
CHAPTER 2. STATE OVERVIEW

A. Geographic Context

1. Geography:

Louisiana is located in the south-central United States at the terminus of the Mississippi River. Alexandria, Baton Rouge, Lafayette, Lake Charles, Monroe, New Orleans, and Shreveport are its major cities.

The physiographic features of the state include pine hills, alluvial plains, coastal marshes, prairies, and bluffs. Natural elevations range from below sea level along the coastal zone to 535 feet in the northern uplands. Land cover in the northwestern and western part of the state consists mostly of upland, mixed evergreen/deciduous forests. The northeast and south-central part of the state is mainly agriculture-cropland-grassland, with some remnant forests consisting of highly fragmented bottomland hardwoods. The upper portion of the southeastern part of the state, known as the Florida Parishes, consists primarily of upland forest dominated by evergreen/mixed hardwoods, agriculture-cropland-grassland areas with some upland scrub-shrub, and longleaf pine flatwoods. The lower southeastern portion is made up mainly of water, marsh areas ranging from fresh to saline, and bottomland hardwoods. The southwestern part of the state is dominated by agriculture-cropland-grassland and upland or wetland scrub-shrub vegetation. The coastal portion of the state is made up mostly of fresh, intermediate, brackish, and saline marshes and, increasingly, open water (Hartley et al. 2000).

Presently, nearly all of coastal Louisiana is retreating before the advance of the Gulf of Mexico due to the containment of the Mississippi River for navigation and flood control, and other factors. The Mississippi and Atchafalaya river deltas are the only coastal areas with significant sediment accretion and delta formation. The floodplain of the Atchafalaya River, the largest tributary of the Mississippi River, holds the best known example of forested wetlands in Louisiana and the largest remaining hardwood swamp in the country.

2. Geology:

Geologically, most of Louisiana's surface area consist of Quaternary sediment. Holocene alluvial sediments deposited by the Mississippi, Red, Ouachita, and other rivers constitute 55% of the surface area, 25% of the state's surface is occupied by deposits associated with Pleistocene terraces, and the final 20% comprises strata of Tertiary age, principally on the Sabine uplift (which lies in the northwest portion of the state), and in the north Louisiana salt-dome basin. Within this area, Cretaceous rocks are present in a few small exposures on the tops of salt domes that have surface expression along with wind-blown loess deposits.

During glacial episodes in the Quaternary, sea levels dropped and shorelines moved seaward. As a result, rivers flowing into the Gulf of Mexico would deposit their sediments farther out and outwash deposits of sand, gravel, and silt, known as valley trains, were deposited in the lower Mississippi valley. Remnants of valley trains deposited in the late Pleistocene can be found along the western edge of the Mississippi River flood plain in northeastern Louisiana. Areas adjacent to the Mississippi River valley were covered by loess, a wind-blown silt derived from glacial outwash deposits. Loess deposits up to several meters thick remain preserved in areas flanking the valley.

3. Coastal Zone:

Louisiana has over 3 million acres of coastal wetlands which constitute about 30% of the remaining coastal marsh in the lower 48 states. Louisiana's coastal zone can be divided into two distinct regions: the Chenier Plain, extending west from Vermilion Bay, Louisiana, into Texas; and the Deltaic Plain, from Vermilion Bay east to the Pearl River Basin on the Mississippi state line. Both areas were formed by historic patterns of sedimentation and erosion from the Mississippi River and its tributaries along with influences from the Gulf of Mexico. Over the past several thousand years, these deltaic processes created more than four million acres of coastal wetlands and gave rise to one of the most productive ecosystems on Earth. The Chenier Plain contains highly productive inland lakes and wetlands behind oak-covered remnant beach ridges (cheniers) that parallel the coast. The Deltaic Plain is characterized by a vast system of low-lying wetlands and coastal barrier islands (Benoit 1997). These wetland ecosystems are of national significance in terms of their ability to support substantial commercial and recreational freshwater and marine fisheries. They also serve as a haven for fur-bearing animals, shorebirds, waterbirds, overwintering waterfowl, and migrating Neotropical songbirds.

