

5 MINUTE READ

North Sandy Pond



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by US Army Engineer Research and Development Center



Sandy Creek, New York, United States

Placing dredged sand to repair barrier bar breaches. The northern barrier bar in North Sandy Pond was severely eroded by very high lake levels and storms in spring 2017. Washovers were common, and the barrier was in danger of being breached. A breach would have exposed wetlands and properties to strong waves and increased the risk of floods and erosion. Additional breaches would have threatened to dissolve the barrier bar itself, endangering public and private lands on shore and in the pond. A similar process occurred throughout the 1970s and was expected to recur without intervention. Changes in the shape and nearshore dynamics of the barrier bar had caused sand from the eroded beach to accumulate in a 611,644-cubic-meter shoal adjacent to the channel connecting North Sandy Pond to Lake Ontario. Further expansion of the shoal threatened to close the channel, blocking the exchange of water between the pond and the lake and degrading water quality in the pond. This project used local natural materials to replenish a barrier bar sheltering businesses, homes, and wetlands from the full force of Lake Ontario. It is a partnership

involving the Town of Sandy Creek, local businesses, Oswego County, a state park, and a conservation organization.

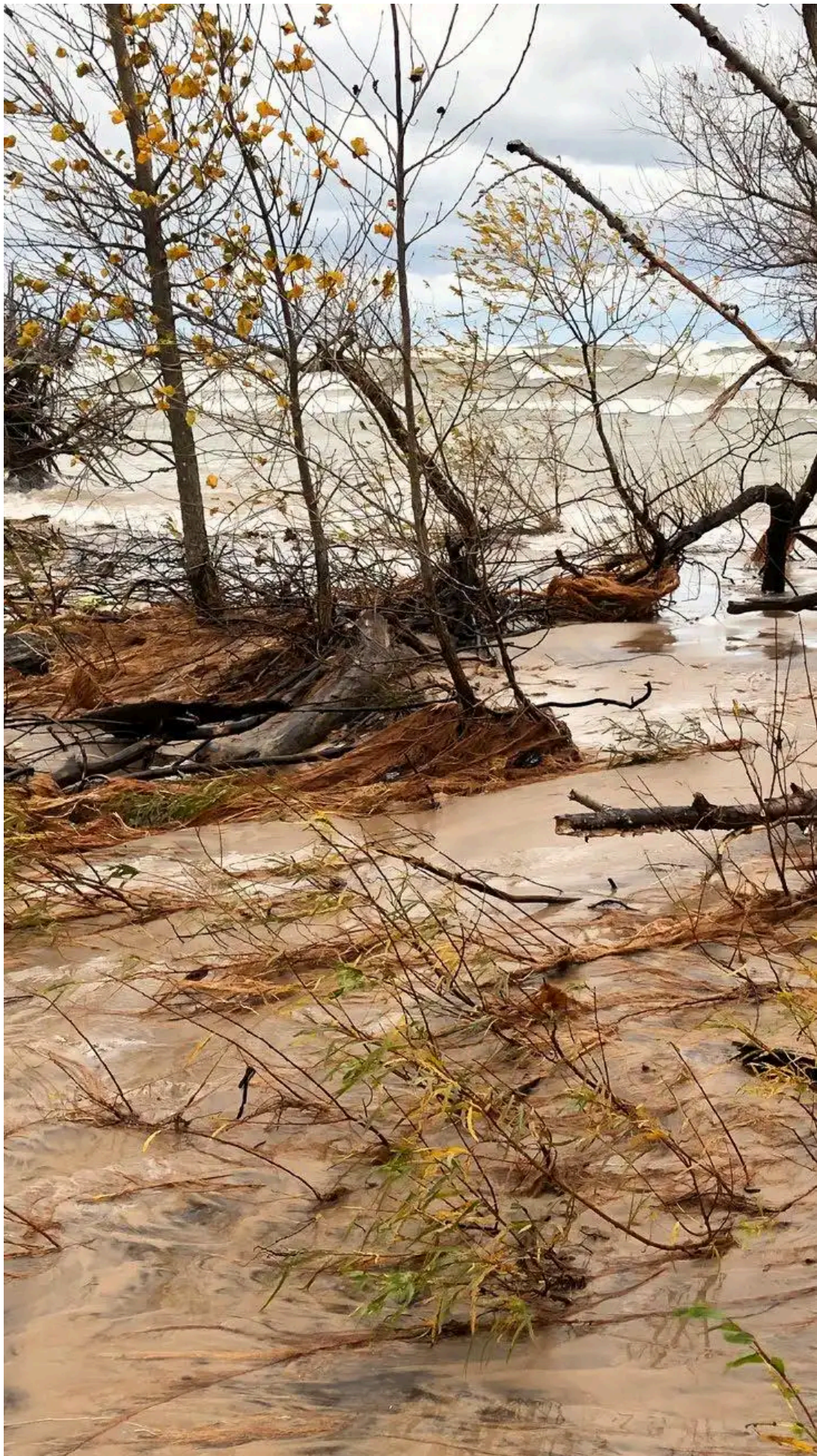
Article Cover: Aerial image of the North Sandy Pond Resiliency Project. Sand dredged from the shoal and channel was used to replenish the eroded north barrier bar sheltering North Sandy Pond. (Photo by Thomas Hart, Hart Environmental Science & Planning)

