

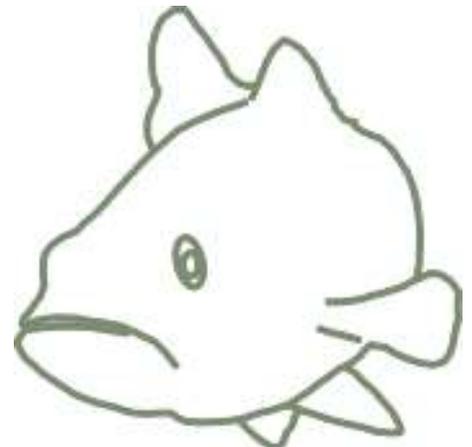
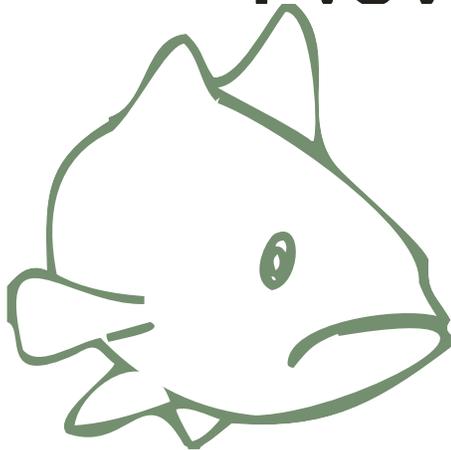
False River Watershed Council

How to Protect

&

Restore

a Natural Shoreline



The False River Ecosystem Restoration Project seeks to foster property owners and tenants involvement to improve the water quality and fisheries of the lake. During Fall 2016 and Winter 2016-2017 the lake level will be temporarily reduced by **up to 6 feet**. During this period near shore sediments will be exposed to various degrees along the lakeshore. The drawdowns will allow property owners and tenants to take care of shoreline maintenance.

The two most destructive actions along a shoreline to the lake ecosystem are:

Native vegetation removal & Hardening of the shoreline

False River, like any lake, is subject to shoreline erosion from wind-driven waves and wake resulting from recreational motor boating. Property owners look for ways to control shoreline erosion when it becomes a problem. The most common hard structures on False River are bulkheads (shore anchored, vertical barriers) and seawalls (stronger cast-in-place concrete, stone or timber high-energy structures). These hard structures can often cause shorelines to be less stable than those protected by natural landscaping, because they do not allow for absorption of the energy that waves bring in. Waves hit the hard structures, and the energy is deflected (Fig. 1). This energy then (1) scours the lake bottom and causes erosion at the base of the wall resulting in increased turbidity of the water, and (2) is deflected to neighboring property causing further erosion.

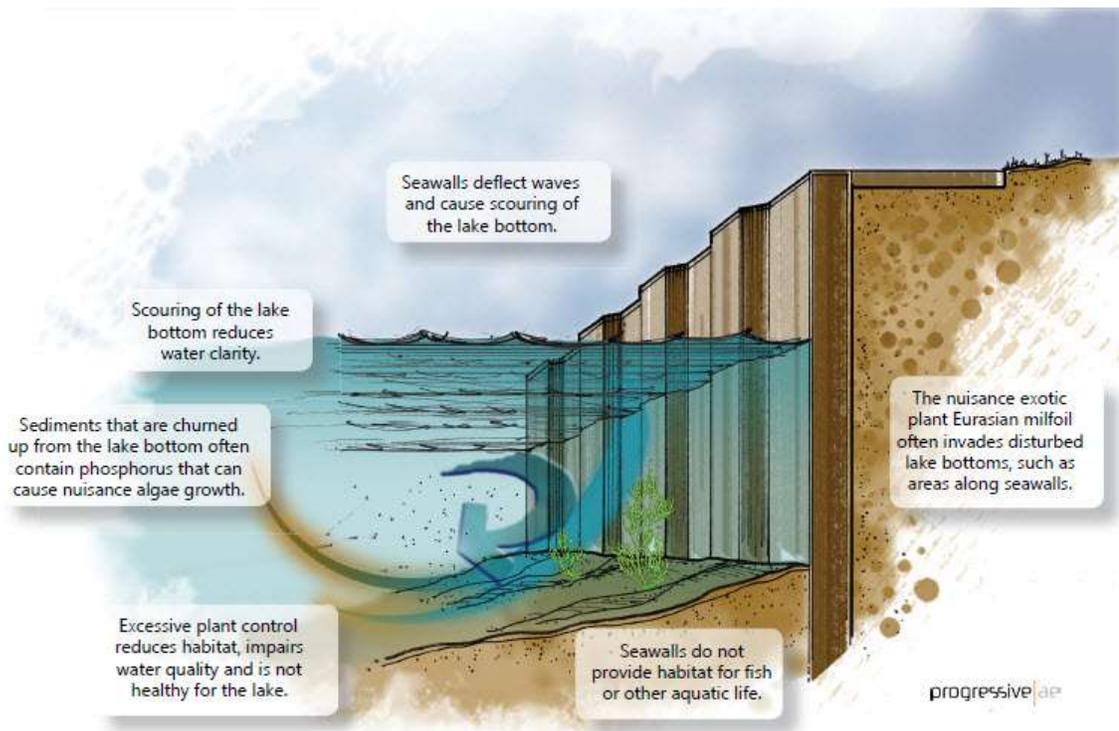


Figure 1: Hardened Shorelines
(Source: progressiveae.com)

