The BEST Lake Practices*

2002

Doing the right thing in the special environment of lakes

There is much that lake groups and lake property owners can do to protect and restore Wisconsin lakes.

No one likes to be told what to do (or not to do) and no one (particularly WAL) wants to appear heavy handed. Nevertheless, we feel compelled to offer this list of relatively easy steps for lake users, because they provide ways for each one of us to make a big difference.

When new lake property owners do things we know to be damaging to a lake usually they are forgiven, largely because in biblical terms, "They know not what they do".

Many of these new lake property owners are good city citizens—the same practices on their city properties are not considered a problem. Some good neighbor yard ethics in town (like keeping lawns short, green & "weed free") can be just the opposite "up at the lake".

It is up to us to help new neighbors adapt to a "lake-wise culture".

To this point, we would like to see this WAL Newsletter insert—Best Lake Practices—on the lake bulletin board, as a handout at your spring lake group meetings, and as part of a welcome package for every new lake property neighbor.

CONTENTS:

Create a lake-side buffer strip to absorb runoff and support wildlife

Shoreland buffers are an important part of lake protection and restoration. In practice, these buffers are no more than a wide border of plants, grasses and shrubs that filter and trap soil, fertilizer, grass clippings and other pollutants and keep them out of the lake.

While enforcement varies, statewide minimum shoreland buffer requirements say lake borders shall extend at least 35 feet inland from the ordinary high water mark with no more than one 30-foot-wide corridor (each 100 feet of shoreline) cleared of trees and shrubbery for lake access. Some local standards require buffers that wider than 35 feet.

If unsure about local ordinances, call your county zoning office. Some Wisconsin counties have projects to establish shoreland buffers, including monies to assist in the cost. As it turns out, in many cases you can start a buffer by simply not mowing that first 35 feet. Native plants often will emerge and then you add other plants to now longer grasses with as you go along.

A lakeside buffer also is important habitat. Natural lake edges are usually aquatic and wetland plants, grading into shrubs and trees as one moves up onto dry land. Remarkably, 80% of the plants and animals on the endangered and threatened species list spend part of their life in this near-lake area. When natural shoreline is absent, bird and animal life, land based insects, and aquatic insects that hatch or winter on a natural shore are impacted. In fact, an insect that eats Eurasian watermilfoil depends on wild shoreline to over-winter and if all you have is lawn, these important insects may be absent.

Additional information: *The Waters Edge* by the DNR describes the importance of shoreline habitat and things property owners can do. *What is a Shoreland Buffer?* is a 2-page UW-Extension brochure by that defines shoreland buffers.UW-Extension also has a *Wisconsin Native Plant Sources* listing nurseries that sell native plants and seeds. These and other publications can be downloaded. Visit the WAL website and go to **Lake Connection Links**. If you lack Internet access, contact a UW Extension countyy agent or regional DNR lake coordinator.

*This material orginally was an insert to the Wisconsin Association of Lakes Newsletter, Autumn, 2002. The principal author was Jim Abbs, with assistance from Nancy Hill, Barbara Anderson and Susan Tesarik.

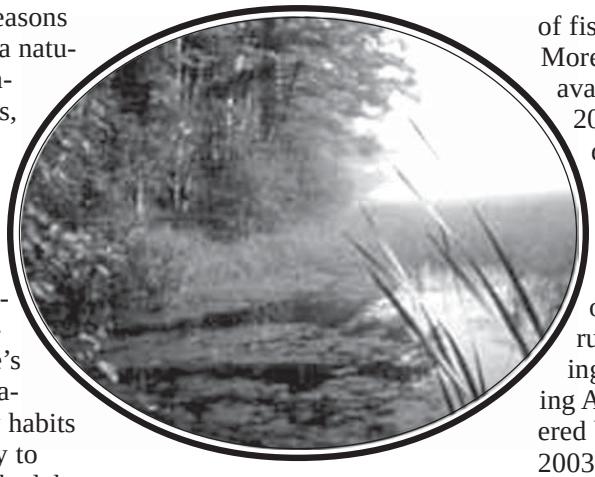
Reduce impervious (non-absorbing) surfaces to reduce runoff

Unfortunately, as lake shores are developed, larger and more numerous lawns, paths, decks, rooftops and driveways and other hard surfaces funnel rain and snowmelt directly into lakes. Such runoff carries with it contaminants from roofs and roads, soil particles, lawn clippings including many nutrients. This polluted runoff not only promotes lake weed growth, it also makes the water warmer and cloudier, reduces dissolved oxygen and introduces man-made chemicals that influence the vitality of aquatic life, including fish and many of the critters they feed on.

Reducing impervious surfaces and land disturbances at lakeside will protect water resources and minimize expensive efforts to clean-up of polluted or nutrient over-rich waters. The goal is locate hard surfaces and land disturbances farther back from the lake edge so runoff has a greater chance of being filtered of pollutants and absorbed, rather than running directly into the lake. There are others things we can do at our waterfront property to reduce runoff like creating a rain garden to catch water from hard surfaces, using erosion control such as silt fences or removing unneeded hard surfaces near the water.

