

TWIN LAKES: A COMMUNITY HANDBOOK OF BEST PRACTICES

Prepared by the Twin Lakes Preservation Association

2012

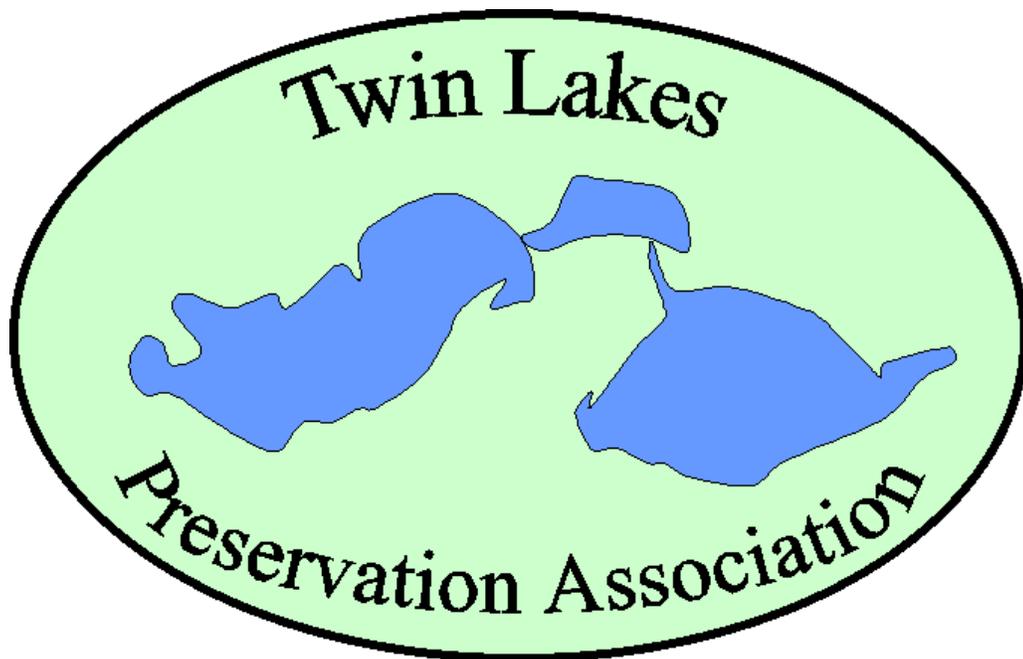


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INTRODUCTION

Mission Statement of the Twin Lakes Preservation Association

“The mission of the Twin Lakes Preservation Association is to maintain, protect, and enhance the quality of the lakes and surrounding area for future generations. We will accomplish this by education and the cooperative efforts of our members and the people of the surrounding area.”

About the Twin Lakes Preservation Association

The Twin Lakes Preservation Association (TLPA) was formed in 1994 by a group of local property owners working to maintain or enhance the quality of the water, wildlife and recreation at and around North Twin, South Twin and Middle Lakes. It is a lake association, which means that it differs from a lake district in that it does not have legislative powers. TLPA serves only to educate and inform all who use these lakes. TLPA is governed by an elected board of directors, with elections taking place at the annual meeting (generally in August). Membership is open to all persons who subscribe to the purposes of the Association and own real property within one mile of the Twin Lakes. TLPA publishes a newsletter 3-4 times a year in an effort to keep members informed of relevant issues, concerns and happenings. The Twin Lakes Preservation Association provides lake residents with an opportunity to work together to protect the character and quality of the lakes. All persons are strongly encouraged to join these efforts to preserve our unique and high quality lakes.

Assessing the Physical and Social Environment of Twin Lakes

In 2002 the Association undertook a three phase study to gain more information about the Twin Lakes physical and social environment. These studies were undertaken with grants from the State of Wisconsin and from private donations. First, the Association engaged Barr Engineering of Edina, MN, to undertake a comprehensive, scientific study of the biophysical aspects of the lakes. Phase I and Phase II each resulted in a published document.¹ Phase III includes the development of a management plan and the production and distribution of this Handbook. The studies concluded that the lakes were, at the time of the studies, in very good condition. They provided benchmark data from which to measure changes. North and South Twin Lakes are continually monitored by volunteers as a part of the DNR’s Citizen Lake Monitoring Program, checking for water clarity, temperatures, phosphorus and chlorophyll. This information is used to monitor the ongoing health of the lakes.

