Coast 2050 Region 4

DEWITT-ROLLOVER PLANTINGS (ME-08)
ME-08-MSPR-0695-1
PROGRESS REPORT NO. 1
for the period
August 1, 1994 to June 30, 1995

Project Description/Status

The Dewitt-Rollover Plantings demonstration project was designed to evaluate the ability of vegetation plantings to colonize newly accreted mudflats along the Gulf of Mexico shoreline and to establish a vegetative buffer that can trap sediments and protect the adjacent beach from erosion by reducing wave energy. The specific goals of the project are to decrease the rate of shoreline erosion and increase vegetative cover along the shoreline within the project area. In July 1994, approximately 5,760 trade gallon sized plantings of smooth cordgrass (*Spartina alterniflora*) were planted in Vermilion Parish south of Rockefeller Refuge along approximately 1.5 mi of the Louisiana shoreline between Rollover Bayou and Dewitt Canal (figure 1).

Monitoring Design

Color-infrared aerial photography was flown prior to construction and was scheduled to be obtained three additional times during postconstruction for use in documenting shoreline movement and determining the ratio of vegetated to nonvegetated area. Shoreline markers were installed at 500-ft intervals along the shoreline behind the vegetative plantings and in the reference areas located along adjacent sections of shoreline east and west of the planting area. In addition, the preconstruction shoreline position was documented during a differential Global Positioning System (GPS) field survey of the Louisiana Chenier Plain shoreline, conducted by the Coastal Studies Institute of Louisiana State University, with assistance from LDNR/CRD personnel. Changes in shoreline position over time will be documented by direct measurement at the shoreline markers and subsequent differential GPS surveys. To document planting success, the planting area was divided into five (5) land types, based on slope and sediment characteristics of the beach and adjacent waters. A 5% sample of the vegetative plantings in each land type, consisting of a total of 19 randomly selected plots of 16 plants each, will be monitored for percent survival, species composition, and percent cover, at mo 1, mo 6, and yr 1 postplanting, then at 3-yr intervals thereafter.

Results/Discussion

The first-month postplanting monitoring of the 19 sampling plots, conducted on September 20, 1994, revealed that 63% of the original plantings had survived (figure 2). The sixth-month postplanting monitoring trip was postponed until May 1995 to allow ample time for the remaining plants to produce spring growth. On May 26, 1995, planting survival was 0% in all 19 sampling plots and only 38 (0.7%) of the original plantings could be found alive and growing. Percent cover followed a similar downward trend, averaging 3.5% at mo 1 and 0% at mo 10 (table 1). In addition, measurements were made of the distance from the plot markers and shoreline markers to the present-day shoreline (vegetated high water line). These data (figure 3) show that the shoreline in the project area retreated 0.0-46.0 ft (0.0-14.0 m) over the past eleven months, at an average rate of 14.3 ft/yr (4.3 m/yr).

The 1994 preconstruction shoreline erosion study undertaken by the Coastal Studies Institute of Louisiana State University with LDNR/CRD assistance has yielded 100-yr shoreline erosion rates for the Chenier Plain between Sabine Pass and Marsh Island, for the period 1883-1994. The study shows that the highest erosion rates on the Chenier Plain are between Rutherford Beach and Dewitt Canal, where shoreline retreat averages 27.9 ft/yr (8.5 m/yr), with hot spots experiencing up to 41.0 ft/yr (12.5 m/yr). The section of beach planted for this project apparently falls on the eastern edge of this high erosion zone.

In May 1994, the original planting site was abandoned for the current planting site. The original planting site, located approximately one mi east of the current site, was abandoned because the site was stabilizing with vegetation naturally. Because the site planted is subject to more powerful wave energy, it offered an opportunity to test the limits of the existing planting standards and specifications for smooth cordgrass (*Spartina alterniflora*). Although the plantings did not establish successfully, the knowledge gained from the project will be used to revise revegetation specifications for similar sites in the future.

Prepared by on September 19, 1995, by Karl A. Vincent.

