

Louisiana

Wetland Resources

Wetlands contribute to the economic, cultural, and ecological diversity of Louisiana. Presently, wetlands cover less than one-third of the State but are estimated to have covered about one-half of the State before the arrival of Europeans (Dahl, 1990). Wetlands have greatly influenced the cultural development of the State's inhabitants. American Indians occupied villages along these highly productive lands, as evidenced by the many shell mounds in these areas. Traditional Indian cultures still exist in Louisiana near the wetlands that influenced the development of their traditions. The Acadian (Cajun) culture developed in the isolation of southern Louisiana wetlands, and the popularity of Cajun cuisine today is directly related to the foods available from those areas. Major cities and towns such as New Orleans, Houma, Morgan City, and Lake Charles developed close to wetlands because of the wealth of natural resources available.

Wetlands are a major source of income for the people of Louisiana. Shellfish and finfish revenues from coastal and inland waters are estimated at \$680 million annually (Keithly, 1991). In 1984, Louisiana was ranked first in the Nation in fisheries landings and second in fisheries value. In 1986, 28.6 percent of the commercial fish harvested in the Nation came from Louisiana; in 1991, that number dropped to 10.9 percent (The Advocate, Baton Rouge, April 18, 1993). The decline in Louisiana's commercial landings is believed to be related to coastal-wetland losses in the State. All of the commercially valuable fish species spend all or part of their life cycle in wetlands. Further, as recently as 1984, 40 percent of the Nation's wild furs and hides came from Louisiana wetlands (Louisiana Department of Wildlife and Fisheries, written commun., 1984). Louisiana wetlands also generate funds from recreational uses such as hunting, fishing, and bird watching. There are 17 National Wildlife Refuges, 28 State Wildlife Management and Refuge Areas, 7 State Parks, 1 National Park, and numerous State commemorative sites located entirely or partly within wetlands. In addition to these areas, The Nature Conservancy has two coastal preserves and five forested preserves in wetland areas (David Pashley, The Nature Conservancy, oral commun., 1993).

Ecologically, the rich diversity of plant and animal life in Louisiana wetlands is a priceless natural heritage for both the State and

the Nation. State wetlands provide year-round habitat for eight endangered species and four threatened species. Many species of neotropical songbirds use Louisiana wetlands for resting and feeding habitat during migration. The State's wetlands provide winter habitat for many other species of birds, including the Arctic peregrine falcon and about one-half of the ducks, geese, and other waterfowl that use the Mississippi Flyway. Large numbers of waterfowl from the Central Flyway winter in the southwestern part of the State.

Wetlands in Louisiana are important in flood control and reduce the effects of storm surges associated with hurricanes. Wendell Curole of the Lafourche Parish Levee District has stated that 1 mile of marsh reduces a storm surge by 1 foot (The Advocate, Baton Rouge, April 18, 1993). As coastal wetlands are lost, this natural wetland function commonly is replaced by expensive storm surge projects (levees and gated structures) to protect coastal communities such as New Orleans and Houma. Wetlands also are being used as tertiary wastewater-treatment alternatives for small municipalities such as Thibodaux and, in general, serve as filters or traps for sediment, nutrients, and pollutants carried by water passing through them.

TYPES AND DISTRIBUTION

Wetlands are lands transitional between terrestrial and deep-water habitats where the water table usually is at or near the land surface or the land is covered by shallow water (Cowardin and others, 1979). The distribution of wetlands and deepwater habitats in Louisiana is shown in figure 2A; only wetlands are discussed herein.

Wetlands can be vegetated or nonvegetated and are classified on the basis of their hydrology, vegetation, and substrate. In this summary, wetlands are classified according to the system proposed by Cowardin and others (1979), which is used by the U.S. Fish and Wildlife Service (FWS) to map and inventory the Nation's wetlands. At the most general level of the classification system, wetlands are grouped into five ecological systems: Palustrine, Lacustrine, Riverine, Estuarine, and Marine. The Palustrine System includes only wetlands, whereas the other systems comprise wetlands and deepwater habitats. Wetlands of the systems that occur in Louisiana are described below.



