

Washed Away

How can we protect our beaches from damaging erosion caused by hurricanes?

Hurricanes are powerful storms that form over the ocean. Hurricane winds can reach more than a hundred miles per hour. Winds that strong can uproot trees and blow the roofs off houses. But a lot of the damage from hurricanes actually comes from water. When a hurricane hits the coast, high winds can stir up massive waves and flooding. All that moving water can carry away sand and soil, a process called **erosion**.

Beaches naturally undergo erosion all the time, as waves and tides move sand around. "[But] when a big storm hits, the effects of erosion are much stronger," says Gerald Galloway, an engineer who works on flood prevention. The result: major damage to homes and businesses built along the shore.

Storm Stoppers

To safeguard homes, some towns in hurricane-prone areas along the East Coast decided to follow nature's example and build sand dunes. Dunes can hold back floodwaters and help cut down on erosion. Building artificial dunes has paid off. When big storms have hit, these towns have suffered much less damage than those without dunes.

Now more communities are turning to dunes to help them weather future storms. To build the dunes, engineers use ships to dredge up sand from the seafloor. Machines pump and spray it onto beaches. Bulldozers then shovel the sand into dune-shaped mounds.

It's not a perfect solution. Dredging the sand can damage underwater habitats. And it may have to be done all over again after a hurricane strikes.

Stay or Go?

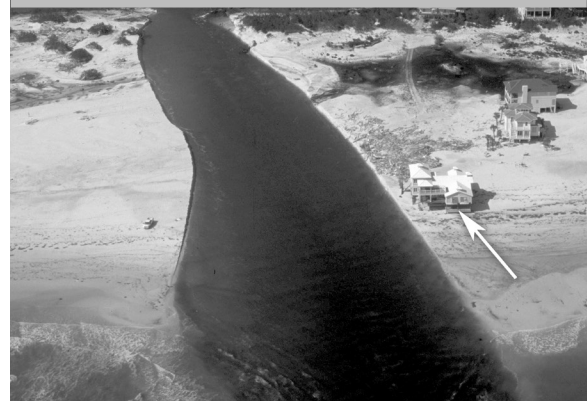
To weather the next storm, people need to rethink their rebuilding efforts, says Galloway. Houses need to be made stronger to resist damage or raised to sit high above floodwaters.

Another option is for people to rebuild somewhere else entirely. Some say it's too costly and dangerous for people to rebuild in places that could be repeatedly struck by hurricanes. But many residents don't want to leave their beaches or their communities.

It's a complex problem. But it can't be ignored. "Nature can be a very powerful force," says Galloway. "When the next storm comes, we've got to be prepared to deal with it."



Before Hurricane Ivan hit this barrier island in Alabama in 2004



After the hurricane: Waves and storm surge have split the island in two.



Before Hurricane Ivan hit this beach in Alabama in 2004



After the hurricane: The front of the 5-story building collapsed and the pilings under the house were exposed.