LDNR Monitoring Manager:	Karl A. Vincent NR Geoscience Specialist 3	(318) 893-3643
LDNR Project Manager:	Stan Aucoin	(318) 893-3643
Federal Sponsor:	NRCS/Cindy S. Steyer	(318) 896-8305
Construction Start:	July 1, 1994	
Construction End:	August 1, 1994	

f:\..\Reports\ME\me08prg1.doc

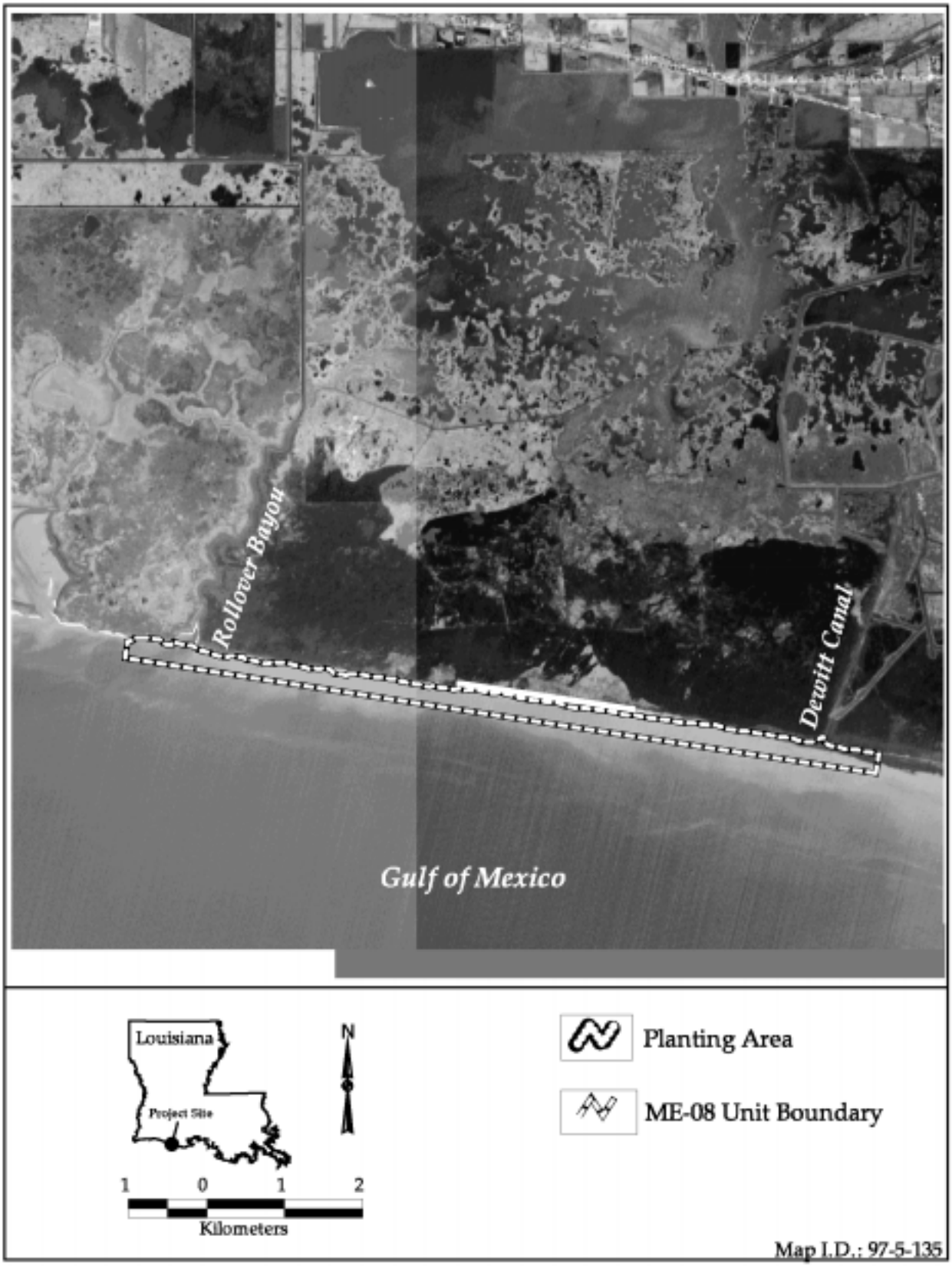

Figure 1. Dewitt-Rollover Plantings (ME-08) project area showing smooth cordgrass planting area.

