TIMBALIER ISLAND PLANTINGS (TE-18)
TE-18-MSPR-0696-2
PROGRESS REPORT NO. 2
for the period
August 01, 1995 to June 17, 1996

Project Status

The construction of the sediment-trapping fences was completed on May 11, 1995 but the vegetative plantings will not begin until June 1996. Three fence segments were destroyed and four fence segments were damaged by tropical storms that passed near the Louisiana coast in 1995. The damaged segments will be repaired by Natural Resources Conservation Service (NRCS) in June 1996.

Project Description

Timbalier Island is part of a chain of barrier islands bordering Timbalier Bay in Terrebonne Parish. This island has decreased in size by 58 % over the last century (Hester and Mendelssohn 1992) and island width has decreased from an average 2789.5 ft to 1361.9 ft between 1978 and 1988 (Williams et al. 1992). The dunes of Timbalier Island are not well developed and are less than 6.5 ft above MSL. These factors leave the island highly susceptible to erosion, storm overwash and breaching. Stabilized sand dunes reduce the likelihood of island breaching and erosion from wave action (Mendelssohn and Hester 1988; Mendelssohn et al. 1991). Additionally, Mendelssohn et al. (1991) found that the only way to maintain a healthy, well-vegetated dune in Louisiana's barrier islands is through beach nourishment in conjunction with dune building and vegetative stabilization techniques.

The design of this project is to stabilize portions of bare beach and washover areas on Timbalier Island by utilizing sediment-trapping fences and vegetation plantings (figure 1). This will be accomplished by constructing approximately 7,390 linear ft of fencing at seven locations along the length of the island, parallel to the Gulf of Mexico shoreline, with perpendicular spurs at 50-ft intervals extending 25 ft from the fence towards the bay. Marshhay cordgrass (*Spartina patens*) and Atlantic panicgrass (*Panicum armarum*) will be planted on the bayward side of the fences. The specific goals of the project are (1) to increase the percent cover of emergent vegetation behind the sediment-trapping fences, (2) to increase the elevation adjacent to sediment trapping fences, and (3) to decrease the rate of shoreline erosion along 7,390-ft of the island.

Monitoring Design

Habitat mapping, shoreline movement, plant species composition, percent plant survival, plant cover, and surface elevation will be measured to evaluate the project goals. Aerial photography was flown on November 21, 1993, prior to sediment-trapping fence construction and is scheduled to be flown again in November 2001. Shoreline movement will be evaluated a minimum of three times after the completion of revegetation and the planted vegetation will be monitored in the month of August for the years 1996, 1997, 1999, and 2001 or until the original plants are indistinguishable. Elevational transects were determined immediately after sediment-trapping fence construction but the data have not been surveyed to a permanent benchmark. This will be completed with the next elevational survey, which is scheduled for August 1996. Future postconstruction elevational surveys are scheduled on dates corresponding with the vegetation sampling.

Results/Discussion

Tropical storms that passed near the Louisiana coast during the summer of 1995 caused extensive damage to the sediment-trapping fences. Three fencing segments were completely destroyed (figure 1) and the other four fences had damage that is being repaired by NRCS. Vegetation is naturally colonizing segments C and D. Vegetation will therefore only be planted at the fence segment locations that have not naturally vegetated (segments A and B), including some of the locations where the sediment-trapping fences were destroyed (segments I-1 and I-2). Any excess vegetation will be planted in designated plots established on bare beach or washover areas between the fence segments and the reference areas (figure 1).

Observations from recent field trips indicate the remaining fences are trapping sand. Accretion of sand as high as 2 ft in front of the fencing is common. The eastern end of Timbalier Island has suffered severe beach erosion. The beach has eroded beyond the original location of the sediment-trapping fences, completely destroying segments I-1 and I-2.

References

Hester, M. W. and I. A. Mendelssohn 1992. Barrier island revegetation dynamics: stabilization and maintenance projects on Timbalier Island. Final report prepared for Texaco USA. New Orleans, Louisiana: Operations Division. 61 pp.

Mendelssohn, I. A. and M. W. Hester 1988. Coastal Vegetation Project: Timbalier Island. Final report submitted to Texaco USA. New Orleans: State of Louisiana, Agreement No. RC-84-01. 244 pp.

Mendelssohn, I. A., M. W. Hester, F. J. Monteferrante, and F. Talbot 1991. Experimental dune building and vegetative stabilization in a sand-deficient barrier island setting on the Louisiana coast, USA. Journal of Coastal Research 7(1):137-49.

Williams, J. S., S. Penland and A. H. Sallenger, eds. 1992. Atlas of Shoreline Changes in Louisiana from 1853 to 1989. Prepared by the U.S. Geological Survey in cooperation with the Louisiana Geological Survey. Reston, Va. 103 pp.

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Construction End:	June 30, 1996	

Figure 1. Timbalier Island Plantings (TE-18) project elements. Letters (A-I) represent fence segments.