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Virginia's Public Beach Board 20 Years of Coastal Management

Donna A. Milligan
Virginia Institute of Marine Science

C. Scott Hardaway Jr.
Virginia Institute of Marine Science

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Virginia's Public Beach Board 20 Years of Coastal Management



Acknowledgments

James S. Gilmore, III, Governor
John Paul Woodley, Jr., Secretary of Natural Resources
David G. Brickley, Director
Department of Conservation and Recreation
Jack E. Frye, Soil and Water Conservation Director
Department of Conservation and Recreation

Board on Conservation and Development of Public Beaches

Donald O. Campen, Chairman
Ted Drake
Michael J. Fox
Thomas G. Godwin
John E. Matthews
Whitt G. Sessoms, III
William A. Pruitt, III

Board Staff

Lee Hill, Shoreline Engineer, and
Regina Greene, Program Support Technician
Dept. of Conservation and Recreation
Division of Soil & Water Conservation

Technical Assistance

C. Scott Hardaway, Jr., Senior Research Scientist,
Donna A. Milligan, Marine Scientist Senior,
George R. Thomas, Senior Field Specialist, and
Rebecca C.H. Brindley, Laboratory Technician,
Virginia Institute of Marine Science
Dept. of Physical Sciences
Shoreline Studies Program

David R. Basco, Ph.D., P.E.
Old Dominion University
Dept. of Civil and Environmental Engineering

Credits

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Writing and Editing:

Donna Milligan, C. Scott Hardaway, Jr.

Photography:

George Thomas

Design and Layout:

Susan Stein

Many localities and beach consultants have contributed information to and critically reviewed this document. Interaction between these same people and the Beach Board has achieved 20 years of success.

September 2000

Beach Board Mission and Goals

Established in 1980 (Senate Document #4) the **Board on Conservation and Development of Public Beaches**

(Beach Board) allocates state matching grant funds to local governments for conserving, protecting, improving, maintaining, and developing public beaches on tidal shorelines. Tidal public beaches under the Beach Board's purview are defined as a sandy strip of shoreline owned by a locality and accessible to the general public. At present, 14 cities and counties have identified 29 miles of shoreline as public beaches. Other public, accessible beaches in Virginia are owned by the state or federal government.

Public beaches in Virginia provide splendid **recreational opportunities** and generate **tourist dollars** in the Commonwealth. These same beaches can **protect individual landowner's property** as well as **state infrastructure**. For these reasons, shoreline erosion results in economic losses to Virginia and loss of quality of life to its citizens. The Beach Board's activities over the last 20 years reflect its continuing concern for the impact of erosion on Virginia's public beaches.

The Beach Board also has documented the economic impact of public beaches in Virginia on tourism and jobs. Nearly three-quarters of the travel industry in Hampton Roads is concentrated in just four communities — Virginia Beach, Norfolk, Williamsburg, and James City County. Both Virginia Beach and Norfolk have substantial public beach holdings, and their economy, and therefore Hampton Roads' and the state's economy, is directly linked to their shoreline. The studies have shown that all public beaches are a valuable natural resource that yield **substantial positive economic impacts**, mitigate storm damage, and provide a pleasurable, recreational experience to their users and that Virginians from all regions of the state benefit from stewardship of shoreline resources that are available to all its citizens.

Since the Beach Board's inception, nearly **\$8.5 million** in matching grants of state funds have been allocated to local governments for the management of their beaches. Overall, this translates to **\$2 per foot of public beach shoreline per year** that the Commonwealth has contributed to the management of public beaches in Virginia. As a condition of the grants, localities must supply at least a 50% match in order to receive funds. Many localities spend much more per year than they receive from the state.

The Beach Board, with support from its technical staff has concentrated on providing enjoyable recreational beaches and preserving the economic values of upland areas for the benefit of the communities and Virginia. The Beach Board's funding has allowed the installation of beach nourishment projects and breakwater systems and has been instrumental in the development of management plans for several localities. In addition, its funding of shore research and monitoring has allowed shore protection strategies to evolve as technology evolves so that we may have better understanding of the processes that occur along the shore and apply the results of this research toward cost-effective coastal management.





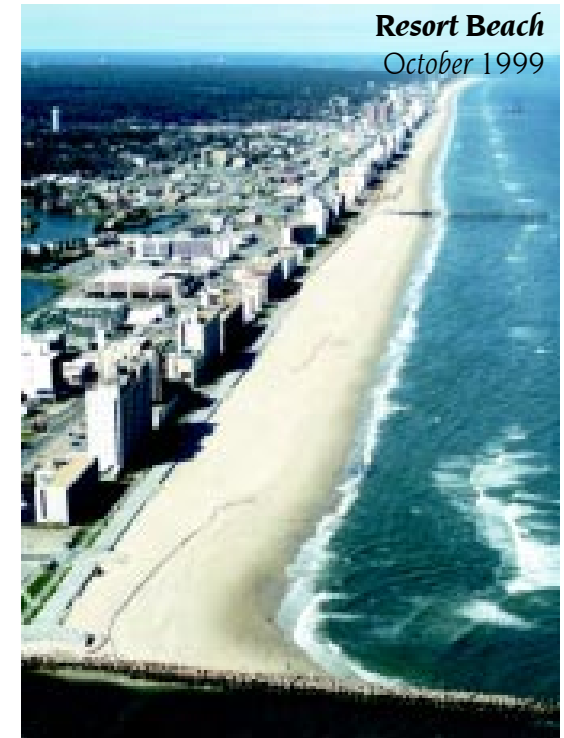
The **City of Virginia Beach** consists of 28 miles of oceanfront and 10 miles of bayfront beaches. Of those 38 miles, the City is the steward of 13 miles. The major public beaches include Ocean Park Beach on the Bay and the Resort Beach, Croatan Beach, and Sandbridge Beach along the ocean front.