Natural shorelines (Fig. 2) help to sustain near-shore habitat essential to fisheries. In addition to critical habitat, natural shorelines create a buffer providing numerous water quality benefits, such as filtering stormwater. **Restoring a Natural Waterfront** on False River provides an essential element to restore an aesthetic character to the lake's waterfront using natural shoreline plants (e.g. Baldcypress, shoreline emergent grasses, etc.) and to decrease erosion by attenuating wave deflection.

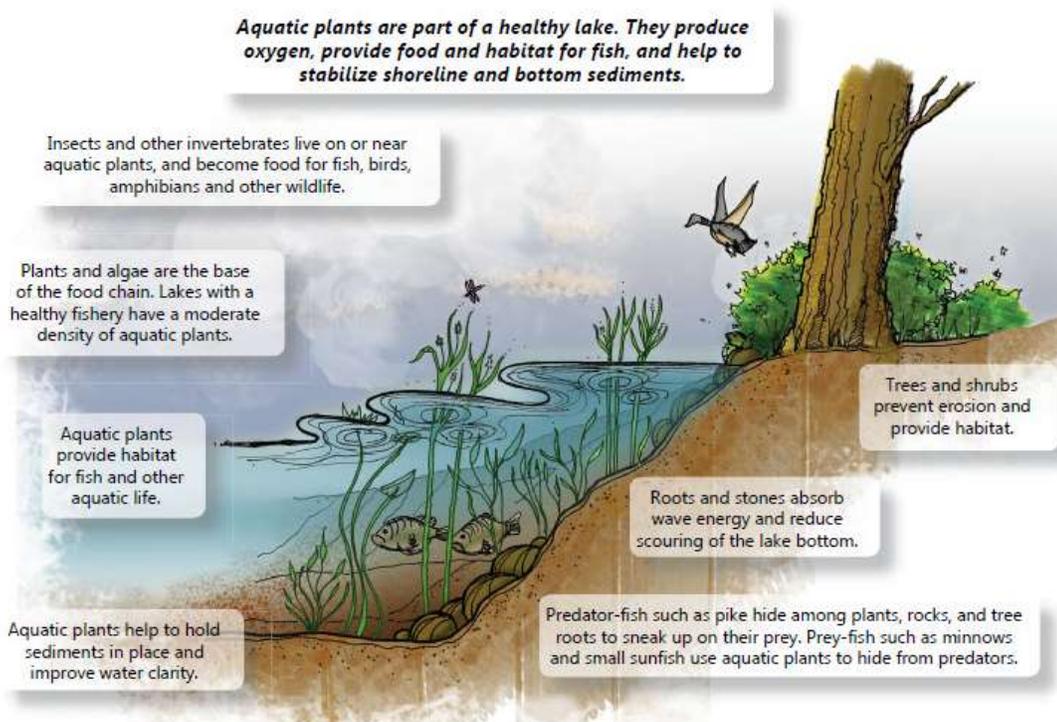
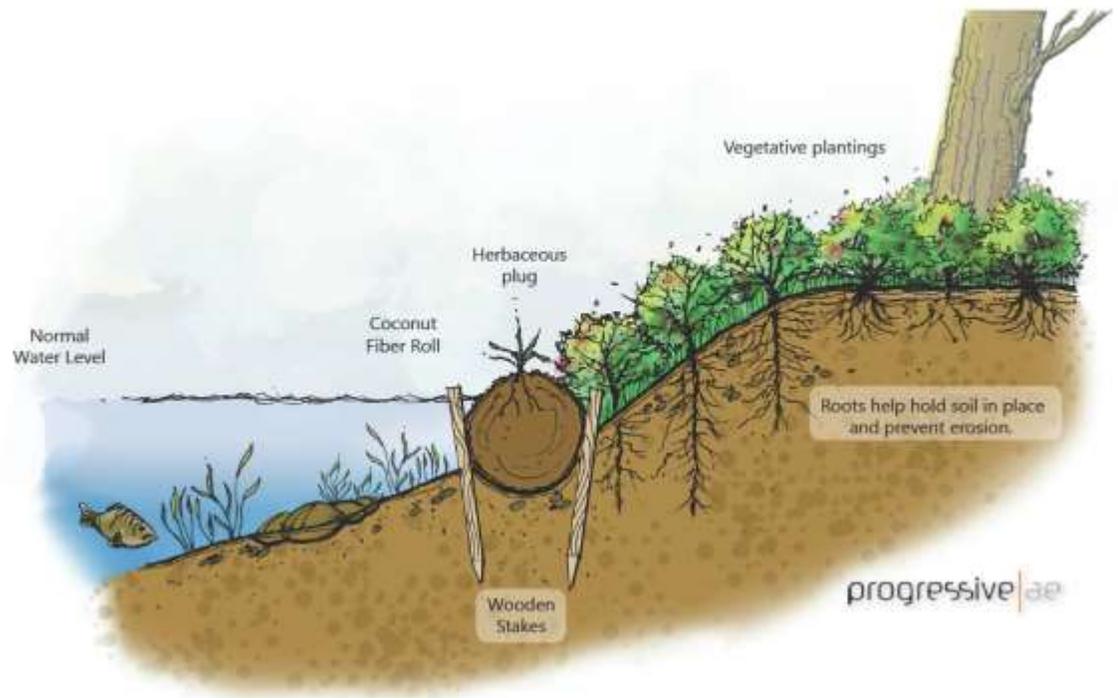