Additional information: Several brochures deal with the problems of impervious surfaces and polluted runoff. The DNR/UWEX publications *Polluted Urban Runoff* explains the background on this issue and *Brown Water, Green Weeds* uses a clever cartoon style suited for certain audiences. These and publications on rain gardens and pollution control can be downloaded. For those links and many more visit the WAL website at **Lake Connection Links**. If you lack Internet access, contact your county agent or DNR lake coordinator.

Keep your lake as wild as possible



A wild lake has evolved to a healthy condition according to nature's plan

There are numerous reasons to keep your lake in a natural state. All aquatic creatures—insects, fish, birds, mammals—thrive in the natural plants and bottom structure of an undeveloped lake. To the extent that lake shore owners "clean up the water in front of their property", they harm the lake's ecosystem. This is a situation where our good city habits are directly contradictory to what should be done at the lake.

Numerous studies in recent years show that wildlife, fish numbers and sizes, are all influenced positively by presence of aquatic plants, over-hanging trees and shrubs and finally, by large trees or other wood—in the water. Rooted plants improve water clarity by trapping sediments and storing nutrients and keep winds from stirring shallow bottoms. Plants also provide spawning areas and shelter for game fish. Finally, trees in the water become virtual magnets for aquatic life.

Decaying wood from a fallen tree attracts microscopic critters and debris-eating insects, which in turn attract carnivorous insects that are eaten by small fish, frogs and crustaceans. Small fish and frogs attract game fish, which in turn attract bird and animal predators. Lake-edge trees also provide shelter from predators and for fish spawning.

While there is a need to avoid shore erosion, studies show that unnatural materials, like riprap or sea walls seriously reduce the quality and quantity of fish and wildlife habitat. More natural alternatives are available and in August of 2002, new rules were drafted, based upon the idea that replacing natural shorelines with bare rock or walls have cumulative environmental side effects on fish and fishing. These rules were subject to hearings and public comment during August and will be considered by the DNR board in early 2003.

Additional information*: Managing Plants in Lakes* is available from MN DNR and *Life on the Edge, Owning Waterfront Property d*escribes the value of aquatic plants and natural dead falls in maintaining good habitat for fish and other aquatic creature. Some of these publications can be downloaded by visiting the WAL website and going to **Lake Connection Links**. If you lack Internet access, contact a UW Extension county agent or Regional DNR lake coordinator.

Be a lake friendly motor boat operator

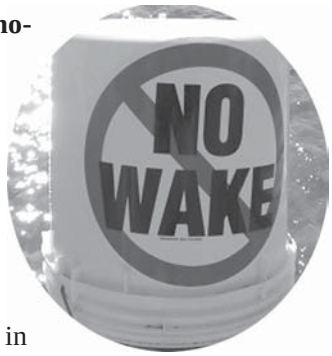
As a boater, there are many things you can do to protect your lake.

Avoid shallow water: (aside from near your pier). In the shallows (6 ft or less), boat motors stir up the bottom, reduce water clarity and cover spawning beds. Shallow water disturbance also can cause algae blooms, because nutrients (especially phosphorus) from the bottom are mixed into the water. Even at moderate speeds in shallow water can increase phosphorous by as much as 50%. Stirred up sediments also increase water temperature, with less oxygen for fish.

Consider a 4-cycle outboard motor: If you are considering a new outboard motor, consider a 4-cycle. Studies show that 2-cycle motors can leave up to 30% of the fuel unburned, discharging it directly into the lake. Four-stroke motors use fuel more efficiently, have cleaner exhaust and run more quietly than 2-stroke engines. Several states, including Vermont, New York and New Hampshire promote 4-stroke motors and some lakes have banned 2-cycle motors entirely. When 2-cycle outboard motors were banned on Lake Tahoe, there was a distinct improvement in water quality.

By 2006, EPA regulations require low pollution emission standards for all new outboard and personal watercraft, effectively eliminating 2-stroke engines. Not surprisingly, Mercury Motors is said to be discontinuing 2-cycle motors.

The reasons for phasing out 2-cycle outboards are significant. Contaminants discharged into the water include oil residue and fuel derivatives which may be toxic to aquatic life even at low concentrations. Some of these substances are human carcinogens and there is concern about their possible biomagnification. Until you switch to a 4-cycle motor, keep your 2-cycle engine well tuned and use manufacturers' recommended mix of oil and gasoline to increase efficiency and reduce the amount of unburned fuel.



Run your boat at no-wake speeds near shore. No-wake is the minimal speed necessary to allow you to steer your boat. Basically, in the simplest terms, no-wake means NO WAVES! Currently in Wisconsin, boats are required to operate at no-wake speeds within 100 feet of fixed structures (boat docks and swimming rafts). Many lakes have more restrictive rules.

In shallow lakes, waves created by boats can break down shorelines, washing nutrients and decaying vegetation into the lake. Wakes also do damage to shallow water fish and wildlife habitat, including beneficial aquatic plants.

Boats should leave no footprints

Additional information*:* The DNR magazine has had several articles including: *Partners on the Water, Eco-friendly Boating, How Boaters Can Control Pollution.* These and other publications can be downloaded at the WAL website's **Lake Connection Links.** If you lack Internet access, contact a county agent or DNR lake expert.