Figure 1. A freshwater forested wetland on the shore of Lake Pontchartrain near La Branche. This wetland, which is near the New Orleans metropolitan area, is threatened by urban encroachment and runoff. (Photograph by Dennis K. Demcheck, U.S. Geological Survey.)

| System | Wetland description |
|------------------|---|
| Palustrine | Nontidal and tidal-freshwater wetlands in which vegetation is predominantly trees (forested wetlands); shrubs (scrub-shrub wetlands); persistent or nonpersistent emergent, erect, rooted herbaceous plants (persistent- and nonpersistent-emergent wetlands); or submersed and (or) floating plants (aquatic beds). Also, intermittently to permanently flooded open-water bodies of less than 20 acres in which water is less than 6.6 feet deep. |
| Lacustrine | Nontidal and tidal-freshwater wetlands within an intermittently to permanently flooded lake or reservoir larger than 20 acres and (or) deeper than 6.6 feet. Vegetation, when present, is predominantly nonpersistent emergent plants (nonpersistent-emergent wetlands), or submersed and (or) floating plants (aquatic beds), or both. |
| Riverine | Nontidal and tidal-freshwater wetlands within a channel. Vegetation, when present, is same as in the Lacustrine System. |

Estuarine Tidal wetlands in low-wave-energy environments where the salinity of the water is greater than 0.5 part per thousand (ppt) and is variable owing to evaporation and the mixing of seawater and freshwater.

Marine Tidal wetlands that are exposed to waves and currents of the open ocean and to water having a salinity greater than 30 ppt.

Palustrine wetlands, which include swamps, scrub-shrub wetlands, nontidal and tidal fresh marshes, and ponds, are the most common wetlands in Louisiana. Palustrine wetlands accounted for approximately 78 percent of the wetlands in Louisiana in the 1970's and are distributed statewide. The most common palustrine wetlands are swamps (forested wetlands) which contribute about 59 percent of the State's wetlands. Swamps in Louisiana are mostly cypress-tupelo gum swamps along the major rivers, bayous, and streams. In the 1970's, swamps had an area of between 5.6 and 6.8 million acres statewide, 3.0 million acres of which were in the Mississippi Alluvial Plain (fig. 2B) (Louisiana Department of Culture, Recreation and Tourism, 1988). Palustrine scrub-shrub wetlands are typically

associated with natural levees and spoil banks statewide. This type of wetland also has developed on some floating marshes in southern Louisiana. Nontidal and tidal fresh marshes are most common in southern Louisiana.

Coastal wetlands, mostly salt marshes (estuarine emergent wetlands), include about 2.5 million acres in Louisiana. About 40 percent of the State's coastal marshes are classified as fresh/intermediate (salinity 0.5–8.3 ppt, average 3.3 ppt), about 38 percent as brackish (salinity 1.0–18.4 ppt, average 8.0 ppt), and about 22 percent as saline (salinity greater than 18.4 ppt) (Louisiana Department of Culture, Recreation and Tourism, 1988; S.N. Gagliano, Coastal Environments, Inc., written commun. 1991). In the 1970's, coastal wetlands accounted for approximately 22 percent of the wetlands in Louisiana. Louisiana coastal marshes represent an estimated 35 to 40 percent of the coastal marshes and about 25 percent of all coastal wetlands in the conterminous United States. Coastal wetlands in Louisiana are in the Western Gulf Coastal Plain, Mississippi Alluvial Plain, and the Southern Coastal Plain ecoregions.

