

26. Salt Marsh

Rarity Rank: S1/G1

Synonyms: Smooth Cordgrass Marsh, Saltgrass Marsh, Saline Marsh

Ecological Systems:

CES203.468 Gulf Coast Chenier Plain Salt and Brackish Tidal Marsh

CES203.471 Mississippi Delta Salt and Brackish Tidal Marsh

General Description:

Typically, salt marsh is the marsh area closest to the beach rim of the Gulf of Mexico, and, in general, varies from 1-15 miles in width. These marshes are regularly tidally flooded, flat, polyhaline areas dominated by salt-tolerant grasses and very few other species. Small pools or ponds may be scattered. Salt marsh has the least plant diversity and the lowest soil organic matter content of any marsh type. The community is often totally dominated by *Spartina alterniflora* (smooth



cordgrass). Significant associate species includes *S. patens* (wiregrass), *Distichlis spicata* (salt grass), *Juncus roemarianus* (black rush), and *Batis maritima* (salt wort). Two other major groups of autotrophs found in Salt Marsh are microscopic algae on the surface of the vascular plants, and benthic algae (usually diatoms) living on or in the marsh sediment. Soil and water conditions regulate plant growth and salinity appears to be the primary factor determining species composition. The mean salinity of salt marsh is about 16 ppt. The area of salt marsh is increasing apparently due to salt-water intrusion resulting in shifts in marsh salinity levels. Salt marsh acts as nursery areas for myriads of larval forms of shrimp, crabs, redfish, seatrout, menhaden, etc., and greatly enhances the production of marine organisms directly related to the enormous primary productivity of the marsh vegetation. Factors which promote the growth of salt marsh plants include: 1) a long growing season, 2) abundant rainfall, 3) presence of soil nutrients, 4) low tide differential and tidally transported nutrients. Natural factors negatively impacting salt marsh include prolonged periods of inundation caused by winds, tides, or rain, especially those periods associated with hurricanes, subsidence, and erosion. Salt marsh also functions as a nitrogen and phosphorus sink (at least seasonally), thereby improving the quality of water that passes through it. In addition, it can alleviate the effects of storms and flooding by acting as a buffer and providing storage for large amounts of water.

Current Extent and Status:

Salt marsh is estimated to have occupied 500,000 to 1,000,000 acres in presettlement times, with an estimated 50 to 75 % remaining (Smith 1993). Salt marsh is most extensive on the deltaic plain of southeast Louisiana. The area of Salt Marsh is currently

increasing apparently due to salt-water intrusion resulting in shifts in marsh salinity levels (LNHP 1986-2004). However, coastal erosion is a threat as it results in conversion of marsh to open shallow water.



There are a number of conservation areas in the Louisiana marsh managed by state and federal agencies. The management of these sites is aimed at preserving and improving wintering waterfowl habitat. This involves the use of water control structures to regulate water and salinity input, water/sediment diversions to abate marsh deterioration, and prescribed burning to improve habitat and food quality for wildlife. These management activities are necessary since the leveeing and chanelization of waterways altered their hydrology and many canals have been cut in the marsh for navigation and oil and gas exploration which serve as avenues for salt water intrusion. The Chenier plain will continue to deteriorate due to lack of sediment deposition by long shore currents which occurred historically when the Mississippi River shifted further west.

Few conservation areas support extensive salt marsh. Wisner WMA consists of 21,000 acres and supports almost entirely salt marsh. Biloxi WMA (nearly 40,000 acres) features mostly brackish marsh but supports a sizeable area of salt marsh along Lake Borgne. Marsh Island Wildlife Refuge (70,000 acres), Rockefeller Wildlife Refuge (76,000 acres), and State Wildlife Refuge (13,000 acres) support salt marsh along the Gulf of Mexico. The acreages of salt marsh for these refuges is unknown but appears to account for a small portion of these sites.

