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Shifting Sands: *The history and challenges of beach replenishment on Seven Mile Island*

For the past 30 years Stone Harbor and other New Jersey coastal towns have relied on nature, but also federal and state governments, for their sandy beaches. Every few years, a massive pipe, connected to an offshore dredge, would snake across the beach spewing sand up from the seabed. Block by block, a wide new beach and plump, grassy dunes reappeared.

Once again sand is expected to blow up again on the beaches in Stone Harbor and Avalon this fall through a $15.8 million project lead by the U.S. Army Corps of Engineers and New Jersey Department of Environmental Protection. When the work begins, it will end uncertainty after the federal government failed to provide any funds for beach replenishment nationwide -- just as Stone Harbor and Avalon were due to receive more sand.

The federal government will pay 100 percent of the project in a financial package engineered largely by Congressman Jefferson Van Drew (NJ-2), along with other local and state officials. The project is expected to start in October with crews working around the clock, seven-days a week – including holidays – and finish in November. When completed, borough beaches and dunes from 99th Street to 114th and 121st Street to the terminal groin at Stone Harbor Point, will be fattened up after several years of erosion.



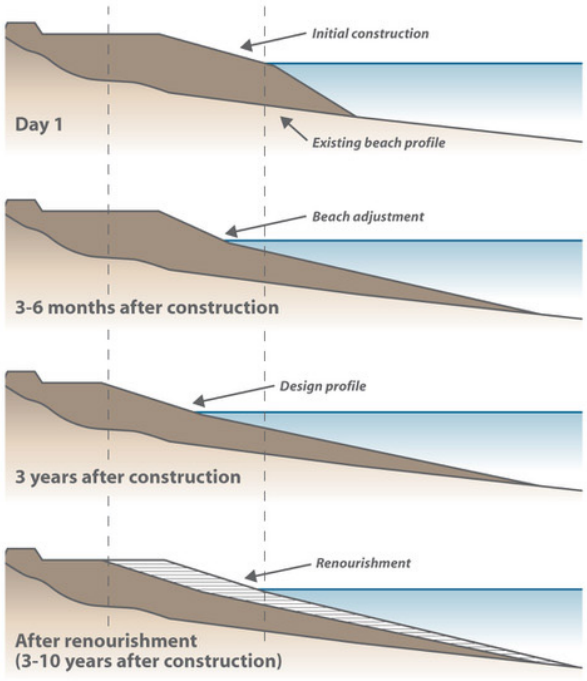
103rd st beach: 1998 (above) vs. 2021 (below)

Beach Replenishment History

In 2025 local officials and coastal advocates, who had come to expect up to $200 million for beach replenishment nationally, were disappointed when federal budget examiners, and then Congress, allotted zero. Stone Harbor and Avalon are on a three-year beach maintenance cycle as part of a 50-year Coastal Storm Risk Management Project authorized by Congress in 1999.

At that time, Stone Harbor beaches lay below a sharp drop to the waterline behind a buffer of craggy rocks. Only small-scale restoration projects, including one in 1998 in partnership with the state, offered some additional protection. But in 2003, the Army Corps of Engineers completed a major reengineering of the coastline, to create the beach as we know it today. The dunes were built to an elevation 14.75 feet and a new berm ran up to the waterline creating 150 feet of flat sand beach. In all, 2.6 million cubic yards of sand were deposited in Stone Harbor and 1.5 million in Avalon. That is the equivalent of 1,050 and 606 Stone Harbor water tanks.

Engineered Beach System



After a beach nourishment project is constructed, coastal engineers expect the beach to change gradually over time and assume a more natural form.

Scheduled federal replenishment has always been contingent on available funding. Seven Mile Island was passed over for federal beach refills from 2003 to 2011. The Borough, in partnership with the New Jersey Department of Environmental Protection, did a modest beach nourishment project in 2009 to provide some interim protection until federal funds were received. The next major beach replenishments on Seven Mile Island came in 2011 and 2013, but they were funded by emergency federal and state funds outside the maintenance cycle after strong nor'easters and Super Storm Sandy.

Seven Mile Island beaches did receive a scheduled, cyclical replenishment in 2017, but it came in two chunks. At the time, a U.S. Fish and Wildlife moratorium prohibited the use of federal funds to harvest sand from Hereford Inlet, the Corps' closest and cheapest source. The state, as a non-federal entity, was allowed to use Hereford Inlet to pump sand up to the southern part of Stone Harbor. The beaches from 80th Street to 105th Street were filled with federally funded sand from Townsend's Inlet, which was not under any restrictions. But sending the sand all the way to Stone Harbor added costs and put a strain on Townsends Inlet which does not have as much sand regenerating as Hereford Inlet.