Coastal Louisiana has one of the highest land loss rates in the United States. Thirty-five to 40 sq miles of coastal wetlands are estimated to have disappeared annually over the last 30 years, accounting for 90% of coastal marsh loss nationwide. Annual losses were estimated by the U.S. Army Corps of Engineers (COE) to be 40-50 sq miles during the late 1980's (Benoit 1997, Johnston et al. 1995). Since the 1930s, coastal Louisiana has lost over 1.2 million acres of land. It was estimated in 2000 that coastal Louisiana would experience an additional loss of 431,000 acres by 2050 (Fig. 2.1). Historic hydromodification of the Mississippi River, dredging canals for oil and gas exploration and pipeline installation, and dredging and filling for residential and commercial development combine with natural factors, such as hurricanes, to produce such losses (Benoit 1997). Additionally, sea level rise, land subsidence, and erosion of barrier islands, which leave the leeward areas less adequately buffered from wind and tidal influences, contribute to coastal wetland loss by converting coastal wetlands to open water areas. The extraction and transport of crude oil, natural gas, and other minerals from state lands and waters, and from the federally-controlled Outer Continental Shelf have required the development of an extensive network of access canals, pipelines, and drilling sites. These activities have contributed greatly to land loss and to ecosystem alterations from ensuing saltwater intrusion (Benoit 1997).

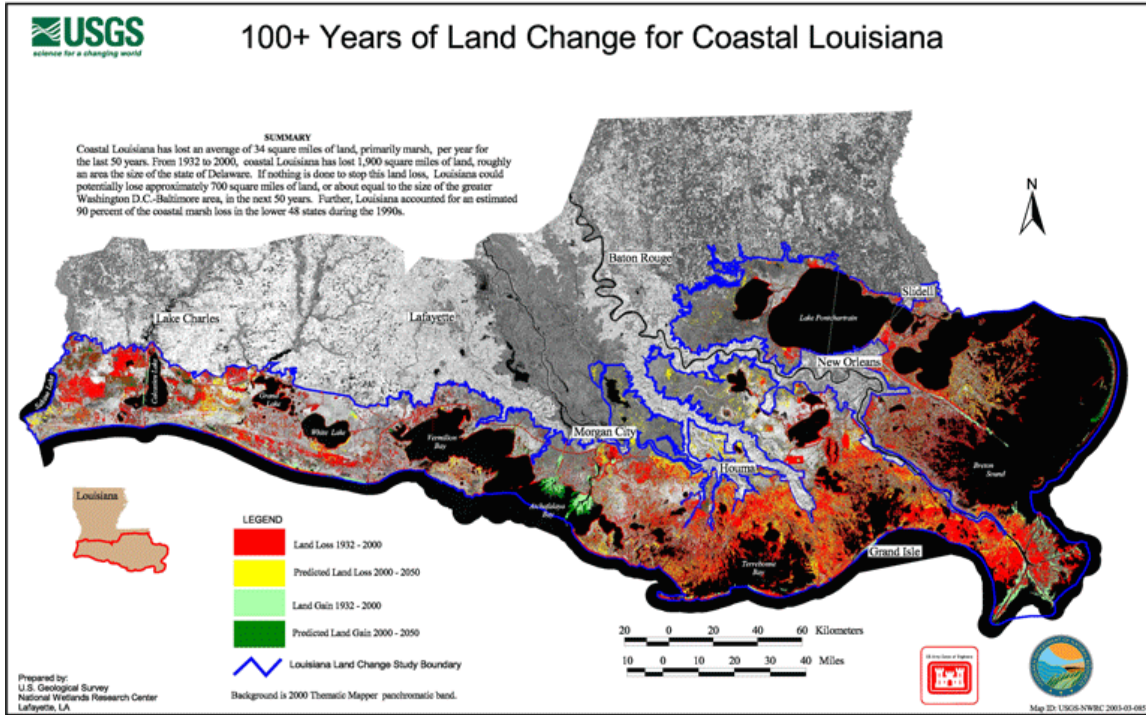


Figure 2.1. Historical and projected land loss for coastal Louisiana.