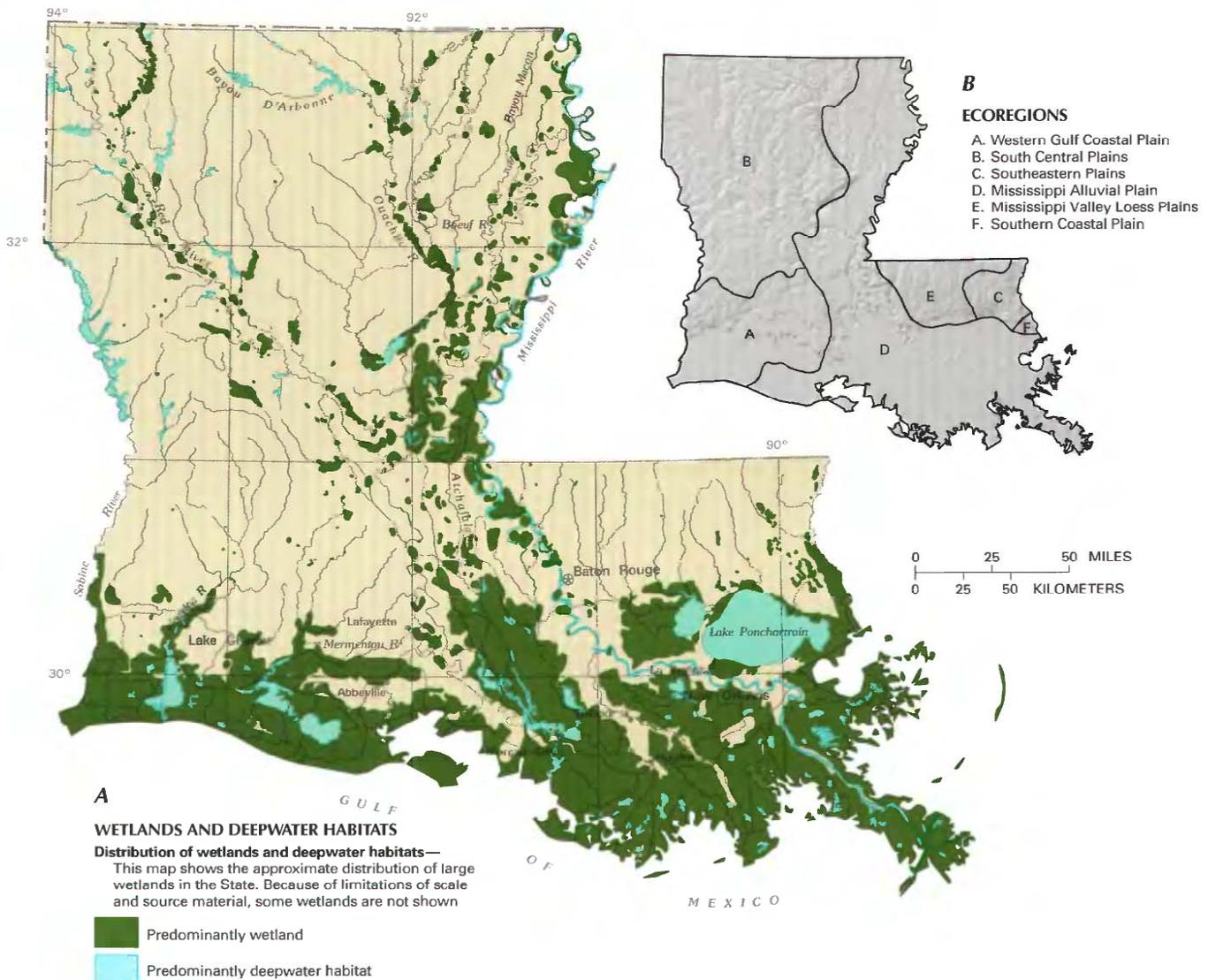


Figure 2. Wetland distribution in Louisiana and ecoregions of the State. **A**, Distribution of wetlands and deepwater habitats. **B**, Ecoregions. (Sources: A, T.E. Dahl, U.S. Fish and Wildlife Service, unpub. data, 1991. B, Omernik, 1987.)

HYDROLOGIC SETTING

Wetland hydrology is affected by regional and local geology, topography, soil characteristics, and climate. Water in wetlands can come from either surface- or ground-water sources or from both. Wetlands can function as storage reservoirs for streams or sources of recharge for ground-water systems. Water in small nontidal wetlands is typically supplied by local shallow ground-water flow systems and localized runoff. Larger wetlands can receive discharge from or provide recharge to regional as well as local ground-water systems. Soils that underlie wetlands determine the rate at which water percolates downward to recharge the ground-water system or discharges from it. Precipitation in Louisiana, which averages between 50 to 60 inches per year (Newton, 1972), provides much of the surface-water runoff that maintains the State's wetlands.

Most wetlands in Louisiana are closely associated with the State's major rivers, bayous, and streams (fig. 2A). The Mississippi River and its shifting delta have created most of the State's estuarine and palustrine wetlands. The Mississippi River drains about 40 percent of the conterminous 48 States and parts of Canada (Craig and others, 1979). Large quantities of sediment were deposited annually in the Mississippi River flood plain and along coastal Louisiana before the installation of flood-control levees along the main channel of the river. The deposition of this sediment has resulted in the largest deltaic land mass in North America (Louisiana Department of Culture, Recreation and Tourism, 1988). Deltaic deposition at the mouth of the Mississippi River has been a dynamic process; several deltas have formed over the last 5,000 years (fig. 3). Older deltas have eroded and deteriorated as the next delta was formed (Coleman and Gagliano, 1964; Frazier, 1967).

