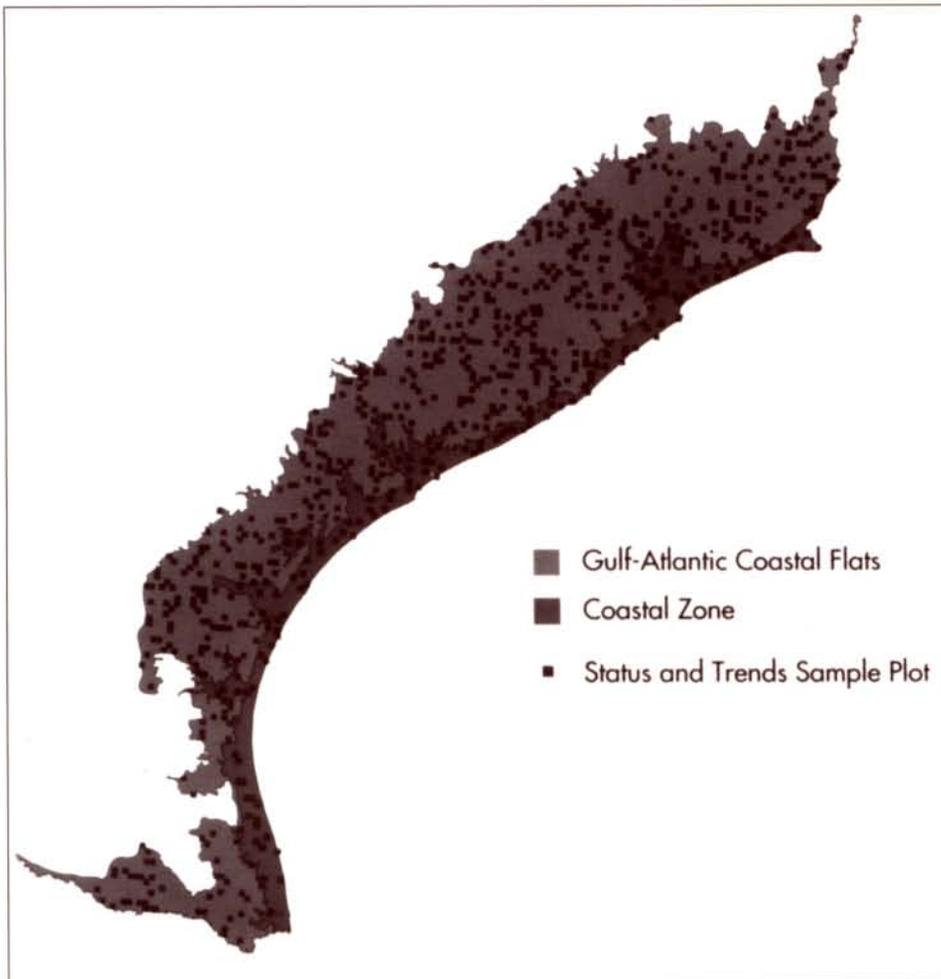


Texas Coastal Wetlands: Status and Trends

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Distribution of 754 sample plots within the study area.

We examined the status of coastal Texas wetlands at two points in time – the mid-1950's and the early 1990's. Seven hundred fifty-four plots, each 4 square miles, were randomly distributed within Hammond's Gulf-Atlantic Coastal Flats subdivision and a Coastal Zone stratum. The total number of sample plots provided a statistically robust estimate of coastal wetlands within the study area, which encompassed approximately 20,028 square miles.

We analyzed two sets of aerial photographs for each sample plot. The mean years of the aerial photos were 1955 and 1992. This 37-year interval was used to estimate average annual wetland acreage changes. The 1950's photographs were black and white and ranged in scale from 1:20,000 to 1:36,000. The 1990's photographs were color infrared at 1:40,000 or 1:62,500 scales.

Aerial photographs were stereoscopically interpreted and cover types delineated using procedures developed by the U.S. Fish and Wildlife Service's National Wetlands Inventory Office. Wetlands, deepwater habitats, and uplands were assigned to 1 of 20 categories seen in Table 1. All changes in category acreages were classified as either natural (e.g., natural succession of scrub-shrub to forested wetland) or human induced (e.g., agricultural or urban use). Upland areas were assigned to one of five general land-use categories: agriculture, urban, forested, plantation, rural development, and "other." Field verification of aerial photograph features was done for approximately 10% of the sample plots.

Habitat-category delineations on the interpreted aerial photographs were transferred to mylar overlays on 1:24,000-scale U.S. Geological Survey topographic maps. Digital measurements of the various categories were made and acreages recorded. The study focused on wetlands 3 acres and larger. Changes in area over time were determined for all categories in each sample plot. Estimates of acreage changes were developed from the sample plot data using accepted statistical procedures. The functional quality of the wetlands was not assessed.

An estimated 4,105,343 acres of coastal Texas wetlands existed in 1955. About 84.6% of the total was freshwater palustrine, 15.3% was saltwater estuarine, and 0.1% was marine intertidal. There were 1,664,698 acres of deepwater habitats consisting of rivers, reservoirs, and estuarine subtidal bays. In 1992 an estimated 3,894,753 acres of wetlands existed. About 85.3% of the total was palustrine, 14.5% was estuarine, and 0.1% was marine. There were 1,757,595 acres of deepwater rivers, reservoirs, and estuarine subtidal bays. Areas of wetlands concentration did not change significantly between 1955 and 1992.

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Saltwater Habitats	Common Description
Marine Subtidal	Permanent open water of Gulf
Marine Intertidal Shore	Gulf beaches, bars, and flats
Estuarine Subtidal	Permanent open water of bays
Estuarine Intertidal Emergent	Salt, brackish, intermediate marsh
Estuarine Intertidal Scrub-Shrub	Baccharis, Black Mangrove, other shrubs
Estuarine Intertidal Unconsolidated Shore	Unvegetated bay beaches, bars, and flats
Freshwater Habitats	Common Description
Palustrine Forested	Swamps, hardwood bottomlands, etc.
Palustrine Scrub-Shrub	Shrub-sapling wetlands
Palustrine Emergent	Fresh marshes, wet prairie, etc.
Palustrine Farmed	Cultivated rice fields, some natural wetlands
Palustrine Unconsolidated Bottom	Permanent open water of ponds
Palustrine Aquatic Beds	Floating or submerged vegetation
Riverine	Open waters of rivers, streams, canals
Lacustrine	Lakes and reservoirs
Upland Land Use	Common Description
Agriculture	Cropland, pasture, managed rangeland
Urban	Cities, towns, other densely built-up areas
Forested Plantation	Planted or intensively managed forests
Rural Development	Non-urban built-up areas and infrastructure
Other Uplands	Non-patterned native forest, brush, and grassland; barren land

Table 1. Wetland, deepwater, and upland habitat categories used in this study.

Overall, coastal Texas wetlands sustained an estimated net loss of 210,590 acres from 1955 to 1992. This was an average annual net loss of about 5,700 acres of wetlands. Deepwater habitats gained an estimated 96,203 net acres and upland categories an estimated 114,387 net acres.

Our results indicate that vegetated wetlands, particularly freshwater emergent and forested wetlands, are resources that need additional conservation efforts. The acreage losses within the upland agriculture and upland “other” categories also give cause for concern. The “other” category consists mostly of native forests, grasslands, and brushlands. As these habitats, as well as agricultural lands, undergo urban, rural, and silvicultural development, pressure to make up losses of farm and range lands at the expense of wetlands may intensify.

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