

Wisconsin has approximately 15,000 miles of shoreland along its 15,000 lakes. This figure doesn't even take into account the thousands of miles of shoreland along its rivers and streams! Throughout Wisconsin, the demand for property surrounding our lakes and rivers has skyrocketed.

An aerial survey conducted by the DNR suggests that in 20 years there will be few if any undeveloped lakes (not otherwise protected by public ownership). As development pressures continue along shorelines, the ecology of these areas is being gradually changed over to a more urban environment. What does this mean for the myriad of plants and animals that rely on shorelines for their survival?

Conversion to Urban Setting

Throughout the state, natural waterfront properties are being converted into urban landscapes. Expanses of lawn can be appealing to the homeowner, but can be detrimental to the water quality of the lakes and rivers. The conversion of natural vegetation to lawn grasses has decreased the diversity in plant and animal species and reduced the amount of habitat that many fish and wildlife species depend on for survival.

Additionally, traditional urban lawn care practices have led to an increase in lawn chemicals and fertilizers that are easily washed into adjacent lakes and streams. Urban lawns can contribute up to seven times more phosphorus (from fertilizers) to the water body than a natural piece of waterfront land. An increased phosphorous level decreases water quality and is a significant contributor to algae and aquatic plant growth.

Finally, conversion to urban landscapes means construction. Poor construction site erosion control practices can lead to a substantial amount of soil being washed off a property and into the lake or stream. Sediment in the water reduces clarity, affects plant growth, carries phosphorous and other chemicals with it, and buries fish spawning areas.

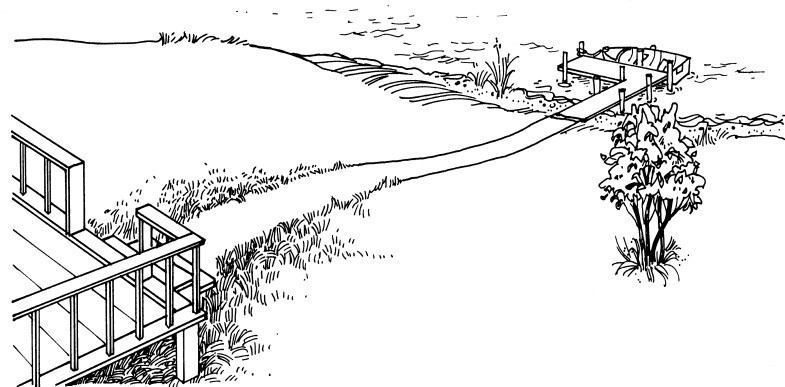
When the natural shoreline is altered, either by converting native vegetation to lawns or installing hardened erosion control structures such as seawalls, the positive benefits shoreland buffers provide are lost. Loss of shoreland buffers means:

- ☞ Reduction of habitat for all sorts of wildlife and fish
- ☞ Removal of filtering services provided by shoreland vegetation, including filtering fertilizers and chemicals that we put on our lawns

What is happening in the Winnebago system?

Like the rest of Wisconsin, the Lake Winnebago system is witnessing increased shoreland development pressure. The Fox Valley has been growing over the years, bringing in not only economic gains and more jobs, but also more people. The growing number of residents desiring waterfront property for either their primary residence or vacation home has put added stress on the system. Water frontage is being developed and is losing many of the natural resources benefits provided by a healthy shoreline.

- ☞ Reduced protection from erosion – the less vegetation, the more soil will likely end up in the lake and cloud the waters and property may erode
- ☞ Reduced aesthetics – our view across the lake will be one of continuous lawns rather than the natural beauty that originally attracted us to the lake
- ☞ Privacy will be reduced and noise increased when vegetation is removed



Loss of native vegetation through urban conversion

Second in a series of three fact sheets on shorelands and the Winnebago System



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What's Happening to Wisconsin's Shorelands?

As the Winnebago System shoreland is urbanized, native trees, shrubs, and plants are often replaced by lawns. Native vegetation is also lost when the banks erode and the trees and shrubs fall into the water. Finally, natural marsh vegetation is lost as waves chip away at the cane and bulrush beds that are highly valuable for bird nesting and fish spawning areas.

The Winnebago System is a unique environment. Unfortunately, it experiences heavy shoreline erosion and vegetation loss. The artificially high water level is a primary cause of this shoreline erosion. Annual ice shoves also contribute to the erosion problem.

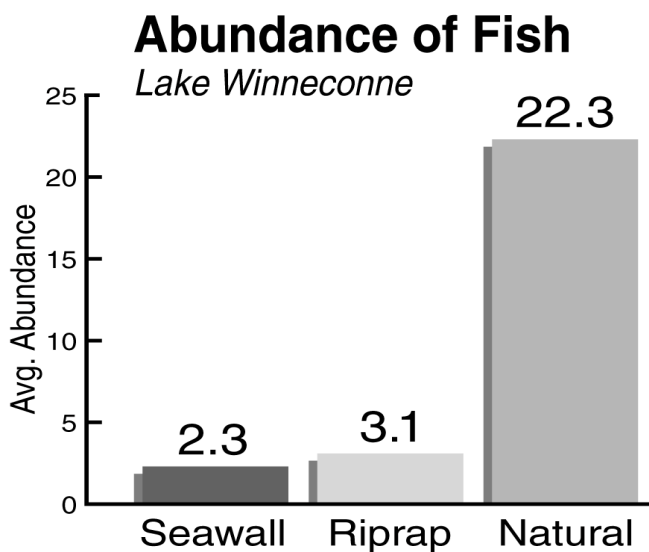
The compounding effects of increased development coupled with an already stressed system are reduced water quality, loss of habitat, and an increasing conversion from natural to artificial shorelines.



A Look at the Data

There have been several studies conducted on Wisconsin's waterways that show the effects of development on the natural shoreline and the wildlife that relies on it. Two studies are highlighted below.

A study was conducted on Lake Winneconne and the Wolf River in 1992 to determine the impacts of development on fish populations (DNR publication # RS-9210-96). The study counted the number of fish species and their abundance along three types of shoreline: natural, riprap and seawall. The graph below shows that significantly more fish were caught along natural shoreline sites as compared to seawalled and riprapped sites.



Similarly, fish diversity is highest along natural shoreline areas. This means you are more likely to catch a wider variety of fish along natural shorelines than along altered shorelines.

indicators of the health of the environment for other animals that require both aquatic and terrestrial environments for their survival.

The same study showed that although the number of songbirds found along shorelands didn't change, a shift from natural to developed shorelands resulted in migratory songbirds, such as thrushes, warblers and vireos, being displaced by more urban-tolerant birds like blue jays and starlings.

What can we do?

The Winnebago System has a unique range of shoreland situations. Artificial boat channels have been dredged for access. Some shoreline stretches lie in coves protected from high winds and heavy surf. Still other shoreland sections are exposed to prevailing winds and experience heavy wind and wave erosion. In many areas, winter ice shoves can cause severe erosion and damage in just a short period of time. Land uses vary from residential sites to natural areas used by hunting and fishing clubs.

This wide range of conditions in the Winnebago system means that there are also a wide range of solutions. We can protect existing stretches of healthy shoreland, revegetate those areas that have lost native vegetation, and install erosion control where necessary, but no single solution is applicable in all places.

Fact sheet three in this series describes strategies to protect and revitalize your shoreline to help bring back the environmental benefits it provides you and everyone who lives there