The hydrology of swamps along rivers, bayous, and streams is characterized by annual cycles of flooding and dewatering. Plant communities in these swamps typically are dominated by cypress and tupelo gum trees. The value of these swamps to fish populations and overall aquatic productivity depends upon the renewal of nutrients and oxygenated water that takes place during these annual cycles. Reduced flooding can result in a conversion of swamps into

bottom-land hardwood forests dominated by oak, hickory, and other hardwoods. Conversely, increased flooding or higher water tables can result in the conversion of bottom-land hardwood-forest wetlands to cypress-tupelo gum swamps. Excessive flooding, either in depth or duration, can result in the conversion of swamp to open-water, emergent, or scrub-shrub wetlands because of the lack of growth of new trees and the drowning of existing trees. The flood plain of the Atchafalaya River, the largest distributary of the Mississippi River, contains the best known example of a forested wetland in Louisiana. The Atchafalaya River swamp is the largest hardwood swamp in the country. The delta developing at the mouth of the Atchafalaya River is one of the few areas of the State where the shoreline (and associated marshland) is expanding.

The types of coastal wetlands (fresh, intermediate, brackish, and saline) and their distribution are dependent upon the availability of freshwater, frequency of storm-induced salinity maximums, and alterations to local hydrology caused by construction of oil- and gas-well access canals. All of these variables contribute to a continual advance and retreat of wetlands in the coastal areas of Louisiana.

TRENDS

Louisiana has lost about 46 percent of its wetlands (about 7.4 million acres) since the 1700's, when Europeans first began modifying the continent's geographic features (Dahl, 1990). Palustrine wetlands, primarily swamps, have decreased from an estimated 11.3 million acres to as little as 5.6 million acres in the 1970's. In the Mississippi Alluvial Plain, there has been a decline in palustrine wetlands from about 4.3 million acres in 1957 to about 3.0 million acres in 1977 (U.S. Fish and Wildlife Service, 1992). The decline in palustrine wetlands was due, in large part, to land clearing for agricultural purposes. Other causes of wetland loss include flood-control projects, oil and gas exploration, lignite and gravel mining, construction of catfish and crawfish ponds, dredging and filling for residential and commercial development, solid-waste disposal, and highway construction. The rate of loss of palustrine wetlands is

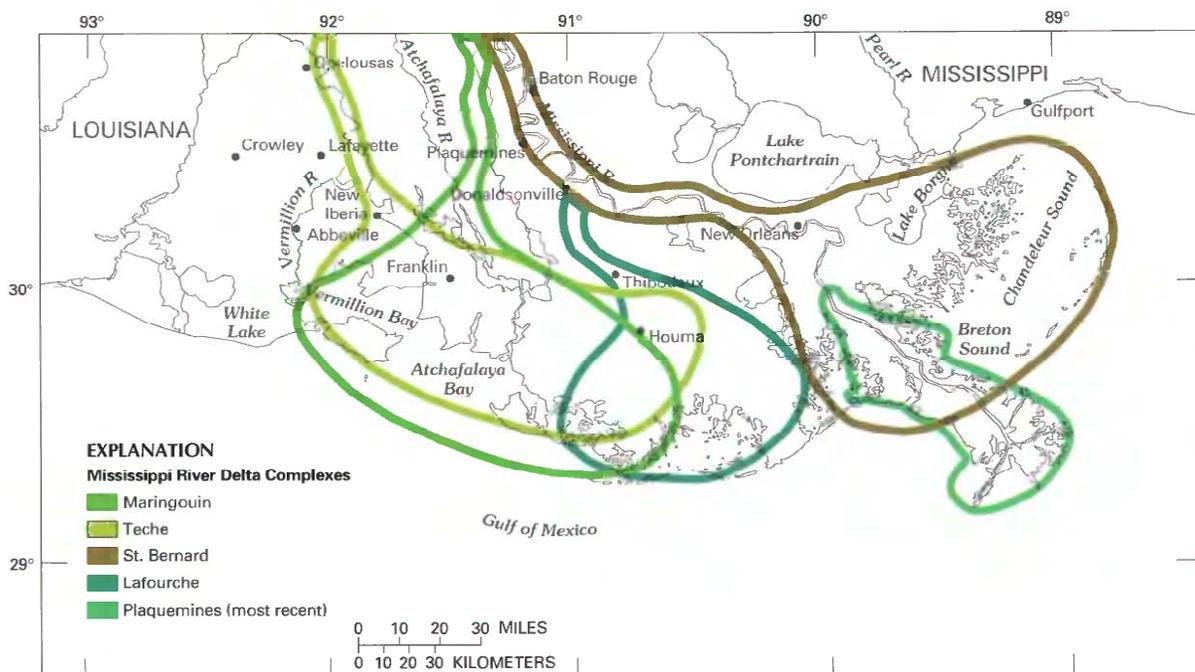


Figure 3. Prehistoric and present-day Mississippi River Delta complexes. (Source: Kolb and Van Lopik, 1966.)

thought to have been slowed by the “Swampbuster” provisions of the Food Security Act of 1985 and the 1990 Food, Agriculture, Conservation, and Trade Act, which provides for the purchase of wetlands from farmers. However, although palustrine wetland loss has slowed, it is still considered to be substantial.