In the mid 1950s, Virginia Beach's **Resort Strip** beach and boardwalk was threatened by erosion. In order to compete as a tourist destination by providing a great recreational experience for vacationers and day-trippers alike, the City began managing its shoreline with sand nourishment. Since then, annual fill projects place approximately 200,000-300,000 cubic yards of sand along the shoreline between 1st St. and 59th St. Over time, movement of this sand has created a high, wide beach at the northern end of the Resort Beach from 59th St. to 81st St.

The Hurricane Protection Project for the Resort Beach is nearing completion. This \$100 million cooperative effort between the Beach Board, the City, and the U.S. Army Corps of Engineers will impact significantly Virginia Beach's economy. The elevated, widened seawall and boardwalk are not only protective but also allow greater access to the beach and a larger recreational area. A major sand replenishment will provide a wide, recreational, protective beach in front of the seawall.

Over the past 20 years, the Commonwealth has provided \$2.2 million to Virginia Beach for the maintenance of their public beaches or about \$1.50 per foot of shore per year. In the summer of 1998, the 6 mile stretch of beach called the Resort Beach generated **\$760 per foot of public beach in direct taxes** alone to the Commonwealth.

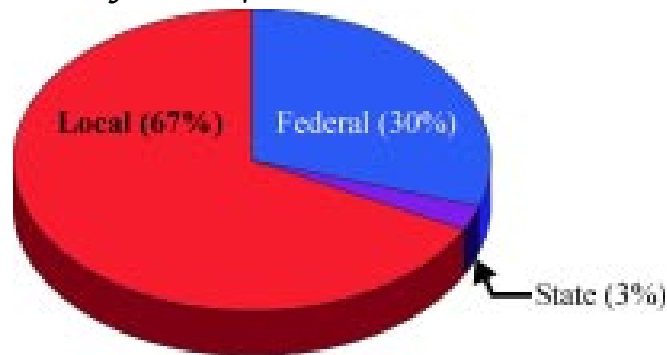
The Resort Beach in Virginia Beach has a significant role in the economic engine of tourism in the Commonwealth. A study initiated by the Beach Board during the four summer months of 1998 showed that:



Resort Beach
October 1999

1998's investment in the Resort Beach generated a 43% return.

Virginia Beach Sand Replenishment Funding Sources for the Past 50 Years



- **1.7 million visitors arrived in Virginia Beach and spent \$340 million.**
- **The Commonwealth received 19,000 jobs and \$679 million in expenditures and \$24.2 million in direct taxes due to Virginia Beach's involvement in tourism.**

Croatan Beach, a residential community south of the Resort Beach and Rudee Inlet, has required no projects since it has a wide, stable beach created by sand trapped south of the Rudee Inlet jetties. At **Ocean Park Beach**, however, a protective, recreational beach has been maintained through a series of beach nourishments.

Virginia Beach

Sandbridge
December 1994



Storms threaten property and infrastructure.

Sandbridge
July 2000

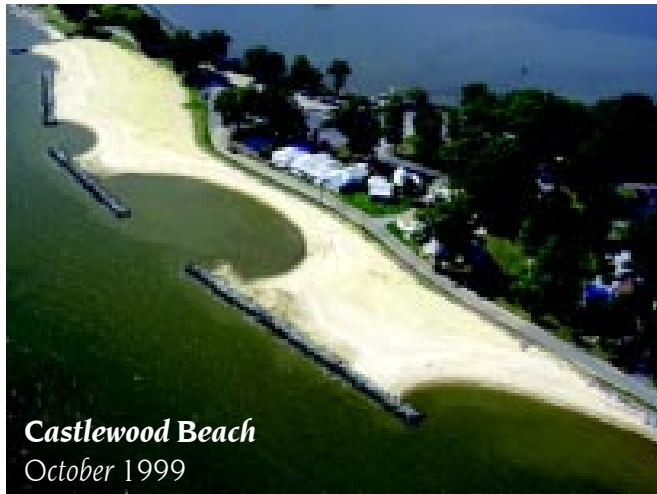


The entire 5.3-mile stretch of beach at **Sandbridge** was designated a public beach in 1998 when the City placed about 1 million cubic yards of sand along the shore. Before its public beach status, the oceanfront shoreline was maintained by individual property owners who could not afford large beach nourishment projects. Over the years, wood and steel bulkheads were erected to protect homes, cottages, and roads. There was little or no beach at high water.

The 1998 beach fill project utilized sand from Sandbridge Shoal to create a 5 mile long beach 75 feet wide above mean high water. The fill not only provides a recreational resource but also created a protective beach. Hurricane Bonnie impacted this shore in August 1998 shortly after the placement of the fill. No houses were lost when bulkheads failed; roads were not washed away. Prior to the fill, damage along the Sandbridge shore was almost a certainty during large storms.

Beach-goers create a positive economic impact in Virginia Beach.