Figure 2: Natural Shoreline
(Source: progressiveae.com)

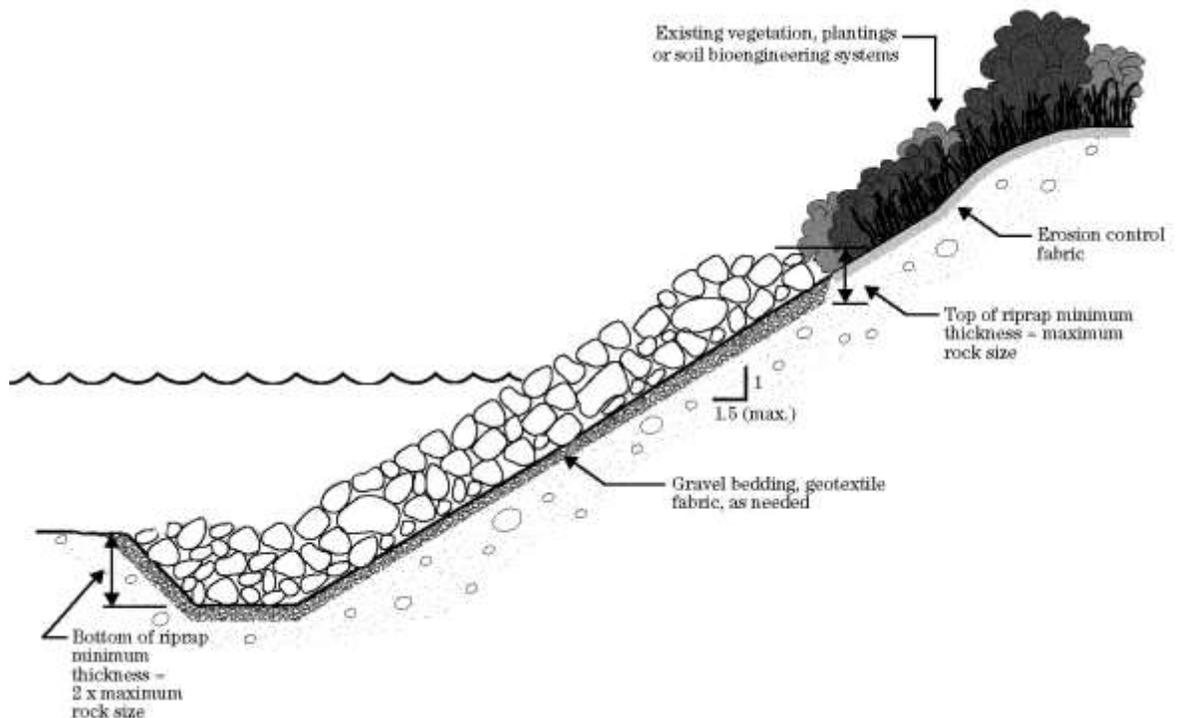
Bioengineered Shorelines (Fig. 3) incorporate some of the aesthetic aspects of natural shoreline while providing for additional wave protection. This is the type of shoreline protection that was placed along the west side of the lake's South Flat island using Delta Land Services, LLC SHORE | LINKS® system .

Figure 3:
Bioengineered
Shoreline (Source:
progressiveae.com)



For shoreline where excessive erosion is observed, and natural and bioengineered shoreline may not be adequate, the placement of a **rock revetment** (Fig. 4) may be an appropriate alternative. Although not aesthetically as pleasing as a natural shoreline, it does provide erosion control without causing excessive wave deflection.

