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## Shoreland Management

Indiana has over 2,500 miles of shoreline along its inland lakes and reservoirs. However, lake shoreland is likely the most endangered land type in the state. How can this be? We'll explore the importance of the lake shoreland, threats to this important resource, and ways each of us can better use and manage lake shoreland in this issue of *WaterColumn*.

### Importance

Shorelands are important transition zones between water and land. Sometimes called *riparian zones*, shorelands line lakes, streams, and wetlands. A key feature of shorelands is the underlying saturated soil that supports water-loving plants and trees. Damaged shorelands often cannot hold enough water to feed the roots of riparian vegetation.

Most shorelands in Indiana were once heavily wooded, with grasses and wildflowers occupying the ground layer. With human habitation, much of this natural vegetation was removed to make way for homes and other structures.

Prior to human habitation, a natural, undisturbed lakeshore had evolved to include a high diversity of plants and associated animals (mammals, birds, amphibians, fish, etc.). This high diversity is essential to the proper functioning of the lake ecosystem. It provides many choices to its residents for places to live and things to eat that are lacking on developed lakeshores. Take a look at Olin Lake in Lagrange Co., the Tri-County Fish & Wildlife Area lakes in Whitley Co., or Pigeon Lake in Steuben Co. These are but a few examples of undeveloped lakes in Indiana

that have diverse, high-functioning shoreland habitats. Nationally, 80% of the plants and animals on the Federal Endangered Species List live in the shoreland zone.

The appeal of living on the lakeshore is provided largely by the diversity of native plant and animal life that make the lake their home. The constant activity of shoreline wildlife offers a window on nature for people of all ages. On a lakeshore, the quiet observer may see a great blue heron stalking fish, a mink or raccoon exploring nooks and crannies among tree roots and overhanging banks, a turtle sunning itself on a log, or a bass searching for breakfast. For people living along relatively undisturbed shorelines, enjoying the native plants and wildlife of a lake with clean water is a daily reward for good land stewardship.

*Great Blue Heron*



Photo by Marshall Iliiff

Some of the more tangible benefits of a naturally vegetated lakeshore are included in the list following.

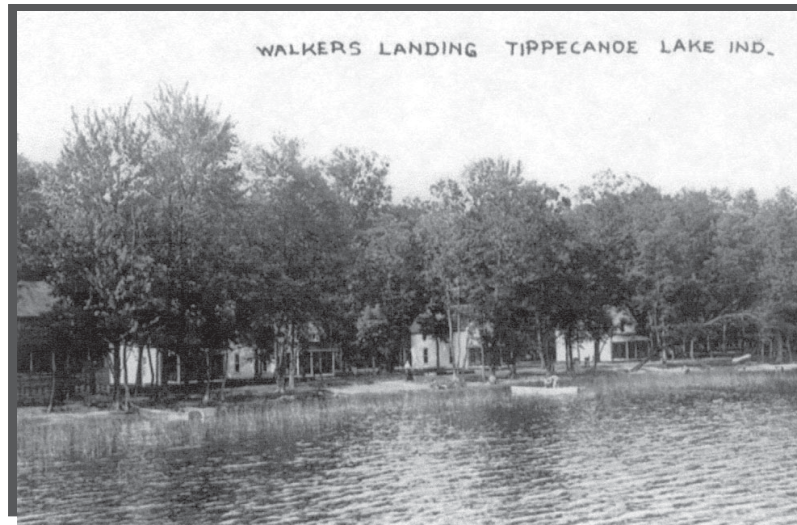
- Healthy and diverse shoreland vegetation provides good habitat.
- Good habitat improves the health and diversity of shoreland and upland birds and wildlife.
- Shoreline trees shade the water, improving fish habitat and fishing success.
- Natural shoreline is attractive as seen from the water and the land.
- Natural vegetation screens structures and makes them less intrusive.
- Natural vegetation protects the lake bed and shoreline from the erosive forces associated with waves.
- Native vegetation provides color, texture, and variety.
- Precipitation is slowed and redirected through trees, shrubs, and ground level vegetation on the shoreland so that only about 10% runoff occurs.
- Pollutants (sediments, nutrients, toxins) from the land are prevented from entering the water by dense, natural shoreland vegetation.
- Water is filtered before it enters the ground resulting in cleaner drinking water.

### Shoreland Degradation

The desire to live on the water has never been higher. Nationally, 2.3 million waterfront homes sold in 1974. In 1998, that number had increased to 4.7 million. On Lake Tippecanoe, it has been reported that home prices have increased about 7% per year for the past 20 years. Unfortunately, nearly all of Indiana's developable shoreland is already developed. As a result, new lakeshore landowners are purchasing one or more "cottages," tearing them down, and building "city mansions" on our lakeshores. They also bring city notions of landscaping to the lakeshore,

including: tree removal to improve views, well-fertilized grass lawns, and seawalls to replace natural shoreline vegetation. These actions destroy many of the important functions of the shoreland margin and, in turn, damage the lake in many subtle and not so subtle ways.