Colonial Beach



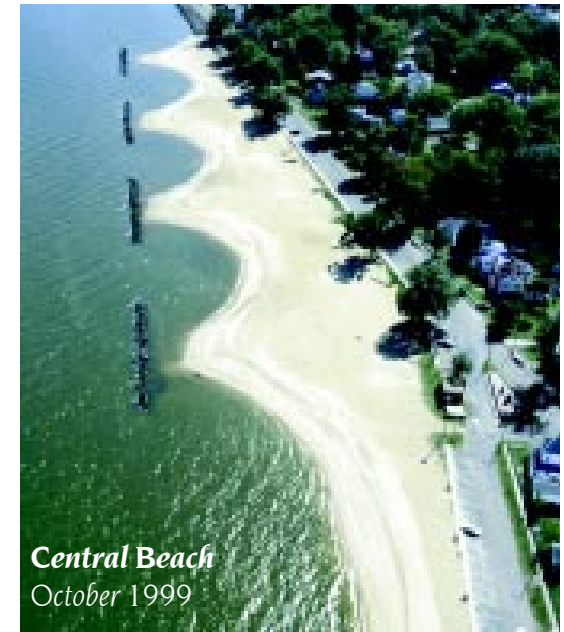
Castlewood Beach
October 1999

In 1996, tourists spent an estimated \$3.1 million in Colonial Beach.

Aquia Landing in **Stafford County** has seen an economic revival of which the beach is a part. Chronic erosion and treacherous currents made Aquia Landing a hazardous beach in 1983. With \$235,000 in funding and technical support from the Beach Board, another headland break-water system was built in 1987. The system was designed for low maintenance, and ongoing monitoring by the Beach Board has shown little net loss of beach fill. The Beach Board's interest in and support of Virginia's smaller beaches allow for their economic development and the community's enhancement as a whole.

Another type of management strategy is breakwaters with beach nourishment. Breakwaters increase the residency of sand within the system and allow smaller localities to efficiently manage their shore when they may not be able to fund significant ongoing nourishment projects.

As the first recipient of public funds through the Beach Board in 1981, the **Town of Colonial Beach**, with additional assistance from the U.S. Army Corps of Engineers, built two headland breakwater and beach fill systems. These systems at **Central Beach** and **Castlewood Beach Park** have created pocket beaches that have remained relatively stable over time. Economic development in Colonial Beach is tied to its waterfront as the beaches are heavily used by residents and tourists alike. The Beach Board has provided almost \$274,000 to Colonial Beach over the past 20 years.



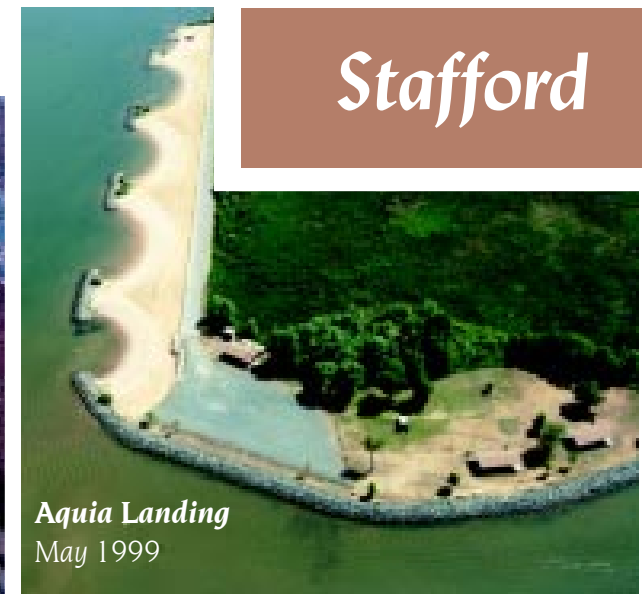
Central Beach
October 1999

In August 1998, an estimated 9,400 beach-goers used the beach in one week.

Stafford



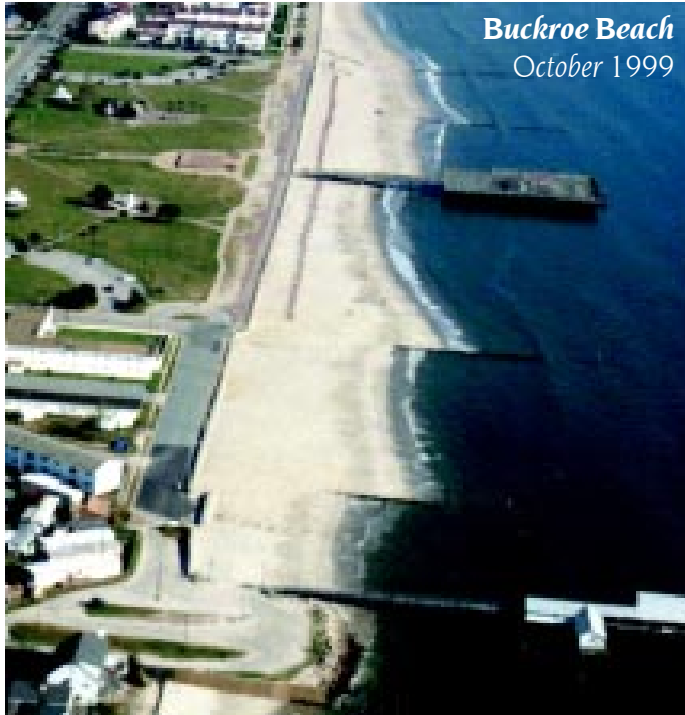
Aquia Landing
March 1983



Aquia Landing
May 1999

In the first 10-ys of the project, about 167,000 people have utilized the beach in the summers generating \$189,000.