Major causes of coastal wetland loss in Louisiana are a decrease in suspended-sediment load in the major streams due to dams and channelization and leveeing of the Mississippi River (Kesel, 1988, 1989); dredging of canals for oil and gas exploration, navigation, and pipeline installation; dredging, filling, and drainage for development; drainage for conversion to crop production or pasture; subsidence; erosion; marsh “eat-outs” by nutria; and hurricanes. About 8 percent of the State’s coastal marshes have been dredged, creating canals and associated spoil banks. About one-half of the State’s coastal marsh losses can be attributed to or related to canal construction (Scaife and others, 1983).

The overall balance between land gain (shoreline accretion) and land loss (shoreline erosion) in Louisiana has been one of net gain in wetland area over most of the last 5,000 years (Coleman and Gagliano, 1964) because of the abandonment of existing deltas and creation of new deltas by the Mississippi River. In the last 100 years, however, this trend has been reversed because of human alteration of the Mississippi River and the Louisiana coastal ecosystems. Construction of flood-control levees along the Mississippi River and its major tributaries and the dredging of canals in the Mississippi–Atchafalaya River Delta have deprived flood-plain and delta wetlands of sediment needed to prevent wetland loss caused by erosion or submergence.

Levee construction began as early as the 1700’s in and near New Orleans; however, construction of levees on a large scale did not begin until after the disastrous flood of 1927. Dams constructed on the Missouri River and its tributaries in the mid-1950’s trapped sediment and further reduced the sediment available to wetlands in southern Louisiana. Wetland loss was further accelerated by construction of navigation and oil- and gas-well access canals that exposed fresh and intermediate wetlands to more saline water and

disrupted historic north-south sheet-flow runoff in coastal areas.

Use of the Atchafalaya River Basin as a floodway and the extensive construction of access canals (and associated spoil banks) have resulted in the conversion of parts of the cypress-tupelo gum swamp in the basin to other types of wetlands. Wetlands created by these changes in the hydrologic system include bottom-land forests in areas of rapid deposition, scrub-shrub wetlands along spoil banks, and emergent wetlands at the mouth of the Atchafalaya and in open-water areas of the basin that have filled by sediment.

Coastal-wetland loss in Louisiana is a critical issue within the State. About 4 million acres of coastal wetlands existed in the State at the beginning of the 1900’s (Dunbar and others, 1992). Since that time, the FWS estimates that more than 900,000 acres of these coastal wetlands have been lost (U.S. Fish and Wildlife Service, 1992). Seventy-three percent (654,000 acres) of the loss occurred between the 1950’s and 1970’s. The U.S. Army Corps of Engineers (Corps) has estimated that since 1930, 17.8 percent of the land in the southern coastal plain has been lost. (Dunbar and others, 1992). The highest coastal land-loss rates occurred from 1956 to 1974 (fig. 4), and the largest loss occurred along the present-day Mississippi River Delta (Dunbar and others, 1992). Estimated land-loss rates for the Louisiana coast during 1978 to 1987 range from about 40 to 64.5 square miles per year (U.S. Fish and Wildlife Service, 1992; Temple and Meyer-Arendt, 1986). Recent estimates indicate a slight decrease in erosion rates, which were estimated to be between 25 and 40 square miles per year in 1990. However, this decrease might be a result of the decreased availability of highly erodible organic sediments relative to more erosion-resistant soils that have a higher percentage of clays and silts, rather than to restoration efforts (S.M. Gagliano, Coastal Environments, Inc., oral commun., 1991). Dunbar and others (1992) reached similar conclusions and predicted that natural land-loss rates will continue to decrease slowly until a background rate of approximately 0.17 percent per year is reached.