Minimize (or avoid) a city style lakeshore lawn

Lake research demonstrates that runoff from most lawns introduces undesirable nutrients into your lake, especially if they are fertilized. So, if you must have a lakeshore lawn, consider avoiding fertilizers (and pesticides) and cut the grass long so as to improve absorption of rainfall and minimize runoff.

If you think you need to fertilize, have your soil tested to see if nutrients are indeed lacking. You may be buying chemicals you don't need. If you decide to fertilize, especially look at phosphorus, as this nutrient causes nuisance level algae and other aquatic plant growth.

Here is the key fact—each pound of phosphorus washed into your lake can produce up to 500 pounds of algae and aquatic plants!! For this reason, consider using zero phosphorus fertilizer (middle number on fertilizer bags). Zero phosphorus fertilizer is a law in some areas of Minnesota.

Additional information*: Rethinking Yard Care* is an 8-page brochure produced by UW-Extension that describes the impacts of runoff pollution and suggests simple best management practices, while *Managing Leaves and Yard Trimmings* also offers helpful information. Some of these publications can be downloaded by visiting the WAL website and going to **Lake Connection Links**. If you lack Internet access, contact your local UW Extension county agent or the regional DNR lake coordinator.

Make sure your boat and trailer do not transport exotic species

When you move your boat from lake to lake, don't transport zebra mussels, Eurasian watermilfoil or other nasty organisms. Exotic plants, animals and fish are a major problem in Wisconsin lakes. These non-native organisms have no natural predators or conditions to keep them under control. Invasives result in dense weed mats and destruction of food chains that support fish and other wildlife. Invasives also are costly—lake groups must fund their control.

Last year a new state law was passed requiring removal of aquatic plants and zebra mussels whenever a boat is put into state waters.Violators face a $50 fine for the first offense, and up to $100 for additional offenses within the same year. A new program of "watercraft inspectors" has also been funded to help in education and enforcement.

Additional information: The new invasives program has several publications, including "watch cards" to help identify Eurasian watermilfoil, Zebra mussels, purple loosestrife round goby and ruffe. Some publications can be downloaded by visiting the WAL website and going to **Lake Connection Links,** including the new invasive laws**.** If you do not have Internet access, contact your UW Extension county agent or regional DNR lake coordinator.

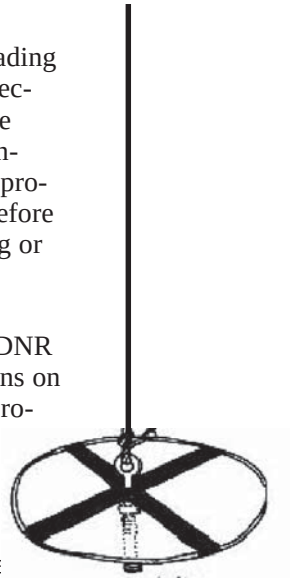
Get your lake on a program of regular "check-ups"

The DNR can assist you in getting real numbers on your lake's condition.One way is the Self-Help Monitoring program, which trains lake citizens to take water samples and lake measures, including nutrients, algae and water clarity.

Also available is Self Monitoring for invasive species, focusing on Eurasian watermilfoil, Zebra Mussels, and Purple Loosestrife. To get details, call Nate Feuerer: (608) 261-6430 or Jennifer Filbert (608) 264-8533 to get more information about this great program.

If you want more complete lake data, consider a DNR lake planning grant. These grants fund local governments and lake groups so they can hire experts to gather the detailed information needed to manage lakes. Measures include water quality, lake use, land use, fish and other data on the factors that influence lake quality. This program also aims to strengthen state/local partnerships, leading to more effective lake protection and management. Lake studies are important for another reason—many DNR programs require some data before permits for plant harvesting or chemical treatment are approved.

Additional information*:* DNR has a number of publications on their Self-Help and Lake Protection Grant programs - Contact your regional lake coordinator. Some publications can be downloaded by visiting the WAL website and going to **Lake Connection Links,** including full copies of most publications**.** If you lack Internet access, contact your county agent or lake coordinator.



Become a lake naturalist

You probably live on or near a lake because you value the environment of water. Enjoy it more by learning about lake ecosystems. There are elegant natural dependencies among aquatic plants, insects, fish, birds and mammals as they interact to maintain stable water communities. Many organizations (including WAL, Wisconsin DNR) offer introductory lake biology brochures and books for non-biologists.

If you want to get up to speed quickly attend the Wisconsin Annual Lakes Convention, held each spring with workshops and exhibits by all kinds of lake experts— all for lay lake folks like you. The Lakes Convention is described in this newsletter (page 5), with more information coming soon. WAL also holds regional workshops each year; the next such conference will be Waukesha February 15 (see listing of lake events.

Additional information*: Understanding Lake Data* is produced by UW-Extension and describes lake ecosystems. *The Lake in Your Community*, also is an excellent introduction. You can get more information on the Lake ecosystems and lake biology by visiting the WAL website and going to **Lake Connection Links.** If you do not have Internet access, contact your local county agent or regional DNR lake coordinator.