

Erosion Controls



Hydroseeding for Quick Plant Growth

Essential Standard 2.2

Understand how human influences impact the lithosphere.

Learning Objective 2.2.2

Explain the consequences of human activities on the lithosphere (such as mining, deforestation, agriculture, overgrazing, urbanization, and land use) past and present.

I Can Statements

At the end of this lesson, you should be able to say, with confidence:

- I can describe various practices that can help reduce erosion during construction projects
- I can describe various practices that can help reduce stream bank erosion
- I can describe various practices that can help reduce coastal erosion
- I can describe various practices that can help reduce erosion while farming

Best Management Practices

Best management practices, also called BMPs, are ways that we can farm and develop with as little damage to the environment as possible.



Plant Cover

One of the best ways to reduce water erosion, especially on slopes, is to keep the ground covered by plants.



Plants protect the soil from being dislodged by rain and the roots anchor the soil in place.

Plants also slow down the flow of water, allowing sediment to be deposited.

Gravel

In places where plant cover isn't possible, covering the ground with gravel, straw, or matting can help slow down erosion.



Hydroseeding

Highway departments sometimes hydroseed slopes, after road construction to allow quick plant growth on slopes.



Silt Fences

At construction sites, silt fences are used to help prevent erosion of exposed sediment from leaving the site.



Gravel at Exits

Gravel placed at the exits of construction sites helps reduce erosion by scraping the sediment off tires before they leave the site.



Natural Erosion

Beach erosion is a natural process, but so is deposition farther down shore, provided there is no structures to prevent the deposition..



Bear Island, NC

Bear island is an uninhabited barrier island in NC. Having no development, erosion is not a problem at all.



Building Set Back

In NC, estimates are made for how much the coast will erode within the next 30 years, the time length of most mortgages. That distance is called a setback line.



New construction must be behind that setback line and storm-damaged houses cannot be rebuilt if they are in front of the setback line.

Benefit of Beach Dunes

Dunes help stop ocean water from reaching farther upland during flood events.



The larger the dune systems are and more space there is between the dunes and development, the more protection they provide.

Dunes and Sea Grass

Building up dunes, planting sea grass, and providing boardwalk access, over the dunes, protect the dunes and help prevents beach erosion.



Benefits of Sea Grass

KEEP OFF DUNES

Why?

Dunes are natural storm barriers

Walking on dunes destroys the plants that hold them together

Without plants, sand and dunes will blow away

Always use designated walkways to enter the beach

Dunes are fragile ecosystems that support a variety of coastal species

Please help protect them

For information on dunes visit njseagrant.org/dunemanual

Beach grass has deep roots and extensive underground rhizomes. They are fragile. Any disturbance can cause irreparable damage.

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The sea grass slows down wind, causing it to deposit sand.

The sea grass roots then anchor the sand in place.

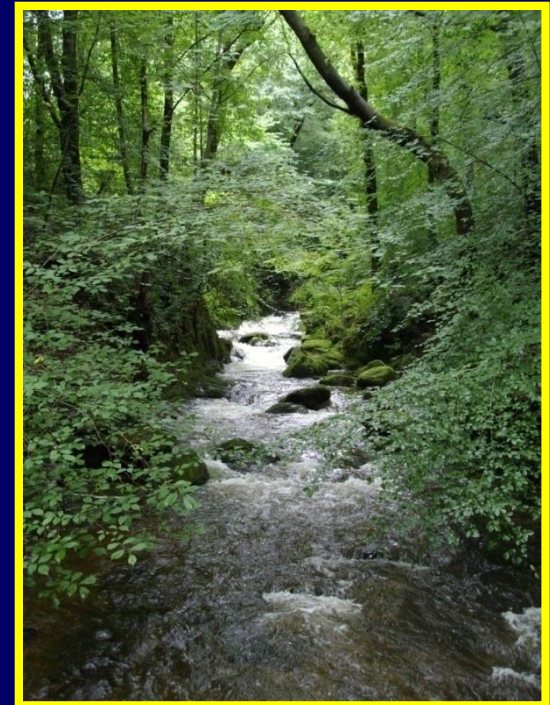
Dodge the Dunes

The sea dunes also provide habitat and nesting sites to coastal animals.



