

# Sand Dune Fencing

## Overview

- Sand dunes provide protection from storm surge flooding during coastal storms.
- Storms, high tides, storm surge and high winds can cause erosion of sand dunes. Erosion is the gradual loss of sand on the sand dune. An eroded sand dune will be less effective in providing flood protection from storm surge during coastal storms for structures along the shoreline.
- Sand fences on sand dunes help to trap airborne sand. This helps build and stabilize the sand dune so that the dune can help prevent flooding.
- Sand fences also prohibit people from walking or driving on the sand dunes. This protects the sand dune from erosion and conserves habitat for native Delawarean coastal species.
- Check to see if the dune is in a rare, threatened, or endangered shorebird habitat before altering the dune in any way. Action may be limited in areas within a protected shorebird habitat.
- In addition to installing a sand fence, the following actions will also help stabilize the sand dune:
  - Plant native plants on the dune such as Cape American beach grass (*Ammophila breviligulata*) to re-vegetate the frontal and back dune zones.
  - Remove all trash and debris such as yard waste, tires, boats, etc. from the sand dune.
  - Post signs on the dune notifying people to stay off the dunes.
  - Install a dune crossover in order to avoid damaging the sensitive vegetation.



Photo credit: DNREC

## Key Takeaways

During coastal storms, high-energy waves can destroy protective sand dunes by washing away the dune base. Additionally, the high-velocity winds of coastal storms can cause sand erosion. Dune erosion can lead to receding and the eventual loss of dunes.

If the dune is destroyed, it no longer offers flood protection for the structures behind it.

Installing sand fences makes dunes less likely to erode and therefore more likely to offer protection from storm surge during coastal storms. This can reduce costs associated with storm damage.



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# I-ADAPT

## Shoreline Adaptation Sand Dune Fencing

Photo credit: DNREC

### Estimated Costs/Benefits

\*U.S. dollars (2022), estimates are subject to change

Potential Costs		Potential Benefits (1,000 sq ft structure)		
Item	Estimate	Post-Flooding Recovery Action	Estimate	
Sand fence materials and construction	\$700- \$1,700	Beach replenishment due to flood/wind erosion damage	\$295 per 5 tons of sand	
		Flood damaged structure recovery (professional clean-up, mold removal, replacement/ repair of flood damaged items)	1 inch water	\$10,800- \$53,500+
4 feet water	\$43,400- \$203,300+			
<b>ESTIMATED TOTAL COST</b> 100 ft shoreline	<b>\$700- \$1,700</b>	<b>ESTIMATED TOTAL SAVINGS</b>	<b>\$11,095 - \$203,595+</b>	

### Expected Maintenance

- Remove trash and debris as needed.
- Repair sand fence as needed.

### Additional Resources

- [DNREC Beaches and Shorelines](#)
- [DNREC You Can Help Protect Beaches and Dunes](#)
- [Mobi-mat](#)
- [Sea Grant Coastal Dune Protection & Restoration](#)

Resources can also be found at <https://de.gov/iadapt>

### Additional Actions

- Encourage neighbors and community leaders to also steward their sand dunes to help increase dune stability.
- Install a dune crossover and dune signs in order to avoid damaging the sensitive vegetation.

### Permitting Agencies

Contacts for permitting requirements include but are not limited to the following:

- Your city and/or county government for local flood ordinances or regulations
- Your city and/or county government for building permits
- [DNREC Wetlands and Subaqueous Lands Permit](#)

### Who to Contact

- Marine contractor
- [DNREC Shoreline and Waterway Management Section](#)
- [811 Call Before You Dig](#)

Technical definitions and more information are located on the I-ADAPT website: <https://de.gov/iadapt>.



This information is intended to be used for planning purposes. It is not intended to substitute or take precedence over the guidance of design engineers, contractors, utility companies or regulatory agencies.

For more information, contact DNREC's Division of Climate, Coastal and Energy at [DNREC\\_IADAPT@Delaware.gov](mailto:DNREC_IADAPT@Delaware.gov)