In addition to the Barr study, sociologist Dr. Patricia Shifferd was engaged to learn from the lake residents what their primary issues, values and concerns were regarding the lakes. These

¹ Phase I: Twin Lakes Data Collection: Lake Water Quality, Macrophyte Survey, Precipitation Data, and Lake Level Data and Phase II: Hydrologic and Phosphorus Budgets.

results were presented for public review at a Twin Lakes Preservation Association annual meeting in 2005.

The entire results from all three studies are available for review from the Twin Lakes Preservation Association.²

Purpose of this Handbook

The Handbook of Best Practices was compiled by a committee of Association members. It aims to provide information for lake property owners and users about the best practices for preserving the high quality physical and social environment we now enjoy. Voluntarily following these practices will not only maintain the good life of those of us who live here, as well as for our children and grandchildren, but it will also contribute significantly to maintaining property values.

By “Best Practices” we mean those ways of using and modifying the natural environment that preserves or enhances it. We also mean adopting those social behaviors that contribute to a cooperative and civil community based on mutual respect.

This Handbook is educational in purpose. We hope that all will see its value. Carrying out the Best Practices in this Handbook is left up to the citizens of the Twin Lakes community.

Three Twin Lakes

Located geologically on the Northwest Sands of Wisconsin, North Twin Lake, Middle Lake and South Twin Lake comprise a “chain.” North Twin has a surface area of 113 acres and a maximum depth of 20 feet at the deep hole in the northeast corner. Most of the lake is shallow with an average depth of 6 feet. Middle Lake is connected at its east end to North Lake by a shallow channel and a culvert. It is 21 acres and has a maximum depth of about 5 feet. Middle Lake is connected by a shallow channel to South Twin at its south end. Both channels can be dry during times of drought. South Twin is 115 acres with a maximum depth of 29 feet midway down the western shore. The average depth is 16 feet. North and South Twin Lakes have primarily sand bottoms; Middle Lake has a muck bottom. These are seepage lakes with some springs. There is a general flow of surface water from North, through Middle, to South. There appears to be a seepage outlet from South. Water clarity is generally high for lakes in this region and the aquatic community is currently in good health. The fishery includes northern pike, bass, bluegills, sunfish, crappies and a few walleye. Brad & Kay’s Campground has stocked walleye fingerlings and placed a series of fish cribs along the south shore of South Twin.

Two forest types are merged here: the Oak-Pine Barrens and the Northern Pine Forest. Characteristic of the first is the scrub red oak and jack pine. Understory plants typically include bearberry, big leaf aster, blueberry and bergamot. Characteristic of the second are northern red pine and white pine with understory plants of bush honeysuckle, columbine, Solomon’s seal, poison ivy, hazel and service berry. Additionally we see paper birch, aspen and a few balsam firs. Soils are sandy and acidic. Rare but present are moccasin flowers and trailing arbutus.

What Is a Lake?

A lake isn’t just a bowl of water we play on and in. It is a complex life system, a community of microorganisms, insects, fish and invertebrates, waterfowl, terrestrial animals, birds and

² A summary of the results can be found in Appendix A and Appendix B.

vegetation (both aquatic and terrestrial). These are organized into a food pyramid so that the upper layers (northern pike, eagles, humans) depend completely on the health of the lower layers (bluegills, frogs, and even the microscopic plankton which support the whole food chain.)

The water itself is a subtle, easily affected balance of chemicals. The most important element affecting overproduction of plant life and algae is phosphorus. Phosphorus is a natural component of healthy ecosystems; however, a high concentration can cause algae blooms and reduced water transparency. Most phosphorus enters the lake through runoff from lawns.

Oxygen is also a critical component of a healthy lake ecosystem, present from the surface to the bottom. In a nutrient-rich lake with unnaturally high amounts of plants and algae, oxygen is consumed in the bottom waters by decomposing organic matter. When oxygen levels become too low, phosphorus trapped in bottom sediments is released, compounding the problem, and fish begin to die.

Water clarity is also crucial to the health of a lake. Without light, plants cannot grow and, through photosynthesis, supply the oxygen required by fish and other aquatic life.

All of these things are interrelated and follow a basic law of nature: you can't just do one thing in a system. Every act has many repercussions, and these need to be considered before each act is initiated. For instance, putting in a pier provides welcome access for boating and fishing; however, it also shades out habitat and affects the aquatic life of the lake. Lakes, and especially very small lakes such as ours, are quite fragile and can be quickly aged (becoming "eutrophic") by adverse human acts.

