Building Back the Sand Dunes

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Sand dunes are naturally occurring dynamic coastal features which are formed by the accumulation of wind blown sand. When sand dunes are damaged from storms or human activity they can be repaired or restored. The basic steps are simple but careful planning is needed. Your dune restoration project should be designed to create a dune that matches the existing natural dune pattern in the area. You can help speed up nature's work by using sand fences and dune plants to collect sand more rapidly.

Before You Start...

Permits from the Florida Department of Environmental Protection (FDEP) and possibly local governments may be required for installing sand fences, constructing dune walkovers, and dune plantings. This brochure does not provide all the necessary information or authorize any construction. Please contact the appropriate FDEP district office listed on the back for information about obtaining a permit or for guidance to help you get started. There is usually no cost for sand fencing and dune planting permits.

2 Ways to Help Rebuild Sand Dunes

Dune Planting. Plants build and anchor the sand dunes. The roots and stems of sea oats and other native coastal plants trap wind-blown sand. As the sand piles up around the plants, new roots develop on the recently buried stems while new stems emerge from the sand's surface. This traps even more sand and the sand dune builds. Sea oats and other vegetation can be planted along with the installation of sand fences or by themselves.

Sea oats (*Uniola paniculata*) should be planted first and should cover 60-80% of the total area. Bitter panicum (*Panicum amarum*) can be planted in the remaining areas. Seedlings should be planted at least 6 inches deep since shallow plantings may fail. Space

the plants 24 inches apart in alternate staggered rows. Planting should occur during the early fall or spring so that minimal watering is needed. Planting at other times of the year may require more watering depending on the amount of rainfall. It is better to water heavily and less often than to water lightly and more often. Check with your local nursery, appropriate state or federal agency, or county extension agency for plant sources.

Sand Fencing. Sand is carried along the beach by the wind. Sand fences help build sand dunes by trapping and collecting this wind driven sand. Sand fences are usually made of wood, biodegradable, or plastic material. To keep the dune "growing", raise the fence before the sand accumulates to a depth of 18 inches. If the fence is buried, it will no longer work and it may pose a hazard to nesting birds and sea turtles.

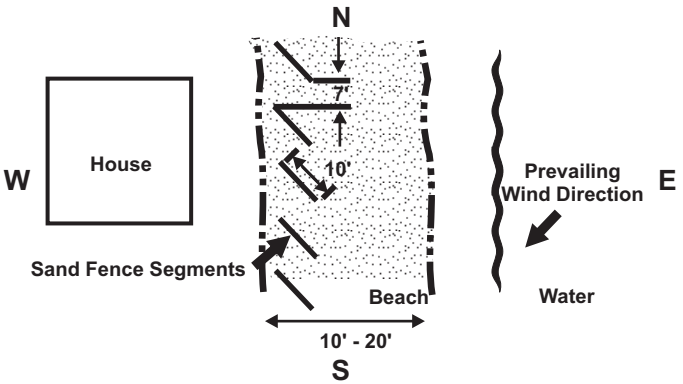
The use of sand fencing may be restricted along the southeast coast due to the potential for adverse impacts in high density marine turtle nesting beaches. Sand fencing may also be restricted in other places such as the barrier islands along the southwest coast where the dry beach area may not be wide enough to supply the necessary amounts of wind driven sand.

The initial dune restoration project area should be about 10 to 20 feet in width. To maximize sand building, the fence should be located as far landward as possible and the spaces between and waterward of the fences should be planted with dune vegetation. The fence should be placed in 10 foot sections with at least 7 feet between each section to provide space for sea turtles to approach the beach, lay their eggs, and return to the sea. Each segment of fence should be angled to take advantage of predominate wind direction and strength. Please refer to the chart below for the recommended sand fence alignment for your area.

SAND FENCE ALIGNMENT

Northern Atlantic coast:	NW-SE
Southern Atlantic coast:	NE-SW
Eastern panhandle coast:	NE-SW
Central panhandle coast:	NE-SW
Western panhandle coast:	NW-SE
Southern Gulf coast:	NW-SE

Change the alignment to take advantage of local and seasonal variations in the predominate wind direction and strength.



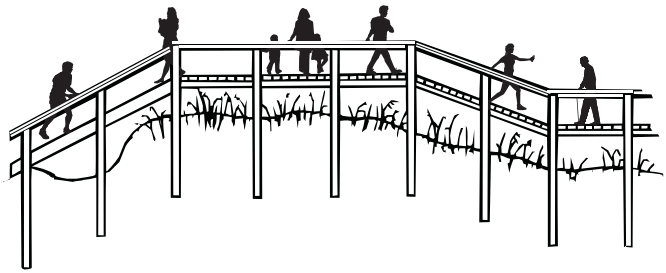
The figure above illustrates the placement and NW-SE alignment of sand fences for the northern Atlantic coast.

3 Things You Can Do to Protect Sand Dunes

Use Dune Walkovers and Designated Beach Access Points to Cross the Dunes. Without dune vegetation, sand dunes become unstable. Dune plants tolerate harsh beach conditions including wind, salt spray, storms, scarce nutrients, limited fresh water, and intense sunlight and heat. However, they cannot withstand the pounding of feet and vehicles.

Restore Damaged Sand Dunes. Established sand dunes provide a strong defense against storms. When sand dunes are damaged, you can help speed their recovery by installing sand fences and planting native dune vegetation. Increase the benefits of your work by encouraging your neighbors to join with you in your dune restoration projects.

Learn More About Sand Dunes and the Ways You Can Help Protect Them. If you aren't a good steward of the coastal environment, who will be? Tell others about the importance of protecting sand dunes and the coastal environment. You don't have to be an environmental expert to help protect sand dunes, you just have to care. For more information about the coastal environment and volunteer opportunities in your area, contact the U.S. Fish and Wildlife Service or the Florida Department of Environmental Protection at the numbers listed on the back of this brochure.



FDEP District Offices

For Bay, Escambia, Franklin, Gulf, Okaloosa, Santa Rosa, or Walton Counties:
Northwest District
160 Governmental Center
Pensacola, FL 32501
(850) 595-8300

For Duval, Flagler, Nassau, or St. Johns Counties:
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256
(904) 448-4300

For Manatee, Pinellas, or Sarasota Counties:
Southwest District
3804 Coconut Palm Drive
Tampa, FL 33619
(813) 744-6100

For Brevard, Indian River, or Volusia Counties:
Central District
3319 Maguire Boulevard, Suite 232
Orlando, FL 32803
(407) 894-7555

For Charlotte, Collier, or Lee Counties:
South District
2295 Victoria Avenue, Suite 364
Fort Myers, FL 33901
(941) 332-6975

For Broward, Dade, Martin, Palm Beach, or St. Lucie Counties:
Southeast District
400 North Congress Avenue
West Palm Beach, FL 33401
(561) 681-6600

State of Florida
Department of Environmental Protection
Bureau of Beaches and Coastal Systems
Mail Station 300
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000
(850) 488-3181
http://www.dep.state.fl.us/beach/

U.S. Fish and Wildlife Service
http://www.fws.gov/
http://southeast.fws.gov/

Jacksonville Field Office:
6620 Southpoint Drive, South
Suite 310
Jacksonville, Florida 32216
(904) 232-2580

Panama City Field Office:
1601 Balboa Avenue
Panama City, Florida 32405
(850) 769-0552

S. Fla. Ecosystem Field Office:
1360 U.S. Hwy. 1, Suite 5
Vero Beach, Florida 32960
(561) 562-3909