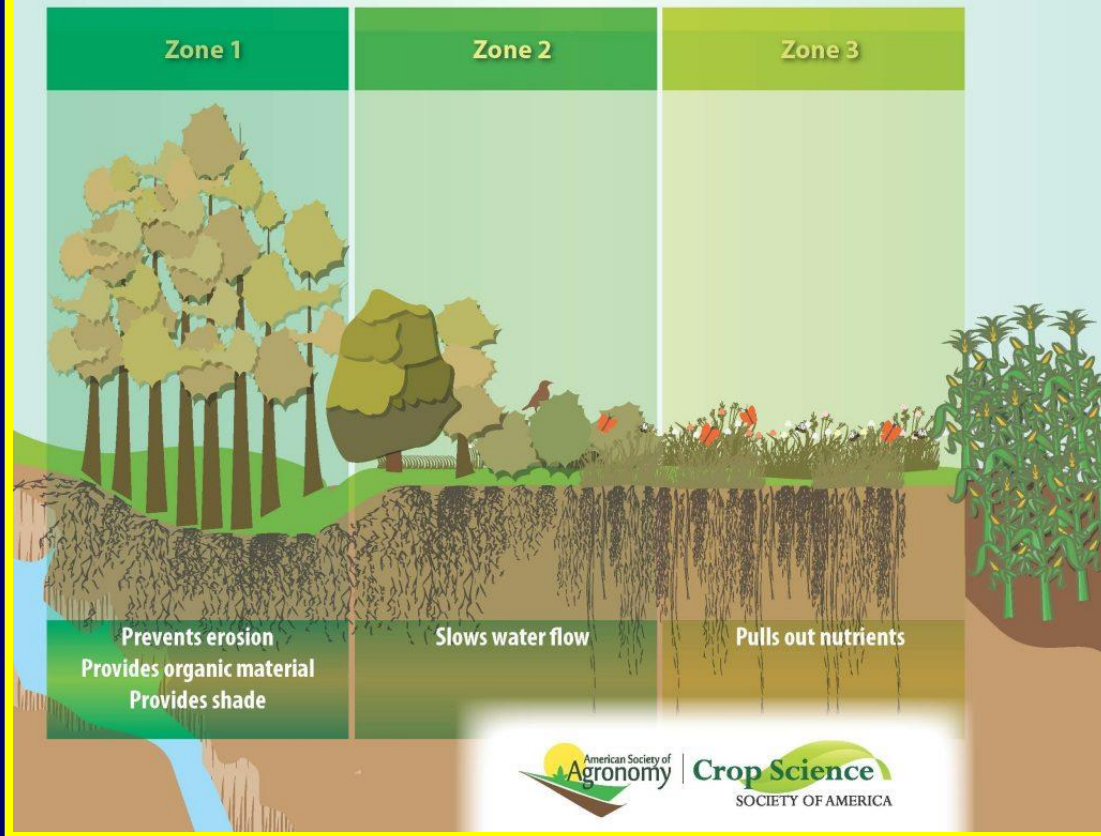
Riparian Buffers

Along streams, riparian buffers that include a mixture of grasses and trees not only help prevent erosion but can also help prevent water pollution.



Riparian Buffers

Buffer Strips



The grasses help slow down surface runoff, causing sediment to drop and be deposited before it can reach the stream.

The trees help anchor the soil along the stream bank.

Fences and Ponds

Keeping farm animals out of the creeks by building ponds, fences, and bridges helps reduce streambank erosion.



Terrace Farming

A good way to prevent erosion on slopes, while land is being farmed, is by creating series of flat terraces to farm on with each level protected by permanent vegetation to prevent runoff..



Contour Farming

Planting rows of crops perpendicular to the slope, in a process called contour farming, also prevents water from flowing down slope and thus reduces erosion.



Wind Breaks

Wind breaks, consisting of rows of trees that surround crop fields, break up the wind and reduce wind erosion.



No Till Farming

No-Till practices involve planting crops over the residue of the last crops eliminating tilling or plowing the land that dislodges soil and exposes it to wind and water erosion.



Crop Rotation

Crop rotation also reduces erosion and conserves water and soil nutrients when crop fields are rotated so that less land is exposed at one time.



The End