With the moratorium still in place and insufficient funds to pump enough sand from Townsends Inlet in 2019, the Corps, at the request of the Borough, considered borrowing sand from dunes, that were much wider than designed along sections of Stone Harbor's beaches, for deposit on severely eroded beachfront around 110th Street. Council members balked, opting to maintain the integrity of the dunes, and Stone Harbor went without beach replenishment for another cycle.
Concerned that the moratorium might lead to a new era of costlier beach maintenance –or none at all -- the Borough Council commissioned a coastal engineering study in 2022 to investigate other alternatives to a full-scale hydraulic replenishment. The study modeled characteristics, such as wind speeds and tides and proposed some solutions to beach erosion that could be executed independent of the federal government.

Council did not authorize a second part of the study that would have provided cost analysis, but in 2023, the Army Corps came up with funding for a $39 million replenishment of Stone Harbor and Avalon. Due to the Hereford Inlet moratorium, sand from Townsend's Inlet was pumped all the way to Stone Harbor. The following year Congress approved legislation, known as the BEACH Act, ending the moratorium and allowing Stone Harbor to mine sand from Hereford Inlet. Moving sand from Townsend's Inlet added an estimated $7 million to the project, of which Stone Harbor paid nine percent.

Another replenishment was scheduled to occur in 2026, but in the federal fiscal year 2025 budget, which runs from Oct 2024 to Oct. 2025, Congress was at a budget stalemate. All government funding was rolled into a continuing resolution. Under this budget process, separate appropriations, such as those in the Energy & Water Development Act, were taken out of Congress' hands. That left no federal money for replenishment just as Stone Harbor was coming due.

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Engineered Beach System(cont)



Beach maintenance has been an issue at the Jersey Shore for more than 100 years as natural dunes and barrier islands were developed for residential and recreational use. Initially, shore towns tended to rely on permanent construction, such as seawalls, bulkheads, groins and jetties to keep the water and destructive winds back. Those solutions, however, often just saved one section of the coast at the expense of another. Coastal communities have now come to rely on more nature-based techniques, particularly hydraulic beach replenishment, in which sand is pumped up from the seabed.

To some, beach replenishment is a waste of money. They argue it merely pushes sand up on the beach only to have much of it wash away, amounting to a federal giveaway to affluent second-home resorts. Shore officials and coastal engineers acknowledge this type of beach replenishment can be a short-lived fix, but they contend it is money well spent because it protects valuable property, wildlife habitat, and potentially human lives, from punishing waves and flooding. The total market value of property in Stone Harbor is $10 billion and $19 billion in Avalon, according to the Cape May County Tax Board.

The Corps' primary mission is to provide a resilient coastline, but the island's beaches also provide recreation and priceless memories for residents and visitors from across the United States and beyond. About a third of New Jersey's 2025 tourism spending of $52 billion was generated in Atlantic and Cape May Counties alone. The U.S. Army Engineer Research and Development Center has estimated that every $1 invested in beach replenishment equates to $200 in tax revenue.

Indeed, the Army Corps is fully aware of the sand's tendency to shift and drift back to sea and designs its projects with that in mind. Stone Harbor Point provides a dramatic illustration of how sand can migrate. According to Stockton University's Coastal Research Center, which monitors beaches with the NJ Department of Environmental Protection, the point had been "starved" of sand in the late 1990s and was reduced to little more than a spit. Now, it is a natural habitat built almost entirely from sand that had relocated from beaches to the north. In 2015, New Jersey Audubon was awarded $1.28 million from the U.S. Department of Interior's National Fish and Wildlife Foundation to work with Stone Harbor and environmental organizations to develop ecosystems atop the sand. The point now supports migratory and nesting birds and adds additional protection from storms for the borough and is protected by Federal Fish and Wildlife as well as the State.

Going forward, demand for protection from erosion is likely to be heightened. Although flooding in Stone Harbor usually comes from the bays or storm water outfalls, wide sandy beaches and dunes are there to block a catastrophic coastal storm. These incidents are less frequent, but potentially more dangerous to people and property, according to the Army Corps. As the seas warm, these types of storms are expected to increase.