Lakes can tolerate some level of development before they become eutrophic; however, different lakes have different tolerance levels. The Wisconsin DNR has developed a 3-fold classification system on which zoning regulations are based. Class 1 lakes (usually large and deep) are the most tolerant. Class 2 lakes, such as North and South Twin, are less so; Class 3 lakes, which are generally shallow and small such as Middle Lake, can tolerate only a minimum of development before the balance is tipped and they become severely degraded. Both the type and amount of human activity play a role in whether a lake remains healthy or becomes quickly eutrophic.

THE PUBLIC TRUST DOCTRINE IN WISCONSIN

Whose Lake Is It?

The best answer to this question is, "Yours, Mine and Ours." In other words, the lakes are public property. Everyone has a right to use and enjoy them and no one has a right to do things which inhibit someone else's right. This principle is enshrined in law and in a series of court precedents known as the Public Trust Doctrine.

Before the development of significant water law, Wisconsin's streams and lakes were badly degraded. In the second half of the 19th century, the logging industry used the streams and rivers to float millions of logs to the mills, scouring out stream beds and clogging the flow. Without vegetation, and after the great fires, the soils of the cutover areas eroded into the streams, leaving muddy, ash-laden stagnant pools where trout had once flourished. In addition, municipalities dumped raw sewage directly into lakes and rivers. Wetlands and river beds were dredged and filled. Industrial pollution also took a serious toll on our rivers and lakes.

In more recent times commercial lake shore development without adequate zoning has resulted in septic tank runoff, destruction of natural shoreline, and the pollution of lakes with lawn

fertilizer. Natural shorelines have been urbanized and suburbanized with lawns and riprap, and the carrying capacity of many lakes has been exceeded. The end result is that, as conservationist J. H. Bleucher explained, “The very values that attracted men to the lake in the first place are sacrificed.”

Development of the Public Trust Doctrine and the Legal Protection of Wisconsin Waters

The idea that waters are a commons, belonging to no individual, can be traced back to Roman law, the Magna Carta, the U.S. Constitution, the charter of the old Northwest Territories, and the Wisconsin Constitution. The Public Trust Doctrine is the result of many court cases and of legislation.³ It provides that the waters of the State belong to all the people and not just riparian property owners. All Wisconsin citizens have the right to boat, fish, hunt, ice skate and swim on navigable waters as well as enjoy the natural scenic beauty along with the quality and quantity of water that supports those uses. In other words, the waters of Wisconsin are Yours, Mine and Ours. As Professor Dorothy Lagerroos puts it, “As long as you have your feet wet, you’re on public water.”

Recovery and Continuing Need for Vigilance

Much progress has been made in clearing up degraded waters. However, the work is not done, and perhaps will never be done, as new threats keep cropping up. The northward creep of high density development, including building on nearly all the remaining lakeshore lots, the development of back lots, efforts to build condo developments on lakeshores, the multiplication and increase in size of piers, and the increased number of users is putting ever greater pressure on the lakes and rivers.

Forty years ago many lakeshores consisted of a few seasonal cabins on large lots, a few dirt roads, and lots of forest in between. Many lakes now have 5-10 times the number of shoreline homes that they did in the 1960’s. Today many lakes are surrounded by 3-4 bedroom, year-round homes on small lots with lawns, driveways and two-car garages. Areas once passed over for development are now being snapped up, often by large-scale commercial developers. Development has resulted in property values increasing dramatically (over 400% in some areas) in the last decade. The following table reflects changes in the density of development for the Twin Lakes over the past 45 years.

CHANGES IN DENSITY OF DEVELOPMENT AT TWIN LAKES SINCE 1966 (Density of development is figured as dwellings per mile of shoreline)						
Lake & Miles of Shoreline	1966		2005		2012	
	Total Dwellings	Density Development	Total Dwellings	Density Development	Total Dwellings	Density Development
North Lake (2.70 mi. shoreline)	15	5.6	43	16	50	18.5
Middle Lake (.82 mi. shoreline)	2	2.4	9	11	12	12
South Lake⁴ (2.31 mi. shoreline)	29	12.5	51	22	53	23

³ Appendix C has a summary of several such cases.

⁴ South Twin Lake also has a small resort (3 cabins) located at its north end and a campground at its south end. Prior to 2008 the campground had 71 campsites; that number was increased to 102 campsites in 2008. The density

In their natural state Wisconsin waters are protected by thick and diverse vegetation along their shores. However, as people move in, we change the environment to suit our tastes, and some of those protective elements disappear. As we simplify the environment and remove protective elements, the very things that drew us to the water begin to disappear. Little by little, over time, we chip away at the natural shoreline and ultimately, at the health of the lake itself.⁵

The arrival of various invasive species has threatened to drive out native species and to choke our waters. These include Eurasian Water Milfoil, Zebra Mussels, Purple Loosestrife and Japanese Knotweed. We unknowingly contribute to the spread of these unwanted invaders by moving contaminated boats, trailers, motors, personal watercraft, and other equipment from one water body to another.

