

## 7. Brackish Marsh

**Rarity Rank:** S3S4/G4?

**Synonyms:** Needle Rush Marsh, Edge-Zone Marsh, Middle Estuary

**Ecological Systems:**

CES203.471 Mississippi Delta Salt and Brackish Tidal Marsh

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

**General Description:**

Brackish marsh is usually found between salt marsh and intermediate marsh, although it may occasionally lie adjacent to the Gulf of Mexico. This community is irregularly tidally flooded and is dominated by salt-tolerant graminoids. Small pools or ponds may be scattered throughout.

Plant diversity and soil organic matter content are higher in brackish marsh than in salt marsh. Brackish marsh is typically dominated by *Spartina patens* (marshhay cordgrass). Other significant associated species include *Distichlis spicata* (salt grass), *Schoenoplectus olneyi* (three-cornered grass), *S. robustus* (salt marsh bulrush), *Eleocharis parvula* (dwarf spikesedge), *Ruppia maritima* (widgeon grass), *Paspalum vaginatum* (seashore paspalum), *Juncus roemianus* (black rush), *Bacopa monnieri* (coastal water hyssop), *Spartina alteriflora* (smooth cordgrass), and *S. cynosuroides* (big cordgrass). Two other major autotrophic groups in brackish marsh are epiphytic algae and benthic algae. Generally speaking, vertebrate species population levels are higher in brackish marsh compared to Salt Marsh. Brackish marsh is of very high value to estuarine larval forms of marine organisms such as shrimp, crabs, menhaden, etc. (See Salt Marsh for other functions). Brackish marsh salinity averages about 8 ppt. This community may be changed to another marsh type by shifts in salinity. Intrusion of salt water from the Gulf of Mexico up numerous waterways exerts a major influence in the configuration of the various marsh types.

**Current Extent and Status:**

Presettlement extent of brackish marsh was estimated to have been between 500,000 and 1,000,000 acres with 50 to 75 percent remaining today (Smith 1993). At present the total acreage of brackish marsh appears to be increasing due to shifts in marsh salinity levels (LNHP 1986-2004). However, stable, viable examples of brackish marsh are rare in Louisiana.



There are a number of conservation areas in the Louisiana marsh managed by state and federal agencies and private organizations. The management of these sites is largely aimed at preserving and improving wintering waterfowl habitat. This involves the use of water control structures to regulate water

levels 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 levee construction and chanelization of waterways altered their hydrology and have cut many canals 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.

NWRs that support brackish marsh include Bayou Sauvage (approximately 9,000 acres are brackish), Delta (brackish acreage not known, about 60% of the 49,000 acre refuge is fresh marsh), and Sabine (total acreage ca 124,000, brackish marsh acreage unknown, approx. 33,000 acres are impounded fresh marsh). Of the areas managed by LDWF, Marsh Island and State Wildlife Refuges contain large areas of brackish marsh (70,000 acres and 13,000 acres, respectively). Biloxi WMA (40,000 total acres) supports mostly brackish marsh. Other refuges and WMAs containing brackish marsh, among other marsh types, include Pointe-aux-Chenes (total acres just over 31,000) and Rockefeller (total acres 76,000, intensely managed). Paul J. Rainey Sanctuary, owned by The Audubon Society, is 26,000 acres and consists largely of brackish marsh with a small area of intermediate marsh. Rainey Sanctuary is contiguous with LDWF's State Wildlife Refuge.

<b>BRACKISH MARSH SPECIES OF CONSERVATION CONCERN (36)</b>		
<b>BIRDS</b>	Clapper Rail	Loggerhead Shrike
Brown Pelican	King Rail	Seaside Sparrow
American Bittern	Whooping Crane	Nelson's Sharp-tailed Sparrow
Reddish Egret	Marbled Godwit	
Yellow-crowned Night-Heron	Dunlin	<b>BUTTERFLIES</b>
Mottled Duck	Short-billed Dowitcher	Neamathla Skipper
Northern Pintail	Gull-billed Tern	Palatka Skipper
Canvasback	Caspian Tern	Dion Skipper
Redhead	Royal Tern	Great Southern White
Lesser Scaup	Sandwich Tern	Western Pygmy-Blue
Bald Eagle	Common Tern	
Northern Harrier	Forster's Tern	<b>REPTILES</b>
Yellow Rail	Black Skimmer	Mississippi Diamondback Terrapin
Black Rail	Short-eared Owl	

***Priority Species Research and Survey Needs:***

Northern Harrier: Conduct surveys to determine its current distribution and winter abundance in coastal areas.

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

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

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

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

Palatka Skipper, Great Southern White, Western Pygmy-Blue: Conduct surveys to determine current distribution and abundance for inclusion in the LNHP database.

Mississippi Diamondback Terrapin: Population status in Louisiana unknown; drastic declines apparent in other states, but perceived threats have not been proven. 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; 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 recreational 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. The continued protection and restoration of coastal marshes are top priorities. Develop new and/or improve existing partnerships to achieve this goal.

#### 3. Waterfowl:

- Continue to encourage the creation/enhancement/maintenance of high-quality habitat across Louisiana.
- Work with Ducks Unlimited (DU), Delta Waterfowl (DW), and USFWS to assuring that quality habitat, including refuge from hunting and other disturbance, is distributed across the landscape.
- Encourage the maintenance of rice farming north of marshes and discourage conversion to crops with lower value to waterfowl.
- Continue LDWF partnerships with DU, DW, USWFS, and state wildlife management agencies to conserve habitat on the northern breeding grounds.

4. Brown Pelican: Continue with long-term monitoring of nesting colonies.
5. Bald Eagle: Continue with long-term monitoring of active bald eagle nests, successful breeding pairs, and fledged eagles.

***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							
	Altered Composition/Structure	Habitat Destruction or Conversion	Habitat Disturbance	Habitat Fragmentation	Herbivory	Modification of Water Levels; Changes in Natural Flow Patterns	Salinity Alteration	Shoreline Erosion
Commercial/industrial development				XXX			XXX	
Construction of navigable waterways	XXX	XXX	XXX			XXX	XXX	XXX
Development/maintenance of pipelines, roads or utilities		XXX	XXX			XXX		
Fire suppression	XXX	XXX	XXX					
Grazing practices	XXX	XXX	XXX					
Invasive/alien species	XXX	XXX			XXX			
Levee or dike construction	XXX	XXX	XXX			XXX		XXX
Residential development		XXX	XXX					
Recreational use/vehicles								
Saltwater intrusion	XXX	XXX	XXX				XXX	XXX

***Habitat Conservation Strategies:***

1. Develop methods to encourage landowners to remove cattle from brackish marshes and manage the land for wildlife conservation.
2. Promote waterfowl management as an alternative to livestock production by providing incentives to landowners.
3. Support and encourage expansion of the mini-refuge system administered by USFWS refuges.
4. Work with LCA, CWPPRA to support coastal restoration projects, specifically targeting important waterbird nesting areas and species of conservation concern.
5. Work with COE and state agencies to insure water control structures provide the maximum benefit to brackish marsh.

6. Work with NRCS Plant Materials Center and BTNEP to develop viable cultivars for marsh restoration efforts.

***References:***

CHABRECK, R. H., AND G. LINScombe. 1988. Louisiana coastal marsh vegetative type maps. Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

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.