Producing Efficiencies

Previous research and analysis of the evolution of the shore and channel, based on detailed geospatial analysis of historical maps and aerial images, was presented in *The North Pond Resiliency Project*, a 2017 report by Thomas Hart and Geoffrey Steadman. In addition to a series of management recommendations, the report recommended a planning approach to address the issues posed by the erosion of the protective barrier bar and the possible loss of the channel. Hart and Steadman's recommended approach was adopted for this project, which was funded by the State of New York's Water Quality Improvement Project (WQIP) program.

Using Natural Processes

The project used longshore currents to move sand placed at the northern and southern ends of the barrier bar and to replenish eroded sections of the beach that shelter the wetlands of North Sandy Pond from Lake Ontario. The longshore currents on the eastern coast of Lake Ontario are complex and switch directions seasonally, so sand positioned at either end of the barrier bar can benefit the entire barrier system. This "sand engine" method has worked very well in placing 60,340 cubic meters of sand to repair breaches in the north barrier bar, and this process is continuing on the southern barrier bar to shelter infrastructure in Sandy Island Beach State Park.





Previously overwhelmed area in a low-lying part of the north barrier during the “Halloween storm” of November 2019, when levels of Lake Ontario were very high.

(Photo by David Klein)

Broadening Benefits

Community engagement was critical in strengthening the barrier system, benefiting businesses and the pond’s recreational economy. After 915 meters of sand fencing was installed, 126 volunteers contributed more than 544 hours to dig and transplant existing beach grass and plant 35,000 native beach grass shoots along 488 meters of shoreline in 2020 and 2021. Additional project benefits realized for the community’s quality of life included access to a beautiful walkable beach; a crucial shelter to marinas, restaurants, and shoreline property from the full force of Lake Ontario; and a restored barrier beach, which stabilizes the channel flanked by state park lands, providing a recreational destination that serves over 3,000 boats.



The newly constructed dune with dredged sand and rows of transplanted beach grass. This dune has continued to accrete with sand from aeolian drift captured by the beach grass.

(Photo by David Klein)

Promoting Collaboration

A walkable beach emerged as a top priority at a public meeting held to discuss conservation priorities. An advisory committee, the North Pond Resiliency Committee (NPRC), was formed to guide project planning and help secure WQIP funding. With matching support from The Nature Conservancy (TNC), planning consultant Thomas Hart was engaged to design the dredging and placement of sand, and coastal engineering firm Anchor QEA was engaged to provide feedback on restoration methods and processes. TNC also assembled and convened the stakeholder committee that provided community guidance for the project. Their professional guidance and the feedback from the NPRC provided the basis for the successful funding proposals submitted by the town and partners.

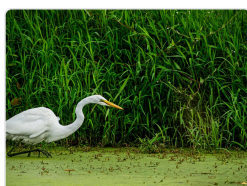


Beach grass planted on the newly restored dune. About 60,400 cubic meters of sand have been dredged from the shoal and moved to this beach in heavy trucks and shaped with a bulldozer.

(Photo by David Klein)



More articles from this publication:



Conclusion

4min pages 292-297

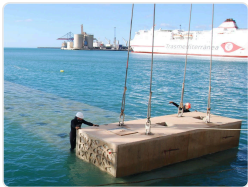


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4min pages 288-291



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4min pages 284-287



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4min pages 280-283



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4min pages 272-275



Port Lands
5min pages 268-271



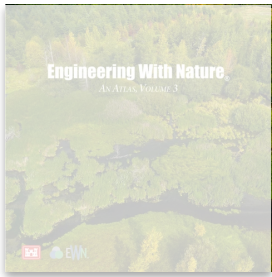
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4min pages 264-267



Newlyn
4min pages 260-263

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