CONSTRUCTION OF AN OFFSHORE BIRD NESTING ISLAND AT SAVANNAH HARBOR

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REFERENCE: Proceedings of the Georgia Water Resources Conference, held April 25-27, 2005, at the University of Georgia. Kathryn J. Hatcher, editor, Institute Ecology, The University of Georgia, Athens, Georgia.

Abstract. The US Army Corps of Engineers, Savannah District and the Georgia Department of Transportation, in its role as the non-Federal sponsor for the Savannah Harbor Navigation Project have constructed an island north of the entrance to the Savannah River. The island is part of the wetland mitigation plan developed to replace the functions and values of wetlands that would be lost during development of a new confined disposal facility in the harbor. The 4-acre island provides rare bare ground nesting habitat for colonial shorebirds. It began being used as a resting area by various waterbirds and shorebirds as soon as the island emerged from the ocean. This paper describes the rationale behind that action, some of the design considerations, and initial information on the island's success.

INTRODUCTION

In 1995, the US Army Corps of Engineers, Savannah District produced a Long Term Management Strategy for operation of the Savannah Harbor Navigation Project. The study identified a need to develop an additional confined sediment disposal facility (CDF) in the inner harbor to address the long term sediment storage needs of the project. The site identified as being the best to develop into a CDF had been impacted by sediment deposition in previous years, but still consisted primarily of saltmarsh and transitional wetland vegetation. As compensation for adverse impacts to those wetlands and other minor project activities, the Corps agreed to several mitigation measures. One of those was construction and operation of a 2-acre island for nesting and resting of colonial shorebirds.

RATIONALE

Bare ground nesting sites for colonial shorebirds and seabirds have become increasingly rare as humans have increased their use of ocean shorelines. High ground areas adjacent to beaches have been paved or developed into residential housing. Since the birds are generally small and they camouflage their nests well, the nests can be inadvertently and easily destroyed by a simple walk on the beach by either humans or dogs. These now common uses of a beach have reduced the overall quantity and quality of this needed habitat (Hunter, W.C. 2002). These habitat losses have led to lower population levels of these species.

Bird use of the existing wetland to be filled was identified as one of the valuable environmental attributes of that site. Therefore, the Corps focused on replacing that attribute when it developed its mitigation plan. Since the study examined operation and maintenance of the entire navigation project, performing mitigation along the entrance channel portion of the harbor was an option. The Corps developed a conceptual mitigation plan and coordinated it with the natural resource agencies. They strongly supported the concept of focusing on replacing the bird use of the existing wetland and with the proposed offshore nesting island, in particular.

As described in the EIS, the island was to be located in the Atlantic Ocean offshore of South Carolina between Tybee Island, Georgia and Daufuskie Island, South Carolina. The island was proposed to have a 2- acre crest at +14 feet mean low water to ensure it was not overwashed during the nesting season. The island would be separated from the mainland by about ½ mile to

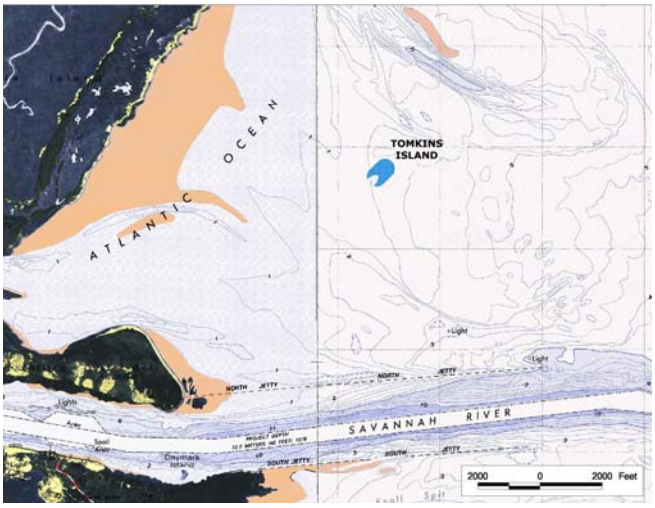

Figure 1 --- Location Map

reduce the likelihood of terrestrial predators such as raccoons, hogs, and foxes. The site was in shallow water, thereby reducing the volume of material needed to build an island. It was also sheltered from ocean waves coming from the north by Hilton Head Island and from the south by a jetty at the harbor entrance. The island was to be constructed of sediments from or adjacent to the navigation channel. Site-specific studies were then conducted to ensure no unique benthic communities or cultural resources were located on the proposed site.