Many lake protection advocates around the State are concerned that growing numbers of state legislators appear to be less than supportive of the Public Trust Doctrine and that the fate of Wisconsin's remaining high quality lakes and rivers is again seriously threatened. Once again, as in the past, citizen action to enforce compliance with the Public Trust Doctrine through laws, zoning ordinances, and enforcement will be necessary if we are to preserve our scenic beauty, natural recreational resources and property values. Restoring our southern waters and keeping the rustic natural environment of the north calls for vigilance and action. It is for these reasons that we provide this Handbook of Best Practices.

BEST PRACTICES

BEST PRACTICES ON THE LAND

Building or Remodeling: Zoning Restrictions⁶

Disclaimer: The information provided in this section is accurate to the best of our ability but in no way takes the place of the ordinances or information provided by the Washburn County Zoning Department. Always consult the Zoning Department before construction or before buying property in the county.

The County and the Townships are zoned in order to protect property values and the natural landscapes that give the North Country its unique character. State regulations also apply. Nearly all building projects, private onsite wastewater treatment systems,



development figures for South Twin do not include the additional temporary dwellings of the resort or the campground; if they were included, the density development for South Twin in 2012 would triple the above figure.

⁵ The foregoing three paragraphs were adapted from "Development Along Wisconsin's Lakeshore", Wisconsin Department of Natural Resources.

⁶ The official guide for zoning in Washburn County is Zoning Regulations: Guidelines for Buyers and Builders in Washburn County. It is available at the Washburn County Courthouse in Shell Lake, WI.

landscaping near shore, etc., **require a permit** from either the County Zoning Office, the DNR, or the township (via the Uniform Building Code Inspector). Contact points for these agencies are in Appendix D. Be sure to contact these agencies **in advance of altering or building**. Failure to do so could result in dismantling your project and/or heavy fines.

The following partial information is not meant to take the place of information you will obtain at these government agencies; it is for your information only. Various restrictions apply including lot size, setback from the ordinary high water mark and from nearby roads, height requirements, sanitary facilities, and use regulations for houses, garages and outbuildings, trailers and campers and other structures, and shoreland buffer mitigation regulations. Existing uses may be grandfathered. New subdivisions must conform to the new State of Wisconsin lake classification system. This system stipulates standards which must be met before new construction or the alteration of an existing structure will be permitted near a lake.

Zoning permits are required for any structure greater than 64 square feet in size even if it is temporary or can be moved. **All structures must meet water, road and lake setbacks**. Zoning requirements include:

For North and South Twin Lakes (Class II lakes):

- Waterfront lot width per single family unit of 200 feet.
- Minimum lot area of 80,000 square feet (1.84 acres).
- Shoreline setback of 100 feet.
- Only a 30 foot wide corridor of vegetation may be removed within 75 feet of the ordinary high water mark.
- Side setback of 20 feet one side and 60 feet total both sides
- Other requirements as listed in the official guide.

For Middle Lake (Class III lake):

- 300 feet of frontage.
- 3 acres minimum lot area.
- 100 foot setback from the ordinary high water mark.
- 30 foot limited removal corridor within 75 feet of the ordinary high water mark.
- Side setbacks of 30 feet one side and 90 feet total both sides.
- Other requirements as listed in the official guide.

State law requires the vegetation along your shoreline to be there. The vegetative buffer must be maintained to a minimum depth of 35 feet, measured from the water in a landward direction, or 25 feet less than the lake setback. You may **partially** clear a 30 foot wide viewing corridor and within that corridor you may clear a 4 foot wide access path.

Appeals

If you, the property owner, disagree with the Zoning Administrator, you may appeal to the local Board of Adjustment for a variance. To qualify you must show that strict application of the ordinance will cause unnecessary hardship (i.e., in the absence of a variance, no reasonable use can be made of the property); that the hardship is caused by unique physical limitations of the property (steep slopes, wetlands, etc., rather than resulting from the circumstances of the property owner); and that granting the variance will not harm any public interests listed as objectives for the ordinance. Economic hardship is not considered a compelling reason for granting a variance.

Digging

Before digging consult the Diggers' Hotline (1-800-242-8511) to locate underground cables or gas lines.