Hampton

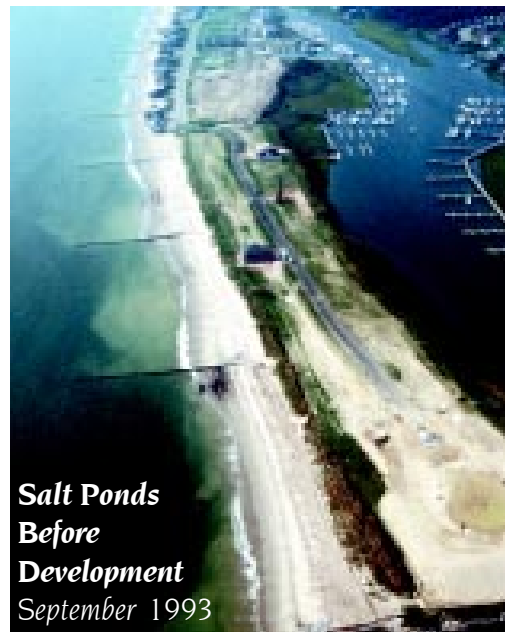


Buckroe Beach
October 1999

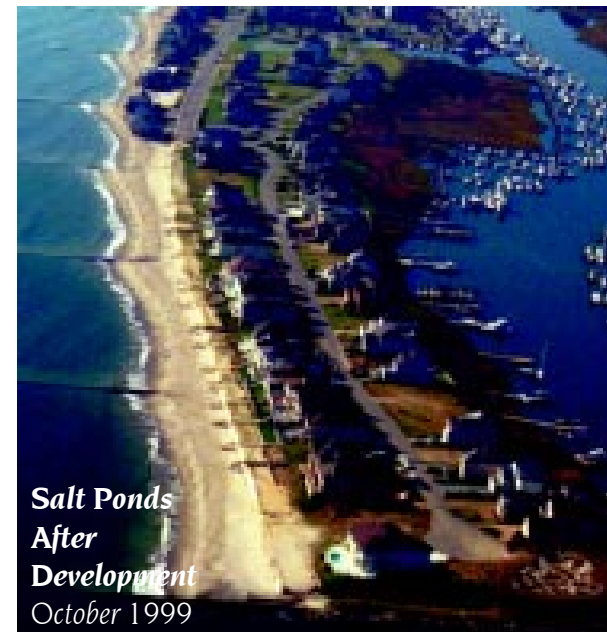
The beach front and first 2 blocks between Buckroe Beach and Salt Ponds Inlet was assessed at \$81.3 million in 1998.

Buckroe Beach in the **City of Hampton** has a long history as a recreational beach. In the early 1900s, the beach and amusement park were the leading tourist attraction in Virginia. Erosion threatened beach front properties for years before a boardwalk and groins were built. In the 1980s and 1990s, the Beach Board funded beach nourishment projects to help manage the shoreline. In fact, the \$300,000 spent on rebuilding Buckroe Beach initially was reported to protect about \$18 million worth of private property. With about 8,000-10,000 people per week using Buckroe Beach in July 1998, half of whom were *not* Hampton residents, the Beach Board-supported improvements have provided a large positive impact on the City's economy. In order to maintain a more economically viable beach industry and protect infrastructure and property, the Beach Board provided funds to develop a comprehensive beach management plan for the City. The first phase of the recommended installation of headland breakwaters and additional beach nourishment along Buckroe Beach is in the design phase. Overall, the Beach Board has provided \$1.3 million over the last 20 years to the City of Hampton for projects at all of its public beaches.

Salt Ponds Public Beach, north of Buckroe Beach, was developed with high-value, residential homes that are a significant source of tax revenue for the city. In order to provide storm protection to the structures, the Beach Board funded placement of geotubes (a large sandbag) along the shore in 1998. The tubes were covered with sand and planted with dune grasses, and a new beach was built in front of this constructed dune. This system of shore management provides a recreational beach area that is desirable to homeowners in the neighborhood and accords a measure of storm protection to the beachfront homes.



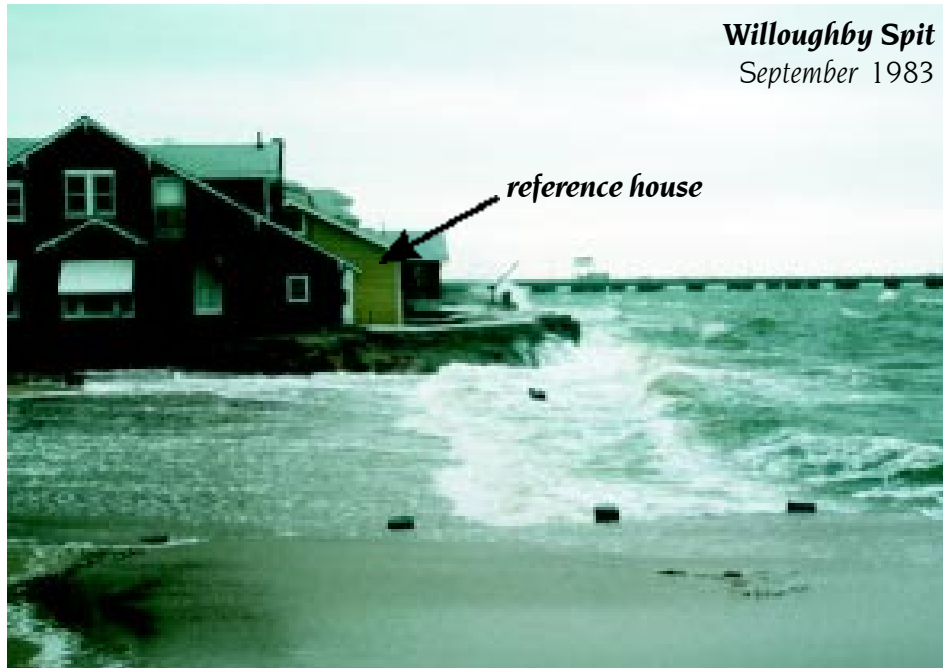
**Salt Ponds
Before
Development**
September 1993



**Salt Ponds
After
Development**
October 1999

High-value development behind this public beach has created the need for a larger, higher beach to provide a recreational area and to protect homes from storm damage while generating significant tax revenue.