The Wisconsin Department of Natural Resources and the Wisconsin Lakes Partnership have measured how the changing nature of development affects pollution delivery to lakes. A 1940s-style development has very little impact on the lake, similar to no development at all. However, a 1990s-style lakeshore home



*Emergent vegetation and 1940s cottages could co-exist*



*Redeveloped shoreline on Little Chapman Lake. Note the lack of natural shoreland vegetation and lack of in-lake habitat. Overfertilization of the grass lawn can introduce unwanted nutrients to the lake.*

*Shoreland buffers and habitat on many Indiana lakes have been replaced by piers, boats, seawalls, and satellite dishes.*





*Nuisance Canada geese love nothing better than a lush, grass lawn. Natural vegetation along the shoreline discourages geese from coming ashore.*

substantially increases the amount of runoff, sediments, and phosphorus entering the lake, primarily due to the extensive vegetation removal associated with this. Without a vegetated shoreland buffer, these materials run directly into the lake. Sediments and phosphorus with the water that carries them are among the most damaging pollutants in our lakes.

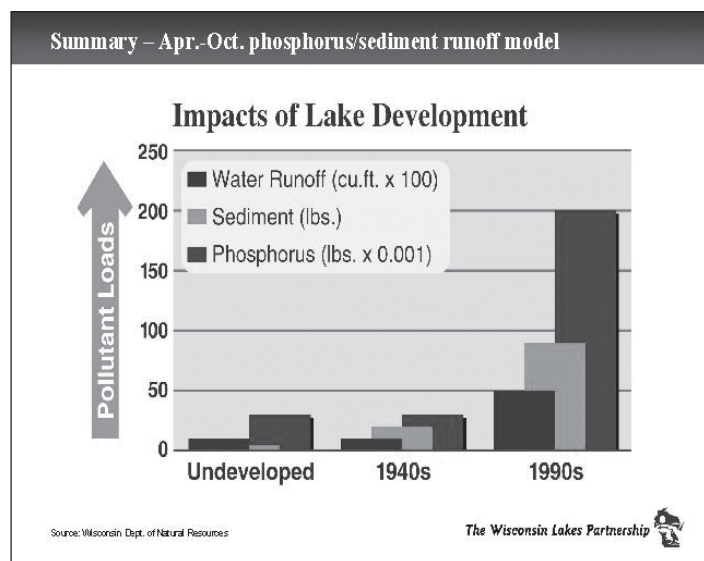
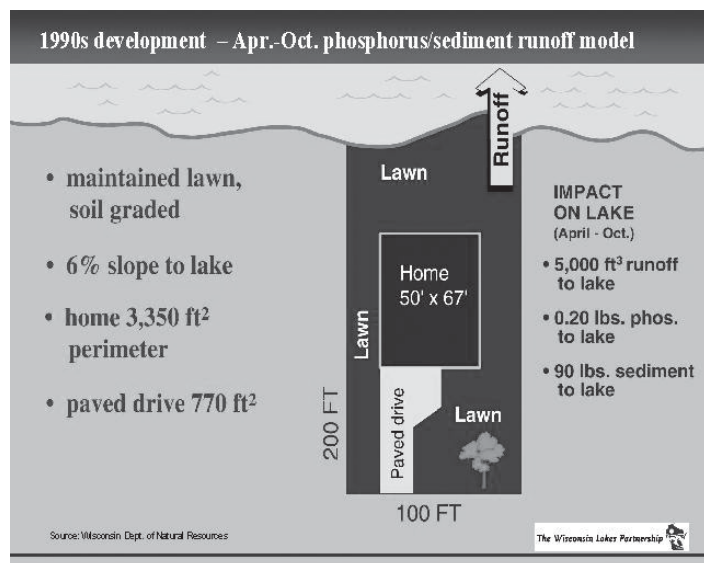
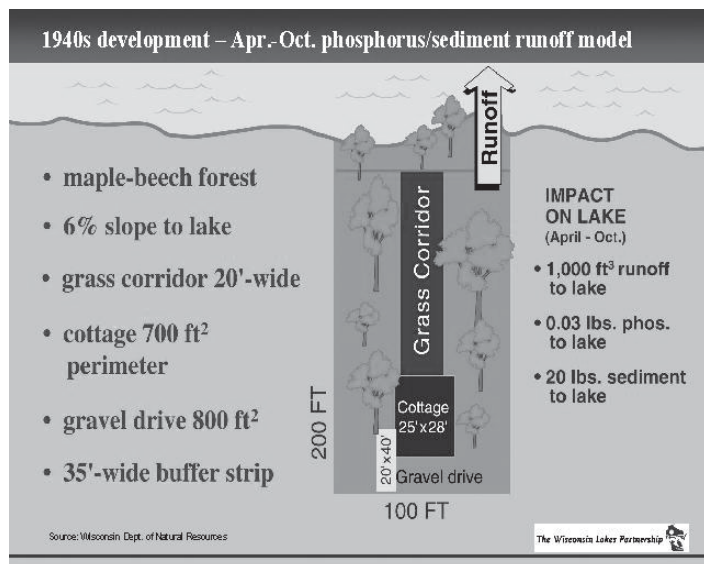
### What Can You Do?

