



**US Army Corps
of Engineers®**

Norfolk District

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Topic: Belle Isle State Park Ecosystem Restoration Feasibility Study

WHAT:

The Norfolk District, U.S. Army Corps of Engineers (USACE) and the Virginia Department of Conservation and Recreation (VDCR) are partners on a USACE feasibility study of the Belle Isle State Park, located in Lancaster County, Va.

HOW:

The federal project study is authorized under Section 206 of the Water Resources Development Act (WRDA) of 1996, for restoration of aquatic ecosystems (Continuing Authorities Program). Under WRDA, this feasibility study will determine federal interest in improving aquatic habitat at Belle Isle State Park.

WHY:

The Belle Isle State Park Ecosystem Restoration Feasibility Study is an endeavor to evaluate measures aimed at eliminating erosion and improving habitat quality at the project site. A Preliminary Restoration Plan (PMP) study completed in 2004 by Norfolk District, determined that upland, beach and intertidal habitat degradation and loss of shoreline were primarily due to erosion resulting from high wave energy and rain runoff.

According to a 1977 Virginia Institute of Marine Science (VIMS) report, an average of 2.5 feet of shoreline is lost at Belle Isle Bluff each year due to the intensity of storm-generated wave action. This wave action has caused the loss of considerable acreage of beach and estuarine marsh at the project site.

Additionally, the water quality of the Rappahannock River is negatively impacted by the ongoing beach erosion at Belle Isle State Park. Eroded sediments are introduced into the ecosystem resulting in increased turbidity and suspended solids. These changes in water quality have also caused degradation of aquatic habitat. The VIMS report concluded that significant amounts of fish and wildlife habitat have been lost or degraded by high wave energy and resultant changes in water quality related to shoreline loss and erosion. A specific example of habitat impairment, said the report, can be observed in submerged aquatic vegetation (SAV). Currently, no SAV exist at the project site, although SAV does exist in more sheltered, less-eroded sections of beach, located upstream of the project.

BACKGROUND/HISTORY

Belle Isle was the first state park purchased with funds from the \$95 million Parks and Recreational Facilities Bond Referendum of 1992. The 733-acre state park is a window to the beautiful, lower Rappahannock River in Lancaster County. With seven miles of waterfront on the north shore of the Rappahannock, the park features diverse tidal and nontidal wetlands, lowland marshes, tidal coves and upland forests. The diverse habitats provide homes to many predator birds, such as blue herons, osprey, hawks and bald eagles. White-tailed deer, turkeys, groundhogs, rabbits, squirrels, moles, reptiles and amphibians are common. The park offers a wide range of community recreation, such as picnic sites, a hiking trail, boat launch and a gift shop.

The shoreline consists primarily of “low shore” (approximately 93 percent), with a smaller area (approximately 7 percent) identified as “moderately low shore.” There are two sections experiencing intense erosion. The first is located adjacent to the visitor center and the second section is accessible to the playground/picnic area. The banks in these areas are severely undercut, some collapsing, with vegetation and sediment sliding onto the beach or directly into the water. The beach quality is poor because the beachfront is extremely narrow, and the sand at the site contains a large amount of garnet and other non-quartz minerals. The upland immediately adjacent to the shore consists of wooded bluff and open, manicured lawn.

For More Information: Contact the Norfolk District, Army Corps of Engineers, Belle Isle State Park Ecosystem Restoration Feasibility Study project manager at e-mail: Doug.Martin@usace.army.mil.