SALT MARSH SPECIES OF CONSERVATION CONCERN (26)		
BIRDS		BUTTERFLIES
Reddish Egret	Gull-billed Tern	Neamathla Skipper
Yellow-crowned Night-Heron	Caspian Tern	Dion Skipper
Northern Harrier	Royal Tern	Obscure Skipper
Black Rail	Sandwich Tern	Great Southern White
Clapper Rail	Common Tern	Western Pygmy-Blue
Whooping Crane	Forster's Tern	
American Oystercatcher	Black Skimmer	REPTILES
Marbled Godwit	Short-eared Owl	Mississippi Diamondback Terrapin
Dunlin	Seaside Sparrow	
Short-billed Dowitcher	Nelson's Sharp-tailed Sparrow	

Priority Species Research and Survey Needs:

Seaside Sparrow and Nelson's Sharp-tailed Sparrow: Surveys are needed to determine their current abundance and distribution in relation to marsh changes. Large populations should be monitored on a scheduled basis to detect long-term population trends and to guide management decisions.

Black Rail: Determine current distribution and winter abundance in coastal areas.

Reddish Egret: Surveys are needed to assess limiting factors on reproductive success and the effects of human coastal recreational activities on bird populations.

Waterbirds: Continue to conduct rookery surveys to update database information.

Butterflies: Conduct surveys to determine current distribution and abundance of all butterfly species, especially species of conservation concern, for inclusion in the LNHP database.

Mississippi Diamondback Terrapin: Current population status in Louisiana is unknown. Drastic declines are apparent in other states, but the cause of these declines is unknown. Review Marine Fisheries seine records and conduct replicate surveys to evaluate population trends.

Species Conservation Strategies:

1. Terns:

- Disturbance and loss of nesting habitat are major threats to terns. Develop partnerships to strengthen the protection and restoration of barrier islands.
- Develop a comprehensive survey methodology to determine long-term trends in population abundances.

2. Shorebirds, Wading Birds:

- Provide public education regarding the importance of waterbird nesting colonies and shorebird feeding areas. Reduce the negative effects on these areas from recreation and other uses.
- Work with landowners to implement management and conservation recommendations for waterbirds (especially rails) of SWG project T18 upon completion.
- Coordinate with GCJV to implement recommendations of shorebird and wading bird conservation plans.
- Disturbance and loss of nesting habitat are major threats to these species. Continue to protect and restore coastal marshes. Develop new and/or improve existing partnerships to achieve this goal.

Threats Affecting Habitat:

The following table illustrates the threats identified for this habitat type and the sources of these threats. This represents all threats and sources of threats identified across all ecoregions of the state where this habitat occurs.

Source of Threat	Threat			
	Habitat Destruction or Conversion	Habitat Disturbance	Habitat Fragmentation	Shoreline Erosion
Commercial/industrial development	XXX	XXX	XXX	
Construction of navigable waterways	XXX	XXX		XXX
Development/maintenance of pipelines, roads or utilities	XXX	XXX		
Invasive/alien species	XXX			
Levee or dike construction	XXX	XXX		XXX
Residential development	XXX	XXX		

Habitat Conservation Strategies:

1. Provide public education and support existing efforts/programs regarding invasive species; coordinate these efforts with LSU Ag Extension agents, NRCS, Sea Grant (rapid assessment projects – Calcasieu), etc.
2. Review oversight capabilities of DOTD, LDEQ, LDNR and other agencies to enforce construction specifications and recommendations of permits issued by these agencies.
3. Support NRCS and LDNR efforts for shoreline stabilization and habitat restoration.
4. Work with LCA, CWPPRA to support coastal restoration projects, specifically targeting important nesting areas and species of conservation concern.
5. Work with COE and state agencies to insure water control structures provide the maximum benefit to salt marsh.
6. Work with NRCS Plant Materials Center and BTNEP to develop viable cultivars for marsh restoration efforts.

References:

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LNHP. 1986-2004. The natural communities of Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

SMITH, L. M. 1993. Estimated presettlement and current acres of natural plant communities in Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.