Figure 4: Rock
Revetment
(Source: USDA-
NRCS)



Modifying Pre-Existing Hard Structures along a Shoreline

An inexpensive manner to modify existing hard structures to attenuate the negative effect of wave deflection from a pre-existing bulkhead or seawall can be achieved by placing rock or rip rap (>6" diameter) in front of the wall. This will decrease scouring, attenuate wave deflection and result in better water quality.

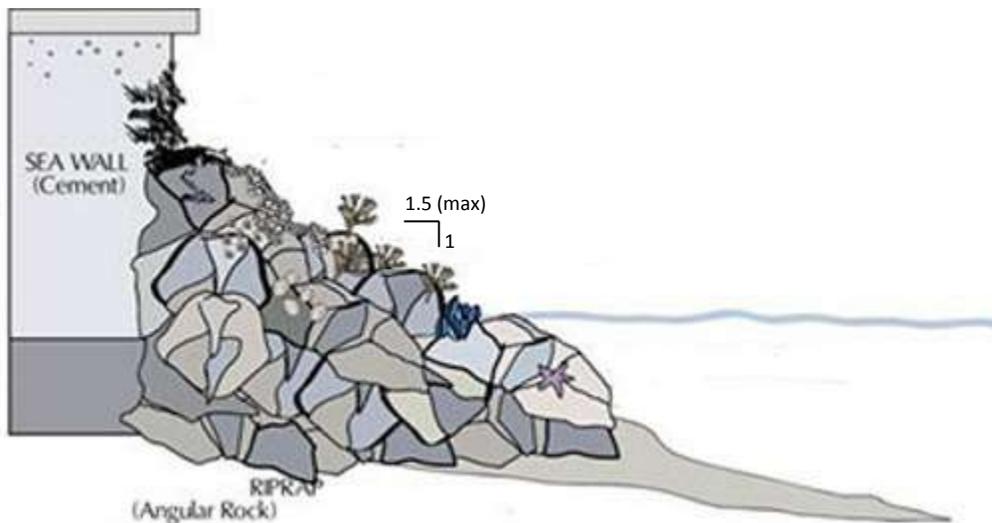


Figure 5: Modified Seawall
(Source: Archipelago Marine Research Ltd.)

Another inexpensive shoreline modification commonly used to attenuate incoming waves energy is the installation 10-15 yards in front of hard structures or natural shoreline of a **Debris Fence** (Fig. 6).

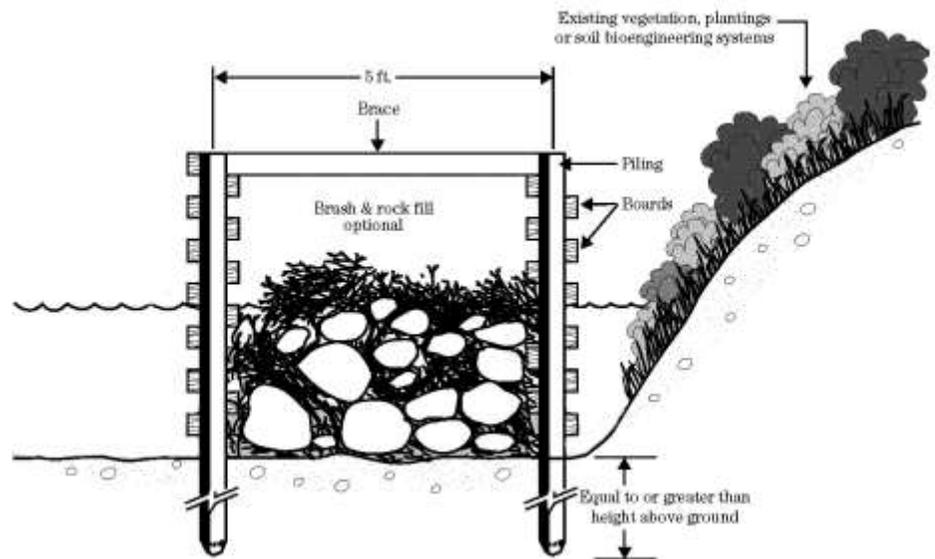


Figure 6: Debris Fence (or Christmas Tree Fence)
(Source: USDA-NRCS)

Suggested Resources:

NRCS' Engineering Field Handbook Chapter 16: Streambank and Shoreline Protection

(<http://directives.sc.gov.usda.gov/OpenNonWebContent.aspx?content=17553.wba>)

USEPA's Healthy Lakes & Higher Property Values (https://www.epa.gov/sites/production/files/2015-10/documents/healthy_lakes_and_higher_property_values.pdf)

US Army Corps of Engineers' Design of Coastal Revetments, Seawalls, and Bulkhead.

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1614.pdf?ver=2014-05-09-134451-777

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