Willoughby Spit
September 1983



The **City of Norfolk** has a long history of beach nourishment and groin construction along its 7.3 mile shore. However, continued erosion and the strong westward movement of sand, particularly along **Willoughby Spit**, created the need for a breakwater and beach nourishment project along the shore at the terminal groin. The success of this project, in part, led the City to develop a Beach Management Plan for its entire shore. The City identified several critical areas of erosion in the area and began targeting them for restoration.

Implementation of this Plan began in 1990 and is an ongoing project for which the Beach Board has been providing matching grant funds and technical assistance. In the last 20 years, the Commonwealth has provided \$3.6 million to Norfolk for projects along its shore.

Attendance at Norfolk's four guarded beaches was 160,000 during the summer of 1998.

Willoughby Terminal Groin and Breakwaters
May 1994

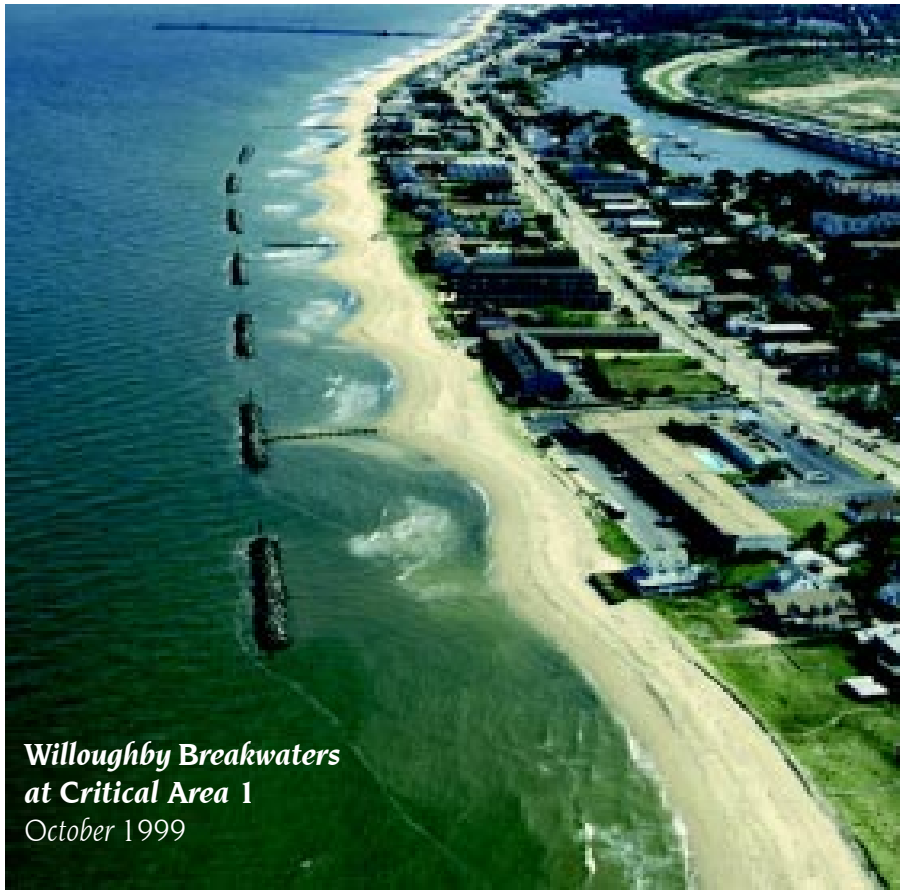


Willoughby Terminal Groin and Breakwaters
October 1999

Norfolk

Homes and businesses along sections of Norfolk's shore were threatened by coastal storms every year.

Critical Area 1
February 1998



**Willoughby Breakwaters
at Critical Area 1**
October 1999

Between 1984 and 1998, the City estimates that the \$5 million spent on erosion control projects has protected property valued at \$20.5 million.

Beach erosion was a significant problem in the Willoughby Spit area of Norfolk at Critical Area 1 between Worth St. and 7th View St. Homes and businesses routinely were threatened by coastal storms, and recreational use of the beach was very limited because of the narrow width of the beach. However, construction of seven breakwaters and the placement of beach nourishment has restored significant level of protection for adjacent properties. The wider and more stable beach has increased the opportunities for public recreation. These two factors likely have increased the economic potential of the beachfront property.

The construction of breakwaters in other critical areas in the Central Ocean View and East Ocean View parts of the City, is underway as the management plan continues to be implemented.

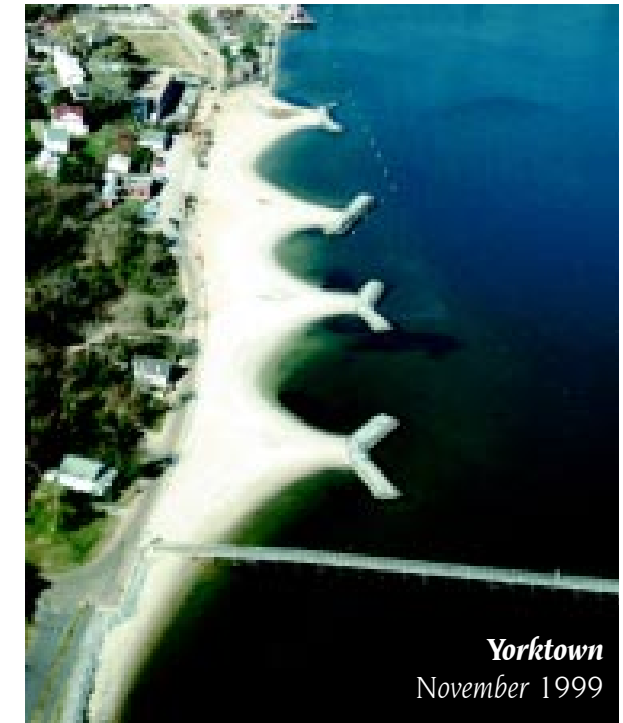
Yorktown

Northeast storms cause significant damage to beaches and roads along unprotected shorelines.