Loss of coastal wetlands is closely associated with the loss of fisheries productivity and revenue. The conversion of wetlands to open water also represents a threat to oil and gas wells now located

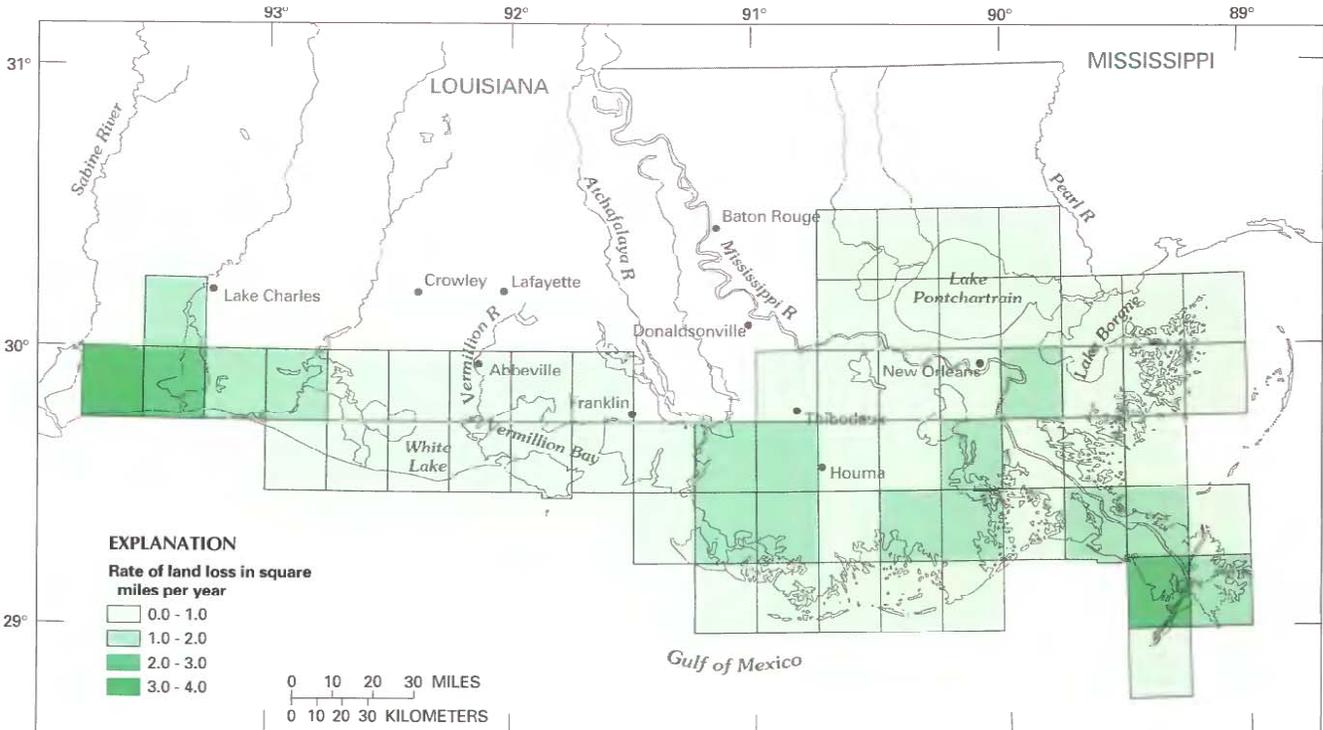


Figure 4. Average coastal land-loss rates in Louisiana, 1956 to 1974. (Source: Dunbar and others, 1992.)

in the coastal wetlands. The State and Federal governments have recognized the problems associated with the loss of wetlands and have dedicated as much as \$30 million annually for the mitigation of coastal wetland loss through the State Coastal Restoration Program and the Federal Coastal Wetlands, Planning, Protection, and Restoration Act of 1990.

CONSERVATION

Many government agencies and private organizations participate in wetland conservation in Louisiana. The most active agencies and organizations and some of their activities are listed in table 1.

Federal wetland activities.—Development activities in Louisiana wetlands are regulated by several Federal statutory prohibitions and incentives that are intended to slow wetland losses. Some of the more important of these are contained in the 1899 Rivers and Harbors Act; the 1972 Clean Water Act and amendments; the 1985 Food Security Act; the 1990 Food, Agriculture, Conservation, and Trade Act; the 1986 Emergency Wetlands Resources Act; and the 1972 Coastal Zone Management Act.

Section 10 of the Rivers and Harbors Act gives the Corps authority to regulate certain activities in navigable waters. Regulated activities include diking, deepening, filling, excavating, and placing

of structures. The related section 404 of the Clean Water Act is the most often-used Federal legislation protecting wetlands. Under section 404 provisions, the Corps issues permits regulating the discharge of dredged or fill material into wetlands. Permits are subject to review and possible veto by the U.S. Environmental Protection Agency, and the FWS has review and advisory roles. Section 401 of the Clean Water Act grants to States and eligible Indian Tribes the authority to approve, apply conditions to, or deny section 404 permit applications on the basis of a proposed activity's probable effects on the water quality of a wetland.