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Current Situation

The 2026 beach replenishment in Stone Harbor and Avalon is coming from the Disaster Relief Supplemental Appropriations Act of 2025 passed by Congress in December 2024. In past years when the island missed out on a federal beach fill from its regular funding source, it did not get a makeup replenishment the following year.
Initially, Van Drew and the Corps announced that the project would receive $46 million in disaster aid funding. But when the bids were formally received, they came in lower than expected. Van Drew would like to retain the rest of the funds in the area, particularly for repairs to the Herford Inlet seawall in North Wildwood.

In Stone Harbor, Norfolk Dredging Company of Chesapeake, VA has been contracted to lift 538,867 cubic yards of sand – pending pre-fill surveys. Avalon is to receive 941,032 cubic yards of sand for its beaches. The project bid called for completion within 153 days and is scheduled to begin after similar work is completed by the same company in Sea Isle City and Strathmere.
Those towns, along with parts of Ocean City, were awarded $41 million for their regular refill. North Wildwood will get more than $600,000 for planning a major beach construction like the Stone Harbor and Avalon makeover in 2003. The city of Cape May was also due for funding but did not make the cut.

Local officials argued that while Seven Mile Island has not had a damaging individual event, like a Florida hurricane, the cumulative effect of numerous storms can lead to severe erosion and flooding risk, particularly if the dunes are breached. The Corps always has the right to request funds for erosion repairs outside the cycle, however, there is limited ability to hold back funds if they are received. That said, typically when projects receive funds, there's a need to conduct repairs within the project footprint. But the cumulative impact of Hurricane Erin and coastal storms last fall were enough to qualify as a disaster.

The damage came on top of several years of erosion. In its 2025 report on the condition of local beaches, Stockton's Coastal Research Center (which works with the state to monitor conditions at the Jersey shore) said the borough's oceanfront experienced significant erosion from October 2024 to October 2025. Except for 95th street, every other point the center monitors had lost sand, with 103rd, 108th, 116th, and 123rd displaying the most substantial losses. Overall, 298,673 cubic yards were calculated to have been lost.

State and local sources

For scheduled federal beach fill projects, the U.S. government typically contributes 65 percent of the initial project cost. Of the remaining 35 percent, the state has contributed 75 percent and local governments the rest. In more recent projects, like the ones in Sea Isle City and Strathmere, the U.S. government only contributes 50 percent. The State already has a standard annual $25 million allocation in its Shore Protection Fund for coastal resiliency and storm damage reduction projects paid for by realty transfer taxes. In recent years, the legislature has chipped in more, bringing the total as high as $50 million.

Stone Harbor's funding comes through disaster relief legislation, so the federal government will pick up the entire bill. The borough has little room in its budget for additional beach maintenance costs. A heavy debt load and increasing costs, particularly for personnel, have continuously pushed the town close to its state-mandated caps on new debt and tax increases.
Typically, Stone Harbor sets aside $350,000 a year for beach replenishment. If the federal and state government were to abandon local beach replenishment entirely the borough would need up to an estimated $5 million a year to replace those contributions. That would amount to more than 20 percent of the $23 million 2026 budget.

Coastal Trust Fund

To help break dependence on federal budget cycles, Van Drew has introduced legislation to create a new entity, the Coastal Trust Fund, to provide dedicated money for annual beach replenishment. Stone Harbor Borough Council joined other shore communities to support the legislation.
The proposed Coastal Trust Fund would use proceeds from U.S. offshore oil and gas leases to yield a guaranteed $1 billion for coastal storm management projects. In Federal Fiscal Year 2025 those leases generated nearly $6 billion. Of that, about $4 billion was returned to the general treasury. The rest went to fund land conservation around the country and environmental protection in Alabama, Mississippi, Louisiana and Texas. Like all federal bills, which faced an overall 16 percent chance of passage in the last Congress, the trust fund's future is uncertain.

The American Shore & Beach Replenishment Association has suggested a range of local funding mechanisms to boost the amount of local money available for beaches. The Association suggests the creation of special taxing districts based on property values. Examples of special districts could be for erosion control, geologic hazards or inlet management.

Stone Harbor has already adopted some of the other measures that were suggested including tourist occupancy taxes and user fees such as beach tags or parking fees. In Stone Harbor beach tag revenue is already used to fund the beach patrol. Revenue from new sources could be used to pay off special bonds to finance projects over time or for specialized insurance, according to the association.

ENGINEERING SOLUTIONS

The abrupt federal funding pullback prompted renewed interest in other ways to preserve sandy beaches versus full-scale hydraulic replenishment that pumps sand up from the ocean floor.