Septic Systems

Septic systems process human waste that is high in nutrients by breaking it down through bacterial action in the tank and then dispersing the cleaner effluent slowly into the soil via a drain field. If left un-pumped the tank will build up with solids which will be released into the drain field, clogging it and releasing pollutants into the environment, including the groundwater and/or the lake.

Evidence of a failed system includes ponded water or wet areas over the drain field, bright green grass over the drain field, a dense stand of aquatic plants only on your shoreline, slow draining drains or toilets, and sewage odors. A biodegradable dye can be flushed through your system to check its effectiveness; if the dye shows up in the lake, the system is faulty.

The **law now requires** every septic system to be inspected and, if necessary, pumped at least once every three years from the date of installation.

Best Practices:

- *Maintain effectiveness by having your septic system inspected professionally on a regular basis (at least once every 3 years).⁷*
- *If the system needs pumping, have it pumped by a professional contractor.*
- *Do NOT use additives labeled as being for septic systems as they can actually be harmful.*
- *Do NOT dump any household chemicals down the sink or toilet as they may kill the beneficial bacteria that break down the organic solids.*
- *Do NOT put grease, coffee grounds, cigarettes, paper towels, tampons or disposable diapers down the drains.*
- *Avoid driving or parking on the drain field to prevent compacting the soil.*
- *Keep roots of trees and shrubs away from drain field pipes.*
- *Avoid using a garbage disposal.*

Drinking Water⁸

Everyone around the Twin Lakes is dependent on private wells to obtain their drinking water. These wells draw water from the groundwater. Shallow wells can be affected by seasonal changes in the amount of rainfall and may go dry during times of drought. Deeper wells often tap aquifers where the quantity of water remains relatively constant.

Groundwater can be contaminated in several ways. Fertilizer, pesticides and herbicides, and failed septic systems are just a few sources of potential contamination. Each of us is a beneficiary of the groundwater. Protecting it is everyone's responsibility.

⁷ Information regarding septic systems and professional septic system contractors is available from the DNR.

⁸ This section is adapted from Groundwater: Protecting Wisconsin's Buried Treasures, Wisconsin Department of Natural Resources, 1989.

Best Practices:

- *Have your well water tested on a regular basis. For information and testing materials contact: Washburn County UW Extension Office, 850 W. Beaverbrook Road, 715-635-4444. The cost of the kit is \$3 with an additional cost for analysis.*
- *Have your septic system inspected regularly (at least once every three years).*
- *Don't dump anything down the drain or flush anything down the toilet that could potentially contaminate the groundwater.*
- *Reduce or eliminate the use of lawn pesticides and fertilizers.*
- *Use biodegradable soaps and cleaners.*
- *Look for and fix leaks to reduce water waste.*
- *Use water-saving devices, appliances and practices.*

Activities in the Yard**Best Practices:**

- *Remember that it all runs downhill. "Bag it now or swim in it later" is a good motto to keep in mind. Leaves, grass clippings, pine needles and their decay products end up in the lake.*
- *If you fertilize, remember that spilled material on sidewalks and driveways can wash into the lake.*
- *A leaky crankcase or sloppy oil change can also pollute the lake through runoff.*
- *Washing cars in the driveway will leach soaps; wash the car on the lawn to keep pollutants out of the lake.*
- *NEVER wash a car or RV in the lake. It pollutes and **it's against the law.***

Lawn Care

Properly cared for lawns can have a place at the lake, providing a recreation area and aesthetic values. However, always remember that runoff into a lake from a lawn is ten times greater than runoff from a natural forest floor. Also, lawn mowing contributes to noise pollution.

Best Practices:

- *Only mow where you go.*
- *Bring the lawn to an end on the lake side no more than 25 feet from your cabin/home.*
- *Don't plant lawn on steep slopes as it maximizes runoff and is dangerous to mow.*
- *If it is necessary to fertilize, use phosphate-free fertilizers (such as 20-0-10) to avoid nutrient loading and the growth of algae at the shore.*
- *Do not throw clippings or rakings into the lake or into wetlands. **It's against the law.***
- *If you need to use herbicide on poison ivy, spot apply it. It is most effective if applied in the Fall. Use only concentrations specified by the manufacturer.*



- *Have enough lawn to provide a fire break around buildings but keep lawns small to avoid duplicating the suburban look.*
- *Mow less often than you would in the city.*

Wetlands

Wetlands are any area where the water is at or near the ground surface long enough during the year to determine the types of plants that grow and influence the soils there. **Wetlands are protected.**

Best Practices:

- ***It is illegal*** to fill a wetland or to dump refuse or yard waste into it.
- *Before altering any wetland, contact the DNR to determine which uses are permitted.*
- Any alteration ***requires a permit.***

Household Chemicals

Many household chemicals are toxic to fish and wildlife and need to be disposed with great care. They can also leach into the water table and contaminate your water supply.