In 1985, a large northeast storm severely impacted several of Virginia's public beaches. Yorktown, Gloucester, and Cape Charles received money from the **Beach Board's Emergency Fund** to rebuild their beaches and infrastructure. At **Yorktown**, a new revetment and sidewalk was built in early 1986. Beach fill also was added, and a small stone breakwater was installed to stabilize a storm drain.

In the late 1980s, the developers of Yorktown's Master Plan recognized that the enhancement and stabilization of the beaches and shoreline is an essential prerequisite to any significant public or private investment in the waterfront area. Management of the beach at Yorktown built on the success of projects at Colonial Beach, Aquia Landing, and Norfolk. Design of Yorktown's breakwater systems was enhanced by knowledge acquired from Beach Board funded research and monitoring at these sites. In 1994, two additional breakwaters with beach fill and marsh grass plantings were placed along the shore. In 1998, the small breakwater was removed, and 2 additional structures were placed to encompass much of the Yorktown waterfront. In 1999, a revetment and large breakwater were installed west of the previous projects near the old post office. In all, the Beach Board has provided about \$221,000 toward these efforts to manage Yorktown's shore.

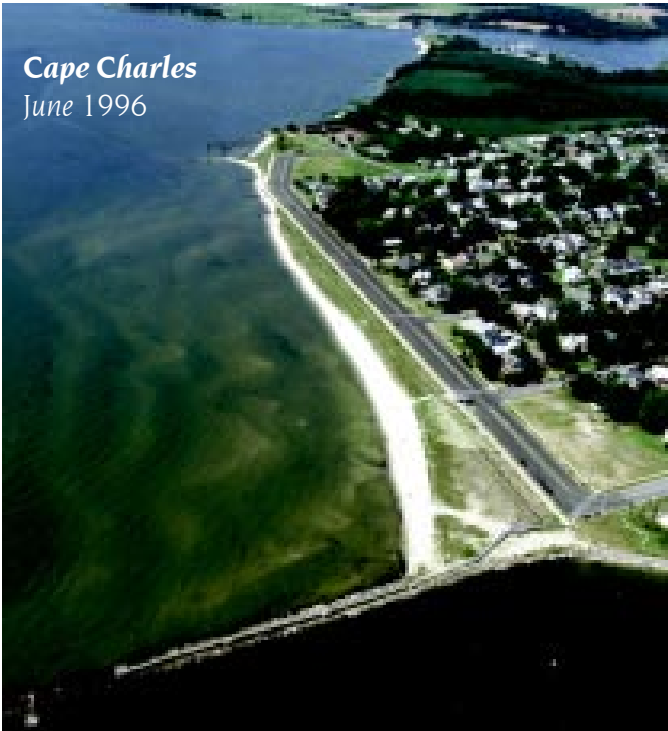


In August 1998, an average of 1,000 people visited to Yorktown's beach each week.

The Yorktown waterfront improvements were implemented based on the premise that the waterfront has the potential to be a major attraction and is essential to the success of any effort to enhance visitation to Yorktown as a whole. With the national spotlight coming to the Colonial National Historical Park for Jamestown's 400th anniversary in 2007, completion of the Beach Board funded improvements to the waterfront will provide increased access and usage. In addition, the breakwater and beach fills provide storm damage protection to businesses, roads, and other shore improvements including the proposed boardwalk connecting the historic Town of York through the waterfront to the Yorktown Victory Center.

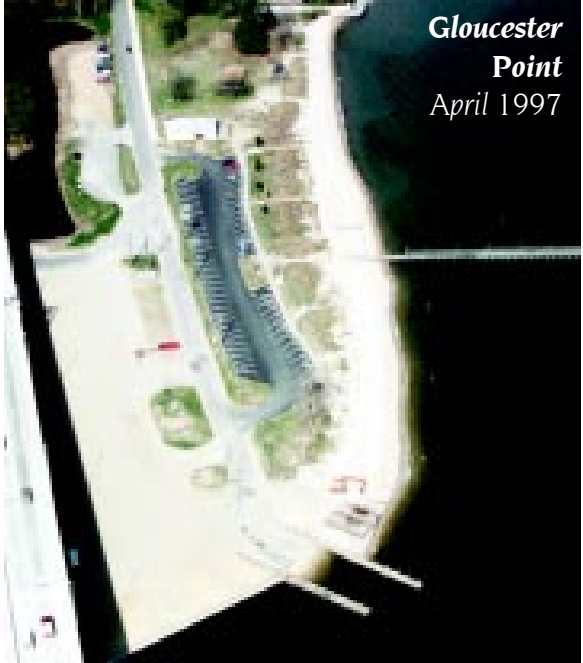


Cape Charles



The public beach at **Cape Charles** on Virginia's Eastern Shore has been a recreation area since the early 1900s. By 1987, erosion threatened most of the Town's seawall. The Beach Board, U.S. Army Corps of Engineers, and the Town cooperated to create a wide beach and extensive dunes along the bayfront community.