DESIGN CHANGES

The engineering firm of Geosyntec was contracted to prepare the final designs for the island. During their work they proposed several changes, all of which were adopted by the Corps and the Georgia Department of Transportation. The size of the island's crown was doubled to 4 acres. To reduce long term maintenance costs, we decided to place rock on the portion of the island that would be exposed to large ocean waves. Along the sides of the island, the rocks were extended landward, giving the island an overall horseshoe shape (see Figure 2) to protect the flanks of the island from future erosion. The back of the island sloped gradually to the water level to provide young birds easy access to the water. To limit the loss of sediments during construction, geotextile fabric bags would be used as a base along the outer perimeter of the ocean side of the island. Sands to construct the island would be obtained from our most oceanward CDF. This would allow a contractor to better select sediments to construct the island and provide a stable high ground surface from which to work. Removal and re-use of sediments from the CDF would increase its future sediment storage capacity, thereby effectively extending the CDF's useful life.

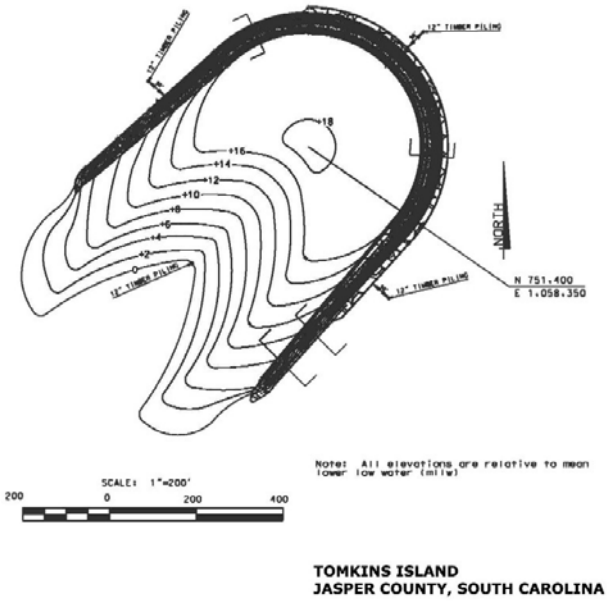

Figure 2 --- Island's Design

CONSTRUCTION

Concerns about the potential loss of CDF lands delayed full implementation of the Long Term Management Strategy, but construction of the island began in 2004. The construction bid was $8.7 million, substantially more than originally expected. But the Georgia Department of Transportation, who funded this construction, agreed that this construction should proceed to fulfill the commitments that the Corps and GA DOT made back in 1996.

Construction began in January 2004 and was expected to be complete in 6 months. The contractor, however, encountered numerous difficulties and did not complete the project for 15 months. Figures 3 and 4 show the island early and late in the construction process. The shallow depths at the construction site, coupled with the large diurnal tides, caused construction problems and the contractor found he could only move to and from the

Figure 3 --- Construction as of April 2004

Figure 4 --- Construction as of September 2004

island on mid- to high tides. During low tides, transport boats and work barges would ground on the ocean bottom. Passing storms and strong winds created swells that restricted movement to the island, sometimes for several days at a time. Approaching hurricanes caused the contractor to shut down activities several times and move to more secure areas. The distance of the site from the mainland required the contractor to use nearly 3 miles of pipeline to transport sediments to the site. The great length and small diameter of this pipeline created problems, as the line plugged regularly with the sediments it was carrying. The contractor struggled during the first month as the workers learned to balance the water flow and sediment load through this system and keep it operational. Although the contractor took longer than expected, he worked diligently and provided a quality product.