4. Coastal Zone Facts:

Historical Land Loss in Coastal Louisiana - Louisiana has lost 1,900 square miles of land since the 1930's (Barras et al. 1994, Barras et al. 2003, Dunbar et al. 1992). Currently Louisiana has 30% of the total coastal marsh and accounts for 90% of the coastal marsh loss in the lower 48 states (Dahl 2000, Field et al. 1991, USGS 2005).

Current Rate of Coastal Land Loss - Between 1990 and 2000, wetland loss was approximately 24 square miles per year- that is the equivalent of approximately one football field lost every 38 minutes. The projected loss over the next 50 years, with current restoration efforts taken into account, is estimated to be approximately 500 square miles (Barras et al. 2003).

Population Living in the Coastal Parishes - In 2000, over 2 million residents- more than 50% of the state's population according to U.S. Census Bureau (USCB) estimates- lived in Louisiana's coastal parishes (USCB 2002).

Louisiana Energy Facts - Among the 50 states, the following are some statistics for Louisiana's Primary Energy Production for 2003 (LDNR 2004). Although production is statewide, much comes from the coastal parishes.

| | Crude Oil | Natural Gas |
|--|-----------------------|-----------------------|
| Including Outer Continental Shelf Production | Ranks 1 st | Ranks 2 nd |
| Excluding Outer Continental Shelf Production | Ranks 4 th | Ranks 5 th |

Waterborne Commerce - Louisiana coastal wetlands provide storm protection for ports that carry nearly 500 million tons of waterborne commerce annually, which accounts for 21% of all waterborne commerce in the United States each year. Four of the top ten largest ports in the United States are located in Louisiana (COE 2002).

Commercial Fishing - In 2002, Louisiana commercial landings exceeded 1 billion pounds with a dockside value of \$343 million, that accounts for approximately 30% of the total catch by weight in the lower 48 States (USDC 2002).

Fur Harvest - Trapping in Louisiana coastal wetlands generates approximately \$2 million annually (LDWF 2004a).

Alligator Harvest - The Louisiana alligator harvest is valued at approximately \$30 million annually (LDWF 2003).

Waterfowl - Louisiana's coastal wetlands provide habitat for over 5 million migratory waterfowl (LDWF 2000).

Coastal Restoration Projects (1986-2004) - 467 projects have been constructed

State-funded projects - 39 projects constructed

Breaux Act projects - 71 projects constructed

Parish Coastal Wetlands Restoration Program (Christmas Tree Program) - 35 projects constructed

Other federally-assisted projects - 31 projects constructed

Vegetation Planting Program - 291 project sites

Other Coastal Restoration Efforts

Breaux Act Projects - 61 additional projects have been approved and are currently in the design phase.

Louisiana Coastal Area Comprehensive Coastwide Ecosystem Restoration Study (LCA) - The goal of the LCA Study is to gain a federal and state commitment to a large-scale ecosystem restoration program in coastal Louisiana (www.lca.gov).

America's Wetland Campaign - The campaign was established in 2002 to increase national and world awareness of issues associated with Louisiana's coastal wetland loss (www.americaswetland.com).

Note: The above listed coastal zone facts change regularly and are only current as of 07/13/2005.

5. Climate:

The climate in Louisiana is relatively mild due to the subtropical influence of the Gulf of Mexico and cooler, drier air from the central plains. Summers tend to be hot and humid and winters are mild. Monthly temperatures range from an average high of 93.3 F in the summer to an average low of 36.2 F in the winter. Average yearly precipitation ranges from 66 inches in the southeast to 48 inches in the northwest. The growing season is roughly 220 days in length. Louisiana is impacted by tropical weather disturbances with an average frequency of one tropical storm every 1.6 years, one hurricane every 3.3 years, and a major hurricane every 14 years (Roth 1998).

B. Land Ownership and Population Trends

1. Land Ownership:

The state of Louisiana covers 31.4 million acres, of which 3.8 million acres are