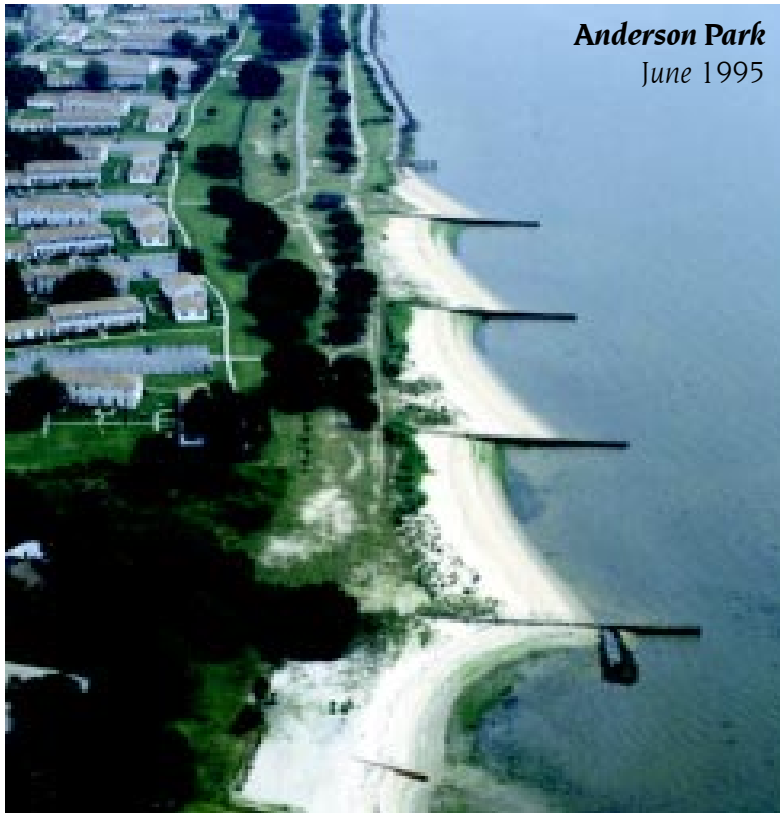
In recent years, the Town and surrounding areas have been developing while erosion has continued at the beach exposing part of the seawall at the northern end of the beach. In order for the Town to provide the "complete package" for strong residential development, the Beach Board has committed to helping Cape Charles maintain its waterfront recreational appeal. The Beach Board has matched funds from the Town for a breakwater and beach nourishment project which is in the planning stages. For both these projects, the Beach Board provided \$301,000. This project will create a recreational, protective beach which will enhance the economic development within the Town as well as the surrounding county.



Gloucester

Gloucester Point Public Beach, on the York River, has been relatively stable since the Beach Board funded repairs through its Emergency Fund after the 1985 northeastern storm and has only required some sand replacement, sand fencing, and grass plantings. Presently, the beach is the focal point of this major recreational facility in Gloucester County.

Both Gloucester County residents and visitors recreate at the park, utilizing the beach, fishing pier, boat ramp, picnic area, playground, and beach house with restrooms.



Anderson Park

June 1995

Only a small beach existed above the high water line at Anderson Park, and the groin system was adversely impacting the beach downdrift at the privately-owned Christopher Shore's residential subdivision.

In an effort to improve the recreational and protective beach at **Anderson Park**, the Beach Board has provided funds for several projects. In the 1980s, groins and sand nourishment were the preferred method of shoreline management at this beach. However, with erosion continuing to impact the beach and park, the Beach Board and the City constructed a wide, high beach with sand nourishment and a breakwater in the mid 1990s. Residents of the area, particularly the tenants of Stuart Garden Apartment complex directly behind the beach, have easy access to the park and beach at Anderson.

Newport News

The **City of Newport News** has 3 public beaches within its limits: Anderson Park, Huntington Park, and King-Lincoln Beach Park. It has made a concerted effort to revitalize the beaches over the past 15 yrs, since the beach parks are a valuable recreational resource for the City and the surrounding region. Over the past 20 years, the Beach Board has provided \$442,000 for the three beaches in Newport News which the City has matched.

These efforts are paying off. Usage increased 5% between 1995 and 1997 at both Anderson Park and King-Lincoln Park. At these beaches, 70%-80% of the park users are from Newport News. However, at Huntington, usage at this beach park increased 25% in those same two years with over 50% of the users coming from other areas.