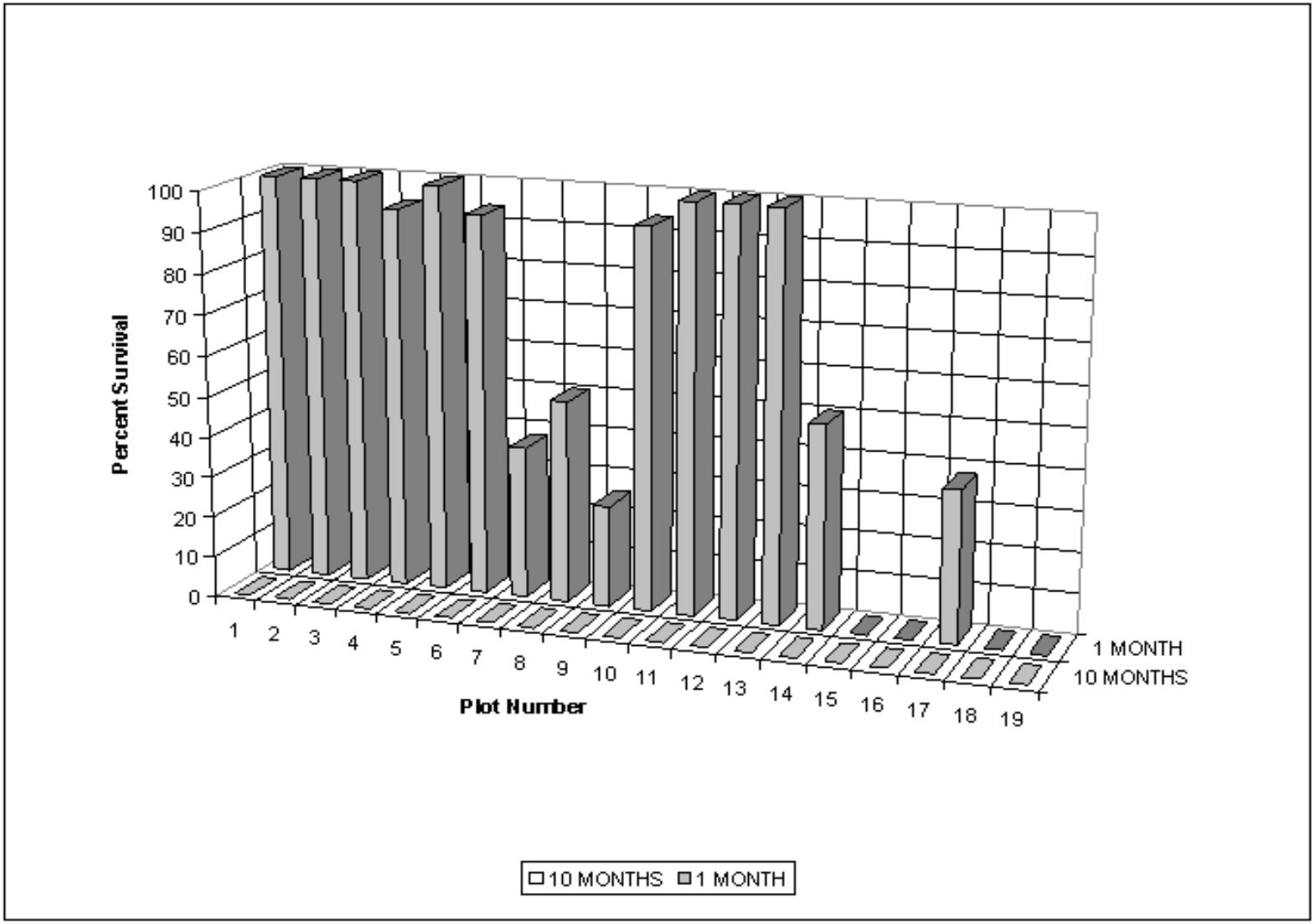

Figure 2. Dewitt-Rollover Plantings (ME-08). Postplanting percent survival of smooth cordgrass plantings in 19 random sampling plots, for the period August 1994 to May 1995.

Table 1. Dewitt-Rollover Plantings (ME-08). Postplanting percent cover of smooth cordgrass plantings in a 1 m^2 plot within each of 19 random sampling plots, from August 1994-May 1995.