Hot Spots

In 2024 Van Drew, along with U.S. Rep. Frank Pallone, who represents the congressional district just north and west of Van Drew's, introduced legislation to study so-called "hot spots," or distinct sections of beach that tend to erode regularly. For example, the north end of a barrier island generally erodes more than the south.

Hot Spots (cont)

The hot spot legislation calls for the Army Corps of Engineers to identify areas most prone to erosion and recommend more tailored solutions, including reconsideration of permanent construction projects, such as groins and jetties. The first pilot as part of the study, is a project in Atlantic City to evaluate whether erosion there would be mitigated by alternative means, such as construction of so-called T-groins. These groins would jut into the sea in the shape of the letter T to beat back wind and waves coming in at an angle and assist with retaining sand.
The coastal study commissioned by Stone Harbor borough council in 2022 found that most of the town's eight groins were severely deteriorated and thus had little impact. The global engineering firm that did the study, Mott MacDonald, found that only the 440-foot groin at 127th street would be helpful in preventing erosion if it were restored and extended an additional 75 or 100 feet. But that would be costly and potentially impact Stone Harbor Point.

Sand recapture

One simple, low-cost way to help fill beaches is by using temporary fences to capture sand already on the beach that can blow up onto dunes or out to sea during high winds. Dunes are naturally made up of blowing sand. Similarly, a technique known as beach ploughing, in which bulldozers create wave patterns in the dry sand part of the beach creating gulleys, can trap blowing sand. Sand capture, however, has only a limited impact and, if not executed correctly, has the potential for negative impacts on the function of the beach and dune system, including the Corps' engineered beach and dune.

Relocating sand

In an emergency, coastal towns sometimes rely on trucking sand from offshore to fill thinned-out beaches. The process is time-consuming and expensive for local public works departments with a limited number of trucks and/or workers and can raise concerns about habitat destruction. In Stone Harbor the trucks could be too heavy to pass over the 96th Street bridge requiring them to be routed through Avalon. Stockton University's Coastal Resource Center found that the cost of hauling the sand was less than or equal to the price to pump sand up from the sea. But that cost amounts to a tenth of the cost just to bring in the offshore dredges. Another drawback is that offshore sources do not refill with sand the way inlets do and the size of the grains of sands may be different.
Back-passing and Beach-scraping

Back-passing and Beach-scraping



Two other ways to address pockets of erosion between major replenishments are known as back-passing and beach-scraping. These strategies rely largely on moving sand around that is already on the island or just under the ocean water. Typically, they can be executed by municipalities on their own without federal help, although they are only useful for modest infill projects.
In back-passing, trucks load sand from fat beaches rich with sand and sediment, to other parts that are eroding. Avalon has done this in recent years, moving sand from the area around 32nd to 40th street up to the north end. Avalon hires an outside construction company to help it haul the sand for $648,900.

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In beach-scraping, sand is pulled straight up to a troubled beach at extremely low tides. The sand is then deposited on the beach right where the sand had been submerged. The Mott report said that Stone Harbor, unlike Avalon, does not have one particularly fat stretch of beach where a large amount of sand accumulates, making back-passing an unlikely solution. However, Stone Harbor's beaches do have a consistent set of gullies and sand bars that develop just offshore, where it might be possible to scrape, according to the report.

Offshore breakwaters

Some solutions to beach erosion may lie under the surf. In 1993 Avalon installed a beach-saver reef system and inlet geo-textile submerged breakwaters. At Cape May

Point an experimental project compared the performance of "reef" structures in preventing sand loss offshore. The project compared 6-foot high "Beachsaver" concrete units with the standardized "Double Tee" concrete parking garage floor-beam units, which are only about 30 inches tall. Both types of "reef" structures reduced erosion, according to a 2006 report by the Coastal Research Center.

CHALLENGES

Dredgjng



Hydraulic replenishment is expensive for many reasons. First, the equipment is expensive to maintain because salt water is corrosive. The pipes, which are three feet in diameter, are hard to transport and to set up and take down, and the equipment requires expensive diesel fuel. The work also requires a lot of manpower. Environmental restrictions may require monitoring of the sand borrow sites by trained divers. The dredge operates 24/7 requiring round-the-clock staffing levels. Crews can then sometimes sit idle when weather or equipment breakdowns halt the work.

The cost of hydraulic beach replenishment is driven largely by contracts with a handful of dredging companies that do this work in the Eastern United States. Not only is there limited competition among contractors, but prices are driven up by strong simultaneous demand. Beach towns all prefer to have the work done in the spring-time window, after winter storms have subsided but before summer beachgoers arrive.

