



Shoreline Erosion



A major issue facing many lakes is erosion along the shore. Erosion is caused by several factors including waves, stormwater runoff, wind, bank slope and lack of vegetation.

When too much soil gets washed into a lake, it can carry pollutants with it such as nutrients that can increase the amount of algae in the lake and can make the lake appear cloudy or red. Other problems caused by erosion include the loss of land and infrastructure damage.

Look inside to learn more about shoreline erosion and how to help prevent and repair it.



GRDA'S WATERSHED CONSERVATION PROGRAM

Guard the Grand
GRDA's Watershed Conservation Program

Causes of Erosion

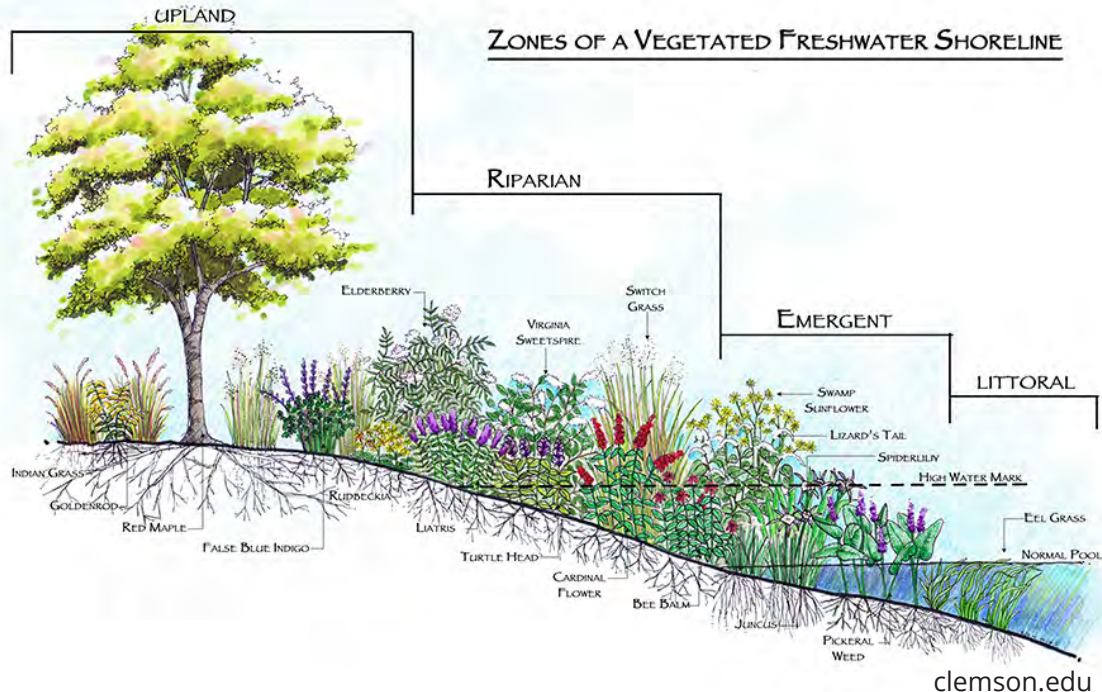
Wind and boat wake can stir up water and generate waves that can have a big impact. These waves can undercut the bank as the force wears on the underwater soil or erode it from the top if there is limited bank vegetation. Stormwater runoff also causes erosion in areas where there is little to no vegetation, such as animal trails and walking paths. Understanding the causes of erosion can help you protect the shoreline of Grand Lake and the rivers that feed it.

Vegetation

One of the best ways to prevent erosion is to re-establish vegetation along the banks of the lake or stream. This reduces erosion, filters runoff, provides habitat for small fish while reducing nutrients in the water.

If you own lakeside property, protect your investment by allowing vegetation to thrive along the shoreline. It's as simple as not mowing all the way to the edge of the bank. By leaving at least a three foot buffer of grass or other vegetation you reduce erosion. If your yard is Bermuda grass, you might want to add some native wildflowers or a native grass that can grow better near the water's edge. Bermuda grass has short roots and doesn't generally do well along the shore.

The figure below shows the zones of a living freshwater shoreline. This image helps identify visually where the different zones are located on a shoreline and where to best to plant what type of vegetation. Refer to the following page for a list of suitable shoreline plants for Oklahoma.



Consider the following plants for landscaping the different zones of a vegetated shoreline.

Upland	Indian Grass, Sugar Maple, Soapberry, Goldenrod, False Blue Indigo
Riparian	Coneflower, Elderberry, Cardinal flower, Bee Balm, Fish-on-a-Pole, Buttonbush
Emergent	Spike Rush, Arrowheads, Pickerelweed
Littoral	Eelgrass

Erosion Control Methods

Although vegetation is generally the most effective and natural way to prevent erosion, there are several alternative measures that can be taken:

- ◆ Promote re-establishment of vegetation by placing mulch, biodegradable matting, such as coir or coconut mats to encourage seed growth.
- ◆ A quick-fix for aggressive erosion is rip-rap, or the placement of large rocks along the shoreline. It doesn't benefit water quality and can cause water temperature to increase. Additionally, it can be unstable to walk on, so it can limit shoreline access for fishing.
- ◆ Another available product is a mat with concrete squares that allow vegetation to grow through it. This alternative may be a better solution than rip-rap as it will be more stable and as vegetation is established, it also looks more natural.
- ◆ Reducing wave action along the eroding portion of shoreline will help vegetation re-establish in the area. There are wave breaking devices that can be installed in-lake. Also, approaching the shoreline slowly when boating can reduce wave action.

Check with GRDA before placing any erosion control materials at the shoreline, or in the lake. In addition to protecting your property, ensuring you have a healthy shoreline will reduce erosion, provide shade, oxygen and provide diverse habitats for both shoreline birds and aquatic life.



Useful Links

Adopt-A-Shoreline



<https://www.grda.com/adopt-the-shoreline-program/>

Vegetative Management Permit Application



<https://www.grda.com/wp-content/uploads/2019/04/Application-for-Vegetation-Management-Permit2.pdf>

Guard the Grand is an educational program with the goal of fostering an ethic of environmental stewardship in Oklahomans residing in watersheds that flow into Grand Lake O' the Cherokees.

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