

**DeBordieu Colony Nourishment
Debidue Island, South Carolina**

CSE and its predecessors have served for 15 years as consultants to a private development on Debidue Island. During this time, the firm developed plans for beach restoration, wetlands protection, and drainage improvements needed as a result of mistakes made by prior landowners/developers.

Debidue Island has a complex erosion signature owing to changes in the downdrift inlet. Closure of a secondary channel in the 1930s led to rapid spit growth and accelerated erosion around the center of the island. As development progressed in the early 1970s, erosion encroached directly on beachfront homes. Sand scraping was tried first, and then a timber bulkhead was constructed by the former owners to stop further recession. Loss of sand in front of the bulkhead soon left it exposed beyond safe design levels.

CSE was retained to analyze the fundamental causes of erosion and develop a restoration plan compatible with state CZM regulations. Through systematic surveys along with studies of coastal processes and historical changes in the inlet, we predicted acceleration of erosion and severe damage to buildings along some sections of beach if nothing was done and recommended a plan of improvement in 1988. Before the plan could be implemented, Hurricane *Hugo* struck the coast, destroying 800 feet of bulkhead, and nearly destroying dozens of homes.

Six months after *Hugo*, CSE's plan for nourishment was constructed. We predicted annual losses equaling 15 percent of the fill volume. This prediction was confirmed by surveys during the next six years.

CSE designed a second nourishment project and monitored construction in 1998. Presently, we are developing an innovative design for low-profile groins to retain sand at the downdrift end of the project where historical erosion rates reach 15 ft/yr. We are working closely with state resource and regulatory agencies to develop a design that maintains viable turtle nesting habitat and allows natural bypassing around the structures.

Client:
DeBordieu Colony Community Association Inc
Georgetown South Carolina

Project Features	
Project Length:	8,000 ft
1990 Volume:	195,000 cy
1998 Volume:	267,000 cy
Typical Sections:	20-45 cy/ft
Borrow Source:	Inland
Unit Costs:	\$3.25-\$4.10/cy

BEFORE NOURISHMENT



AFTER NOURISHMENT