In February 2026, the Army Corps set new rules to streamline dredging contracts which recently have been coming in 25 percent above estimates or with non-awardable bids. The Corps is planning to move all contracting for dredges to its headquarters to better coordinate programs and bargain a better deal for taxpayers.

Van Drew also has been exploring the use of newer European dredges that could fill cheaper and faster. The dredges would be operated by U.S. companies with union labor. Stone Harbor's Mott MacDonald report focused on dredging, too. It advocated the use of smaller, more nimble dredges that could spit sand up from just offshore, where applicable, rather than pumping it for miles from the seabed. The report suggested that the smaller crafts would be easier to maintain and operate and could be owned in a collective arrangement among several beach towns. The dredges could also be used to clear sediment in the back bays.

Masterplan

Shore towns are also subject to a variety of governmental regulations at the federal, state, county and local levels that shape beach preservation projects. The State Department of Environmental Protection has a masterplan for the shore, including Seven Mile Island, dating to 1982. The plan was designed to prevent the historic problem of one stretch of beach, or town, taking actions to prevent erosion in its location, but potentially creating a bigger problem somewhere else. The state DEP also coordinates funding and acts as the local partner with all towns, like Stone Harbor, by participating in a long-term Army Corps beach construction and replenishment agreement.

The borough has a comprehensive masterplan, but it primarily focuses on building and development concerns. It does acknowledge the ongoing need for beach replenishment and established a Natural Resources Committee on borough council to coordinate sustainability issues.

Stone Harbor does have a flood and storm sewer masterplan and a committee that has examined potential solutions to flooding, such as raising bulkheads, homes, roadways and infrastructure. The committee's 2022 report touches lightly on the beach, recommending the removal of stormwater outfalls from the beach and diverting water underground to the bay.

Council's Natural Resources Committee could launch a similar committee to oversee conditions at the beach. This committee would guide the borough in developing new, targeted solutions to erosion, particularly if the day ever comes when other government partners walk away. In the meantime, the borough's Public Works Department continues to manage the beach in accordance with state and local ordinances.

Stone Harbor hired a Washington, DC lobby firm, Warwick Group Consultants, which was successful in winning funds for the 2026 project. Warwick and its sister organization, the American Coastal Coalition, has launched a nationwide campaign called #YEStoBeaches to encourage those who use the beach to reach out to their own members of Congress – wherever they live -- to support federal beach funding. The #YEStoBeaches campaign is designed to show grassroots support for beaches from all over the country.

Continued Research

Effective planning and execution of projects, particularly more limited, focused preservation efforts, rely on data. Beach and dune heights, wind speed and direction, sand volume on and offshore, and currents are all factors. In 1986 the state DEP teamed with Stockton's Coastal Research Center to create the New Jersey Beach Profile Network (NJBPN) to monitor erosion. NJBPN observes 171 spots along the state's coastline twice a year.

Stone Harbor has budgeted $61,700 for Stockton to continue collecting data at eight spots along the beach between 82nd and 123rd Street and in Back Bay lagoons. The contract gives the borough its own data that – if necessary -- could guide replenishment, or emergency infills, as Avalon has been doing.

Conclusion

At this point, an entire generation has come of age with no memory of what the beaches on Seven Mile Island looked like before they were reengineered. When Stone Harbor's beaches were remade by the Army Corps in 2003, the borough was a low-key town with modest seashore homes, cottages and fishing shacks.

There are some estimates that Jersey Shore beaches can usually get by for three to five years without replenishment. After that, the beaches would eventually return to their original state. When exactly, would be up to the wind and the tides.

Links to sources -

Coastal Research Center Stockton University
https://www.stockton.edu/coastal-research-center/

U.S. Army Corps of Engineers Philadelphia District and Marine Design Center
https://www.nap.usace.army.mil

New Jersey Department of Environmental Protection Beach Replenishment
https://dep.nj.gov/dsr/environmental-trends/beach-replenishment/

U.S. Army Corps of Engineers Original 1981 state masterplan for Seven Mile Beach
rucore.libraries.rutgers.edu/rutgers-lib/32163/PDF/1/play/

New Jersey Department of Coastal Engineering
NJDEP| Watershed & Land Management | Coastal Engineering
https://dep.nj.gov/wlm/drec/ce/

American Coastal Coalition Yes to Beaches
The American Coastal Coalition
https://americancoastalcoalition.org