Most farming, ranching, and silviculture activities are not subject to section 404 regulation. However, the "Swampbuster" provision of the 1985 Food Security Act and amendments in the 1990 Food, Agriculture, Conservation, and Trade Act discourage (through financial disincentives) the draining, filling, or other alteration of wetlands for agricultural use. The law allows exemptions from penalties in some cases, especially if the farmer agrees to restore the altered wetland or other wetlands that have been converted to agricultural use. The Wetlands Reserve Program of the 1990 Food, Agriculture, Conservation, and Trade Act authorizes the Federal Government to purchase conservation easements from landowners who agree to protect or restore wetlands. The Consolidated Farm Service Agency (formerly the Agricultural Stabilization and Conservation Service) administers the Swampbuster provisions and Wetlands Reserve Program. The Natural Resources Conservation Service (formerly the Soil Conservation Service) determines compliance with Swampbuster provisions and assists farmers in the identification of wetlands and in the development of wetland protection, restoration, or creation plans.

The 1986 Emergency Wetlands Resources Act and the 1972 Coastal Zone Management Act and amendments encourage wetland protection through funding incentives. The Emergency Wetland Resources Act requires States to address wetland protection in their Statewide Comprehensive Outdoor Recreation Plans to qualify for Federal funding for State recreational land; the National Park Service (NPS) provides guidance to States in developing the wetland component of their plans. Coastal States that adopt coastal-zone management programs and plans approved by the National Oceanic and Atmospheric Administration are eligible for Federal funding and technical assistance through the Coastal Zone Management Act.

The Federal Government has been involved with wetlands in Louisiana dating back to the Swamp Land Act of 1849. This act granted to Louisiana all swamp and overflow lands then unfit for cultivation to help in controlling floods in the Mississippi River Valley by construction of levees and drains (Shaw and Fredine, 1971). Massive flooding by the Mississippi River in 1927 resulted in the Flood Control Act of 1928. This act provides comprehensive flood control for the lower Mississippi River Valley below Cairo, Ill., by authorizing the Corps to construct and maintain levees, floodways, channel modifications, and various control structures. Although the act provided much-needed relief from flooding, it has adversely affected the wetland resources in the Louisiana coastal zone.

In November 1990, Congress passed Public Law 101-646, the Coastal Wetlands Planning, Protection, and Restoration Act, which provides Federal funding (matched by State funding) for the planning and implementation of projects for the protection and restoration of coastal wetlands. The act directs the development of an annual priority-project list, ranked in order of cost effectiveness and consisting of small-scale projects that can be substantially completed within 5 years. The act also requires development of a comprehensive restoration plan for the entire Louisiana coast.

Large tracts of land, many containing wetlands, are managed by the FWS, U.S. Department of Defense, and the NPS. The plans for these lands are subject to a review process that allows local groups and individuals to have input into the planning process that

Table 1. Selected wetland-related activities of government agencies and private organizations in Louisiana, 1993

[Source: Classification of activities is generalized from information provided by agencies and organizations. ●, agency or organization participates in wetland-related activity; ○, agency or organization does not participate in wetland-related activity. MAN, management; REG, regulation; R&C, restoration and creation; LAN, land acquisition; R&D, research and data collection; D&I, delineation and inventory]

