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J.L. Scott Marine Education Center & Aquarium

The purpose of the Gulf Coast Research Laboratory's J.L. Scott Marine Education Center and Aquarium is to increase the awareness and understanding of marine and aquatic environments, thereby promoting the wise use, management, and development of these fragile areas. The Marine Education Center and Aquarium is the Laboratory's main public-use facility. The Center was opened in 1972 to provide information and educational opportunities for the general public. This purpose is accomplished through presentations by staff members, living and static displays of flora and fauna in the aquarium area, lobby, and audiovisual documentaries. Programs emphasize indigenous coastal, estuarine, and island natural resources.

When the Laboratory opened the Marine Education Center in 1972 it occupied a 2,000 square-foot building adjacent to the present location. This small structure was utilized to conduct classes, seminars, and workshops for students and general public. This facility also housed numerous aquariums which began the Center's history as a "living" museum. In response to increased public interest and demand to provide a facility in which marine and aquatic research could be observed "in action," a larger public facility was constructed.

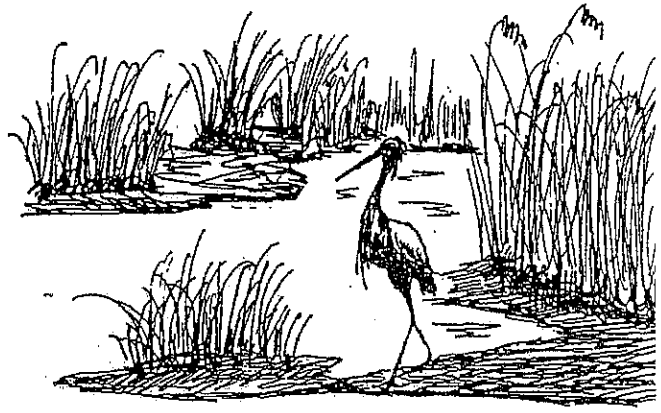
The current Marine Education Center and Aquarium was opened in 1983 and is housed in a 32,700 square-foot structure built by the state at a cost of $3.5 million. The building is named for Mr. J.L. Scott, a staff member for many years of the Board of Trustees of State Institutions of Higher Learning. The multi-purpose structure provides space for a variety of educational programs and selected research activities. A 313-seat auditorium is used for audiovisual presentations, meeting, and programs.

In addition, the Center includes a larger aquarium area. The central feature of the aquarium is a cylindrical, 30-foot diameter, 42,000 gallon capacity tank representing the Gulf of Mexico. Four aquarium alcoves surround this central tank in which animals are grouped by habitat, i.e., fresh, brackish, estuarine, and high salinity water.

Salt Marshes

Nursery Grounds of the Gulf

by Julie A. Miller.



Picture by Bill Martin, Jr.

Marine Educational Leaflet No.

published by

Gulf Coast Research Laboratory
J.L. Scott Marine Education Center
& Aquarium

A State Institution of Higher Learning
administered by the
University of Southern Mississippi

Salt Marshes

Nursery Grounds of the Gulf

Salt marshes are a vital part of an estuarine environment, that is an area where fresh waters from rivers and streams mix with oceanic waters. These areas are sometimes referred to as nursery grounds because of their invasion by juvenile fish and shellfish. Recent research has revealed the economic importance of this marine resource in that shrimp catches in fisheries around the world are directly related to the area of marsh in the shrimp nursery grounds.

Productivity of marshes is comparable to that of our most fertile agricultural land (as much as five tons per acre annually). Marsh grasses are one of the primary producers that form the basis of the marsh food-web. Other primary producers are algae and diatoms of many kinds (phytoplankton). It is estimated that 90% of the marsh grass dies and is broken down by microbial decomposition and other biological agents into particulate organic matter known as detritus.

Salt marshes are formed along shores in temperate and tropical zones when wave action is docile allowing grasses to become established. These grasses will then stabilize the sediment and promote their own growth. The differences in coastal wetlands are a factor of the rivers that feed them as well as the climate. Despite these differences the distribution of various plants in a salt marsh is world-wide.

Biological competition among plants is not a problem in a salt marsh. Salt marsh plants must be able to tolerate the inundation by salt water. They have specialized cells that exude salt so that the plant has an adequate supple of fresh water to serve its metabolic needs. The dominant grass of salt marshes along the Atlantic coast is smooth cordgrass, Spartina alterniflora. Black needle rush, Juncus roemerianus, seems to dominate the marshes of the Gulf coast (approximately 97%). This is believed to be due to the weak tidal amplitudes of the Gulf coast. Tides occur twice a day on the Atlantic coast reaching four to eight feet. However, in the northern Gulf they are usually no higher than one and one-half feet and occur only once every twenty-four hours and fifty minutes.

Salt marshes also are a buffer between the land and sea. The grasses in a salt marsh have the ability to up take toxins from the water, acting as a filter between land and sea.

Salt marshes undergo extreme environmental conditions, such as drastic changes in temperature and salinity. This may limit the number of plants and animals that are able to survive in a salt marsh. Due to these harsh environmental conditions, plants and animals must be able to adapt for survival. For instance, intertidal animals must be able to adapt to a habitat that can shift from terrestrial to aquatic and back again.

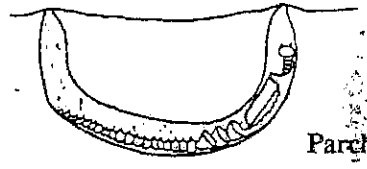
Fiddler crabs have adapted their feeding to the ebbing of the tide, and retreat into burrows when the tide is high. Another factor that benthic animals must overcome is the deoxygenated soil just below the muddy surface. This is due to numerous bacteria in the first few inches of sediment that utilize this oxygen as they metabolize detritus. Benthic animals that live in a marsh must have a means of protection to live on top of the muddy surface or adapt to the anaerobic sediments below. Worms, mollusks, crustaceans, and other animals have learned to live in the marsh and survive. The parchment worm, Chaetoperus, is an excellent example; this animal secretes a U-shapes tubing that is buried under the sediment with both ends open at the surface. The animal then creates a current that not only draws in life-giving oxygenated water, but also detrital material for food.

Lifestyles of animals in a marsh may be put into two categories - transitory and permanent. Raccoons, mice, fish, blue crabs, herons, and other sea birds are transitory, entering the marshes only when feeding. Permanent members of the marsh may include muskrats, clapper rail birds, diamond back terrapins, mollusks, and many invertebrates. Marshes are also a winter haven for many migrating waterfowl. (The Gulf provides critical habitat for 75% of the migratory waterfowl crossing the U.S.) It is important to note that most of the coastal fishery species of the United States must have access to estuaries and marshes during some phase of their life. (The Gulf shrimp fishery is among the most valuable in the U.S.)

The value of marshes has been recognized by the passage of a Presidential Executive Order (E.O. 11900) in 1977, prompting State and Federal agencies to minimize impacts of alterations in wetlands. In the United States, coastal marshes have been disappearing at a rate of about one-half percent per year. One million acres of coastal marshes have been lost since 1954, by the year 2000, if the present rate of marsh loss continues, an additional one million acres will have disappeared. The Gulf coast marshes comprise 60% of the U.S. total. The preservation of this valuable resource would be beneficial not only to the species that rely on it for survival but to those who depend on it for recreational and economical needs. This goal could be obtained through education, along with legislative support to promote the wise use and management of this resource (4/91).

Male Fiddler Crab

Worm Tube



Parchment Worm

Pictures from:
Tidal Marshes: The Boundary Between Land and Ocean
FWS/OBS-80/15