Gulls and pelicans began using the site as soon as the deposited sands broke above the ocean surface. Birds continued to use those portions of the site where the contractor's personnel were not immediately present. We observed that the construction activities – even the use of heavy equipment – only displaced the birds from the immediate construction area and not from the entire island. Local birders estimated that in June at mid-construction about 2,000 birds of various types, including migrating birds banded in South America and the Arctic, were observed feeding and loafing on the island (Costa, H. 2004).

FUTURE BIRD USE

The island has already become heavily used by resident seabirds and shorebirds. The following species have been observed using the site as a loafing or resting area: Brown Pelican (*Pelecanus occidentalis)*, Double-crested Cormorant (*Phalacrocorax auritus*), Wilson's Plover (*Charadrius wilsonia*), Semi-palmated Plover (*Charadrius semipalmatus*), American Oystercatcher (*Haematopus palliatus*), Sanderling (*Calidris alba*), Ruddy Turnstone (*Arenaria interpres*), Red Knot (*Calidris canutus*), Laughing Gull (*Larus atricilla*), Ring-billed Gull (*Larus delawarensis*), Herring Gull (*Larus argentatus*), Lesser Black-backed Gull (*Larus fuscus*), Royal Tern (*Sterna maxima*), Forster's Tern (*Sterna forsteri*), Sandwich Tern (*Sterna sandvicensis*), Common Tern (*Sterna hirundo*), Black Skimmer (*Rynchops niger*), and Common Nighthawk (*Chordeiles minor*). In the spring and summer, we expect the site to be used for nesting by at least the following species: Wilson's Plover, American Oystercatcher, Laughing Gull, Black Skimmer, Royal Tern, and Gull-billed Tern (*Sterna nilotica*). The island will provide valuable isolated habitats for seabirds and shorebirds, some of which are listed as threatened or endangered by the Federal government or the states of South Carolina or Georgia.

FUTURE MANAGEMENT

The Savannah District of the Corps and the South Carolina Department of Natural Resources (SC DNR) have agreed to work together to jointly manage and maintain the site so that it will continue to provide its rare and valuable habitats. The Corps will maintain physical aspects of the island, removing unwanted vegetation, replacing sand and restoring the integrity of the protective rock perimeter when necessary. SC DNR will patrol the site to ensure humans do not disturb nesting birds. This management approach will result in the island providing a dependable nesting site to recently declining populations of shorebirds.

HERITAGE TRUST PRESERVE

At the request of the Corps of Engineers, the SC DNR Heritage Trust Board agreed to include the island in their Heritage Trust Program. At their November 2004 meeting, the Board voted unanimously to dedicate the site as a Heritage Trust Preserve. Dedication as a preserve recognizes the site for the valuable habitat it provides and allows SC DNR to protect the site in the future for these non-game species.

DEDICATION

The island has been named Tomkins Island, in honor of Mr. Ivan R. Tomkins, a naturalist and ornithologist from the Savannah area in 1920's through the 1960s (Coolidge 1965). Mr. Tomkins recognized and documented the region's richness in bird habitat. He collected specimens and authored numerous articles on birds for Georgia and South Carolina environmental organizations and was a charter member of the Georgia Ornithological Society. He retired from the Savannah District, Corps of Engineers and his ornithological observations and documentations laid the foundation for the Savannah Harbor dredged material containment areas recently being recognized as an Important Bird Area by the Audubon Society (SC Audubon, 2004).

SUMMARY

The Savannah District of the US Army Corps of Engineers and the Georgia Department of Transportation have constructed an offshore bird nesting island north of the Savannah River entrance. The island will serve as a dependable bare-ground nesting and wintering site for seabirds and shorebirds that have been declining in populations, some of which are now threatened or

endangered. Construction of the island proved challenging, but the work has been completed and birds now heavily use the site as a resting area.

The Corps and the South Carolina Department of Natural Resources will work together to manage the island in the future. This cooperative approach draws on the strengths of each organization and should maximize the future environmental value of the site. The recent dedication of the site as a Heritage Trust Preserve by SC DNR's Heritage Trust Board recognizes the value that the island will serve in the ecology of the SC/GA coastal area.

The island has been named Tompkins Island in recognition of Mr. Ivan Tomkins, a naturalist and ornithologist from the Savannah area in the 1920's through the 1960s.

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