PLOT NO.	1 MONTH (%)	10 MONTHS (%)
1	5	0
2	10	0
3	8	0
4	3	0
5	8	0
6	3	0
7	3	0
8	3	0
9	5	0
10	1	0
11	3	0
12	5	0
13	5	0
14	0	0
15	0	0
16	0	0
17	5	0
18	0	0
19	0	0
MEAN	3.5	0

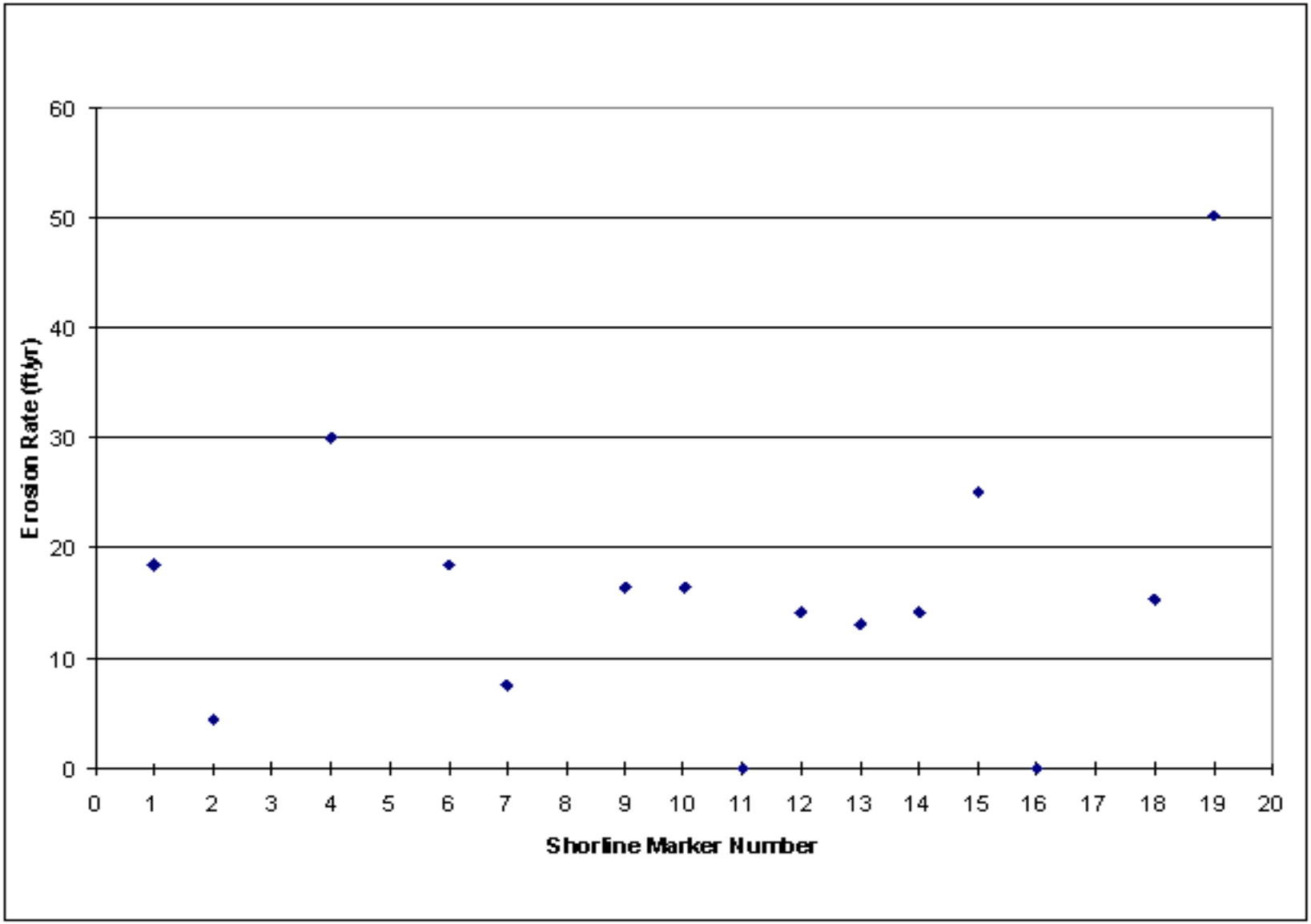

Figure 3. Dewitt-Rollover Plantings (ME-08). Beach erosion rate in the planting area at approx. 500-ft intervals, for the period August 1994 to May 1995.