to be produced and supplied. Immigration to the area helped to provide needed skills that have diffused throughout the MDPR into all sectors of the economy. While the oil and gas development had a strong influence on the general development of the MDPR, other development stimuli have helped to continue and accelerate regional economic and population growth.

STUDY RESULTS: From the earliest efforts, development of Gulf coast hydrocarbon reserves has been dependent on continuous improvements in technology to overcome environmental constraints. Beginning with wells drilled onshore on stable ground, the oil and gas industry moved slowly seaward as economical and reliable methods were developed to deal with the marshes, swamps, and open Gulf waters off the Louisiana and Mississippi coasts. One technological change whose implications will warrant future scrutiny is the implementation of directional drilling techniques. Offshore drilling activities have utilized directional drilling for several years to minimize multiple platform fabrication costs while developing deep water oil and gas fields. A single platform can be designed with drilling equipment that extends in all directions from a common center. Onshore drilling activities, which have declined substantially in recent years, could increase in the near future, especially if market conditions make development of the Tuscaloosa Trend more financially attractive. Onshore directional drilling is relatively expensive when compared to vertical drilling, because of the added distance that must be drilled to reach the same level below ground. Despite its greater cost, directional drilling can be less disruptive than vertical drilling activities, because hydrocarbon reserves can be extracted from beneath the surface of ecologically sensitive areas with relatively little ecological disturbance. The merits and disadvantages of directional drilling should be examined in development of policies and guidelines for hydrocarbon resource development in the MDPR. In addition to pure historical aspects of oil and gas development in the MDPR and descriptions of current conditions, one of the more significant findings of this analysis has been that three Mississippi counties have had little onshore and offshore impact from hydrocarbon development, when compared to 14 parishes in Louisiana, and are likely to experience little activity in the future.

Analysis of social and demographic trends in the MDPR during the past 20 years indicates that while hydrocarbon industry development has had a profound impact on area social and economic characteristics, these impacts are more properly viewed as the first in a long series of growth and development episodes sustained by various forces. Because of existing infrastructure, attractive living conditions, available energy resources, accessibility to domestic and foreign markets, and regional growth patterns, the MDPR can be expected to prosper well into the future. Ship building and repair, grain storage, and other industries, along with oil and gas field service centers, typify the deltaic region. Many of the industrial developments are related to an inexpensive and available supply of fossil fuels, and access to deep water shipping.

Land use patterns within the MDPR are changing as urban development spreads northward of Lake Pontchartrain. Transportation and land use in the MDPR are even more closely linked than in other parts of the country. With the exception of fossil fuel energy, transportation may be the most important factor affecting future growth and land use decisions. Industry relies on inexpensive water transport wherever possible; thus, the Mississippi River, the ship channel to New Orleans, the Gulf Intracoastal Waterway, and oil service canals are of critical importance. Surface land transport is also environmentally controlled as the Deltaic Plain poses severe restrictions on railroad, expressway, and local highway construction. Rights-of-way frequently follow former Mississippi River natural levees or old shorelines. Urban, commercial, industrial, and agricultural land use has followed transportation patterns as ingress in wetlands was created.

Biological productivity in the MDPR is phenomenal. Each year fishermen catch 45 million kilograms of estuarine-dependent fish and shellfish, primarily menhaden, oysters, and shrimp. Oysters, shrimp, and blue crab are abundant in the delta. Scale fish and industrial fish, as well as muskrat and nutria, constitute other significant renewable resources. Both commercial fishing and trapping are traditional activities with long, colorful histories associated with French Cajuns and other swamp dwellers. Today, these industries continue in many areas as folk industries, but modern technology and commercial operations account for a disproportionate quantity of catch. Fluctuating market price for fish and furs, as well as employment opportunities in the oil fields and elsewhere, render these industries most plastic.

The MDPR is divided into three general agricultural areas. First, parishes on the coast are characterized by large salt marsh areas where there is very little agriculture. Second, the area located just north of coastal marshes forms a band extending from the western end of Lake Pontchartrain to the western study area boundary. About 40% of this area is used for farming. The third area is located north of Lake Pontchartrain and continues eastward to the eastern study area boundary. About 50% of this land is used for agriculture, including forest products. Agricultural activity in the coastal zone is characterized by a few major crops, sugar cane, soybeans, and rice. Increasing economic pressures are being exerted on agricultural lands in the MDPR. Encroaching urban development and declining service and processing networks are making agriculture unprofitable in many areas.

STUDY PRODUCTS: Larson, D. K., D. Davis, R. Detro, P. Dumond, E. Liebow, R. Motschall, D. Sorensen, and W. Guidroz. 1980. Mississippi Deltaic Plain Region Ecological Characterization: A Socioeconomic Study. Vol. 1, Synthesis Papers. A final report by the U.S. Fish and Wildlife Service for the U.S. Department of the Interior, Bureau of Land Management Gulf of Mexico OCS Office, New Orleans, LA. NTIS No. PB80-198468. FWS/OBS-79/05. Contract No. 14-12-0001-29085. 368 pp.

Larson, D. K., D. Davis, R. Detro, P. Dumond, E. Liebow, R. Motschall, D. Sorensen, and W. Guidroz. 1980. Mississippi Deltaic Plain Region Ecological Characterization: A Socioeconomic Study. Vol. 2, Map Narratives. A final report by the U.S. Fish and Wildlife Service for the U.S. Department of the Interior, Bureau of Land Management Gulf of Mexico OCS Office, New Orleans, LA. NTIS No. PB80-219579. FWS/OBS-79/06. Contract No. 14-12-0001-29085. 112 pp.