| Agency or organization | MAN | REG | R&C | LAN | R&D | D&I |
|---|-----|-----|-----|-----|-----|-----|
| FEDERAL | | | | | | |
| Department of Agriculture | | | | | | |
| Consolidated Farm Service Agency | ● | ● | ○ | ○ | ○ | ○ |
| Forest Service | ○ | ○ | ○ | ○ | ○ | ○ |
| Natural Resources Conservation Service | ● | ● | ● | ○ | ○ | ○ |
| Department of Commerce | | | | | | |
| National Oceanic and Atmospheric Administration | ● | ● | ● | ○ | ○ | ○ |
| Department of Defense | | | | | | |
| Army Corps of Engineers | ○ | ● | ○ | ● | ● | ● |
| Department of the Interior | | | | | | |
| Fish and Wildlife Service | ● | ○ | ● | ● | ● | ● |
| Geological Survey | ○ | ○ | ○ | ○ | ○ | ○ |
| Minerals Management Service | ○ | ● | ○ | ○ | ○ | ○ |
| National Biological Service | ○ | ○ | ○ | ○ | ○ | ○ |
| National Park Service | ● | ○ | ● | ● | ● | ○ |
| Environmental Protection Agency | ○ | ● | ○ | ○ | ○ | ○ |
| STATE | | | | | | |
| Department of Agriculture | ● | ● | ○ | ○ | ○ | ○ |
| Department of Environmental Quality | ○ | ● | ● | ○ | ○ | ○ |
| Department of Health and Human Resources | ○ | ○ | ○ | ○ | ○ | ○ |
| Department of Natural Resources | ○ | ○ | ● | ○ | ○ | ○ |
| Department of Transportation and Development | ○ | ● | ○ | ○ | ○ | ○ |
| Department of Wildlife and Fisheries | ● | ● | ● | ● | ● | ○ |
| Governor's Office of Coastal Activities | ● | ○ | ○ | ○ | ○ | ○ |
| REGIONAL, PARISH, AND LDCAL | | | | | | |
| Levee boards | ● | ● | ○ | ○ | ○ | ○ |
| Some parish governments | ● | ● | ● | ● | ● | ○ |
| PRIVATE ORGANIZATIONS | | | | | | |
| Coalition to Restore Coastal Louisiana | ○ | ○ | ○ | ○ | ○ | ○ |
| Gulf Coast Conservation Association | ○ | ○ | ○ | ○ | ○ | ○ |
| Lake Pontchartrain Basin Foundation | ○ | ○ | ○ | ○ | ○ | ○ |
| Louisiana Wildlife Federation | ○ | ○ | ○ | ○ | ○ | ○ |
| National Audubon Society | ● | ○ | ○ | ○ | ○ | ○ |
| The Nature Conservancy | ● | ○ | ○ | ○ | ○ | ○ |

determines the future direction management agencies pursue for economic, ecological, and recreational development of these lands.

State wetland activities.—The Louisiana Department of Wildlife and Fisheries Land Acquisition Program is funded primarily by duck-stamp and hunting-license revenues. Wetlands are given high priority in the acquisition of lands. The Department's Refuge Division manages almost 200,000 acres of coastal wetlands in four separate refuges. Providing waterfowl habitat is the primary purpose for these refuges. The Department's Natural Heritage Program's primary mission is the identification and indexing of unique natural habitats in Louisiana, which includes many wetlands. The Department also administers the Statewide Environmental Investigation program, which encourages mitigation of fish and wildlife habitat loss caused by local, State, or Federal development projects.

The Louisiana Department of Natural Resources' Coastal Management Division administers the Coastal Use Permitting Program. This program provides guidelines for the permitting of coastal-zone developmental activities in the least environmentally damaging manner. Coastal-use permits are required for any activity in the coastal zone except those specifically exempted by the Louisiana State Legislature. The Coastal Management Division Coastal Zone Program reviews Federal activities in the coastal zone to ensure consistency with State coastal-management plans.

The Louisiana Coastal Wetlands Conservation and Restoration Program is administered by the Office of Coastal Restoration and Management within the Department of Natural Resources. The program implements specific projects that are designed to conserve, enhance, restore, and create coastal vegetated wetlands through an annually updated priority plan approved by the Louisiana State Legislature. The program is funded from State oil and gas severance taxes placed in a Coastal Wetlands Conservation and Restoration Trust Fund.

Other State agencies actively involved in regulation or data collection in the coastal zone include the Department of Environmental Quality, Department of Agriculture, Department of Health and Human Resources, and the Department of Transportation and Development. For example, the Department of Environmental Quality is responsible for the enforcement of water-quality standards within the State's wetlands.

Regional, parish, and local wetland activities.—Parish governments in the Louisiana coastal zone have an interest in preserving and restoring wetlands. The Terrebonne Parish government (which contains Houma), for example, has a coastal-wetlands restoration program. Vermilion Parish (which contains Abbeville) has a Coastal Restoration Advisory Committee that participates in the Coastal Wetlands Planning, Protection, and Restoration Act process. Some city and parish governments have strong regulatory or land-acquisition programs that provide wetlands protection beyond that which is required by the State. Others are less able to develop strong local protection programs, owing to budgetary constraints.

Private wetland activities.—Private organizations in Louisiana are important as advocates of wetland conservation and protection. Louisiana has many private-interest groups that keep the public informed on wetland issues, organize citizen networks, and lobby for wetland-protection measures. The National Audubon Society and The Nature Conservancy have purchased wetlands in Louisiana for preservation.

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