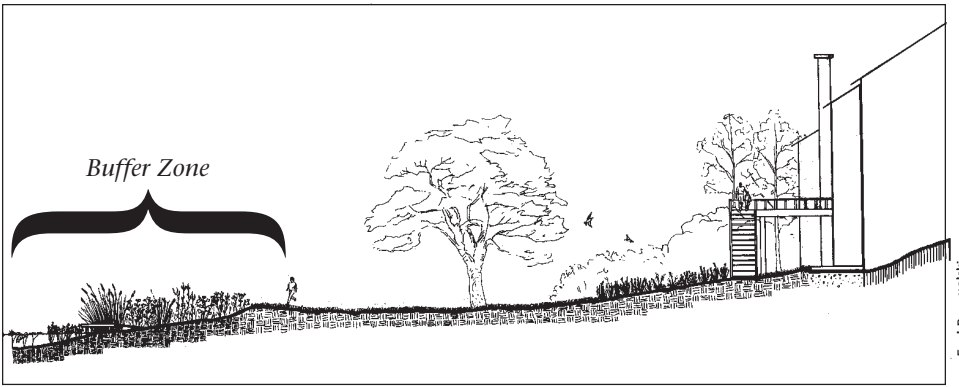
Many of the lakeshore problems discussed above can be solved by creating a buffer zone along the shoreline. If your lakeshore property does not have a vegetated shoreline buffer (grass does *not* count), plant one. Shoreland buffers may extend from 25 to 100 feet or more feet from the water's edge onto the land, and into the water as deep as aquatic plants will grow.

The lakeshore buffer zone should contain native trees, shrubs, wildflowers, grasses, sedges, and emergent and submergent aquatic plants. The buffer zone restores ecological functions and structural benefits that are important in the lakeshore environment. Lists of suitable plant species are available in the resources listed at the end of this article.

Why spend most of your free time at your lakeshore home or cottage mowing the grass, chasing geese, or cleaning up the mess geese leave? A natural shoreland buffer can give you back your important leisure time. Native grasses don't require mowing and the vegetated buffer discourages geese.

When you go out to a lake to fish, what sites are the best for fishing: (a) along a sterile, unvegetated lakeshore or (b) along a lakeshore with trees for shade and with aquatic plants and snags (dead trees) in the water? All anglers





A lakeshore buffer zone may be from 25 to 100 feet wide (source: Henderson et al., 1998).

can answer this question correctly. The correct answer is (b) because fish and other aquatic organisms require habitat. You can improve fishing on your lake by providing more natural habitat.

Do you want a nice view of the lake from your home? There is no need to cut down all the trees. An excellent view of the lake can exist in combination with shrubs and canopy trees. Sightlines can be maintained between the tree and the shrub layer through selected pruning. Remember, your unobstructed view of the lake is also an unobstructed view for boaters on the lake. Think how this might affect your privacy.

### Summary

The shoreland zone is exceedingly important for

*Sightlines for a view of the lake can be maintained with selective pruning. Tree and shrub removal are not necessary.*



maintaining and improving the health and water quality of lakes. Living on the lakeshore is a wonderful opportunity, but it also carries an important obligation. Homeowners must cast aside their previous notions of landscaping and land maintenance in order to prevent harming the very qualities that attracted them to the lake in the first place.

Owning a lakeshore home is a tremendous investment. There are numerous economic studies that show how lakeshore home value is closely linked to water quality. For example, decreases in water clarity (Secchi disk transparency) in Northeastern U.S. lakes resulted in home market value losses of 0.9 to 8.5%. It is ironic that homeowner actions on their lakeshore properties can actually *decrease* their property value.

Become a better steward of your lake. Plant or maintain a vegetated shoreland buffer. Do it for the fish. Do it for the birds. Do it for your grandchildren.

### Resources

1. The following book should be required reading for every lakeshore homeowner. It is well-written with many helpful illustrations. This article drew heavily on this book, which is available for \$19.95 from the MN Department of Natural Resources, Minnesota Bookstore:

<http://www.comm.media.state.mn.us/bookstore/bookstore.asp>.

Henderson, Carrol L., Carolyn J. Dindorf, and Fred J. Rozumalski. 1998. *Lakescaping for Wildlife and Water Quality*. Minnesota Department of Natural Resources.

2. The Minnesota DNR also has an on-line publication titled, *Minnesota Shoreland Management Resource Guide*, that is very useful. It is available online at: <http://www.shorelandmanagement.org/overview/index.html>.

3. Your local office of the USDA Natural Resources Conservation Service has technical manuals containing plant lists and shoreland best management practices.