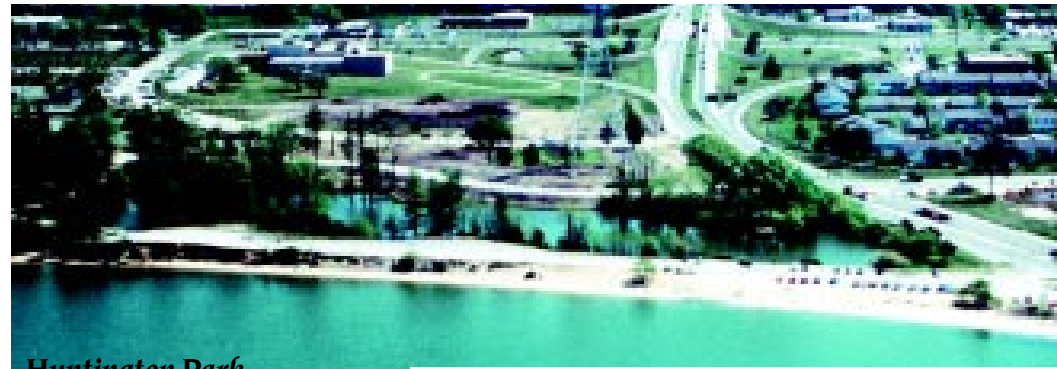


Anderson Park

October 1999

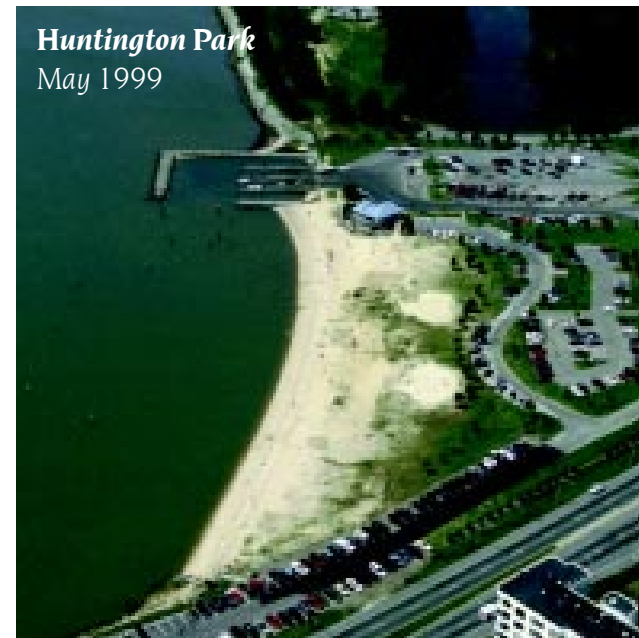
The number of beach-goers increased to 12,000 in the summer of 1997 at Anderson Park where the breakwater and beach nourishment project created a high, wide recreational beach.

Huntington Park's location just north of the James River Bridge provides easy access to beachgoers from Newport News and surrounding cities and counties. In 1986, the City of Newport News undertook a comprehensive project to upgrade not only the beach at Huntington Park but also its other facilities as well. As a part of a larger park, the beach attracts visitors for its guarded beach, boat ramp, and volley ball courts. The Beach Board has funded several beach nourishment projects along this shore helping to maintain a popular beach destination that was used by 102,000 people in 1997.



Huntington Park
April 1986

What was once a narrow beach with little access or parking has become an appealing beach park with boat ramp, volleyball courts, beach house with restrooms, and ample parking.



Huntington Park
May 1999



King-Lincoln Park
October 1999

The beach restoration was part of an overall rehabilitation of the park that has increased its use by the residents of Newport News.

In 1995, **King-Lincoln Park** was the focus of a planned rehabilitation project which included shoreline restoration and upgrades to the playground and stage. The Beach Board funded the placement of beach nourishment to create a wide recreational beach and the creation of a dune along the backshore to protect the park area from storm damage. These projects have created a family atmosphere in an area of Newport News that has typically been industrial. Residents of the apartment complex north of the park are within walking distance, but almost 21,000 people used the beach and park during the summer of 1997.

Many of the smaller public beaches also have benefitted from the Beach Board's commitment to beach conservation and development. While King George and Northumberland have not received matching grant funds from the Beach Board, Mathews County, Middlesex County, and the Town of West Point were allocated \$30,000, \$2,200, and \$13,000 over the past 20 years for various projects that have sought to positively impact the recreational appeal and/or protectiveness of the beach.

Mathews

Festival Beach
November 2000



Festival Beach in **Mathews County**, on the Chesapeake Bay, was the site of experimental breakwaters and site development in the 1980s. Erosion has long since claimed any improvements that were made to the beach. However, with the support of the Beach Board, Mathews County now is developing a beach management plan in order to restore the beach and make it an attractive, recreational beach again.

King George

Wayside Park in **King George County** is located on the Potomac River west of the Henry W. Nice Bridge (Rt. 301). No erosion control projects have taken place along this stretch of beach, which is

Wayside Park
May 1999



regularly used by picnickers and swimmers. However, the Beach Board provides funds to monitor changes along this shoreline.

Middlesex

Canoe House Landing
April 1998



Canoe House Landing in **Middlesex County** is a small beach on the Rappahannock River. The Beach Board helped to develop this site into a local beach by providing funds

for a walkover from the parking lot to the beach.



West Point
October 1998

West Point

The **Town of West Point** has a small beach park that recently received funding from the Beach Board to upgrade its facilities. Though the beach is only 50 ft wide, it provides water access and a scenic view at the confluence of the Mattaponi and Pamunkey rivers to all its visitors.

Northumberland



Vir-Mar Beach
May 1997

Vir-Mar Beach in Northumberland County is a small beach on the Potomac River.

Technical Assistance

The Beach Board is committed to maintaining monitoring programs and technical assistance.

For almost 20 years, the Beach Board has contracted with **VIMS** to perform semi-annual monitoring for many public beaches in Virginia. Data collection by Shoreline Studies Program personnel includes beach profiling, sediment sampling and aerial photography. **The Beach Board also has supported the maintenance of wave gages in the Bay and along the ocean coast which have provided the data needed to determine hydrodynamic processes acting along Virginia's beaches.**

The Beach Board has funded studies at VIMS to determine the location of offshore sand sources such as Sandbridge Shoal as well as funded monitoring of Thimble Shoals once sand was dredged as required by permitting agencies. The Beach Board has actively been looking at the issue of the value of public beaches to the Commonwealth.

Technical References

Looking south along Hampton's Grandview Nature Preserve in October 1999 after a breach occurred separating Factory Point from the mainland.

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Sandbridge (2000)

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