Best Practices:

- *If you wouldn't drink it, don't dump it.*
- *Take all household chemicals to the county household hazardous waste disposal site.*
- *Oil and tires may be taken to car repair shops which will recycle them.*

Water Softener "Salt"

Chlorides are a very water soluble solution of chlorine. Chlorides come into our lakes from two sources: road salt and water softeners. When discharged into septic systems they enter the groundwater and eventually the lake. A typical home can discharge hundreds of pounds per year. High concentrations have detrimental effects on plants and wildlife and on water density. Chlorides can affect a lake's annual mixing process, which can lead to oxygen deprivation problems at the lower levels.

Best Practices:

- *Try to use less "salt" in your water softener and regenerate it less frequently. This will cut down on the discharge.*
- *Consider using salt sparingly on decks, walks and drives; limit it to those areas where it is really needed for safety.*

Burning and Burning Rules

Burning **permits are required** for everything but a campfire anytime the ground is not completely covered by snow. They are free. (See "Contacts" in Appendix D for fire wardens' phone numbers.)

A "campfire" is defined by law as a "small fire used for cooking or warming a person." Campfires should be built within a steel fire ring to keep the fire contained. Burning in a fire ring with the intent to eliminate debris **requires a permit.**

Burning trash and garbage releases harmful chemicals and noxious odors into the air, which can often be smelled all over the lake and, as the chemicals fall out of the air, contaminate the water. These chemicals include arsenic, benzene and other solvents, cadmium, chromium, dioxin, formaldehyde, hydrochloric acid, lead, nitrogen oxide, polyaromatic hydrocarbons, and sulfuric acid.

Burn barrels are especially discouraged because they emit serious pollutants when garbage is burned in them. **It is illegal** to burn household garbage, plastics, tires and rubber, or treated wood in a burn barrel, open fire pit or an inside wood stove.

Burning old downed trees and other materials on the lake shore will contaminate the lake with chemicals and with nutrients that can encourage the growth of algae.

It is illegal to have fires on the ice.

Best Practices:

- *Get a permit for any fires other than legally defined campfires.*
- *Check the Fire Danger Level (call 1-888-947-2876 or contact the DNR Ranger Station) before you do any burning. Environmental conditions (ground moisture, storm damaged trees, wind, drought, etc.) change constantly, impacting fire danger conditions.*
- *Be sure campfires are completely out before leaving the area.*
- *All fires should be as far away from the lake as possible.*
- *Garbage can be disposed of by hauling it to the Transfer Station in Minong or it can be removed by a contractor.*

Firewood

Firewood that is brought into an area can harbor serious pests. One such pest is the emerald ash borer which has already killed millions of trees. Because of this pest the DNR has imposed **firewood restrictions on State properties.**

Best Practices:

- *Buy firewood only from local sources.*
- *If you cut your own firewood, only cut wood that was grown in the immediate area.*
- *Check the DNR web site at <http://dnr.wi.gov> regarding firewood restrictions.*

Pets

Washburn County requires all domestic animals to be restrained from running at large. Dogs over 5 months old must be licensed (either by Washburn County or the county of your residence). The license year for Washburn County is from Jan. 1 to Dec. 31. Fees are paid to the township treasurer.

Cats are extremely destructive to birds and other wildlife when they are allowed to roam freely. It is also **against the law** to allow them to run unrestrained.

Abused animals can be reported to the Humane Society (715-635-4720) or to the local law enforcement.

ATV's and Snowmobiles

There are many ATV and snowmobile trails throughout the county. Please stay on the designated trails, drive within the speed limits, and use caution at all times. Information and online

registration for ATV's and snowmobiles are available through the DNR (<http://dnr.wi.gov/org/caer/cs/registration/wivrs>).

Lighting⁹

Perhaps the most visible and valued difference between the city and being up at the lake is that at the lake you can see the stars splayed out over the night sky. Unfortunately there are fewer and fewer places on planet earth where the night sky is visible. Light pollution has become a significant fact of life over much of the earth. Dusk to dawn lights obscure our view of constellations, meteor showers, planets, and the landscape lit by the moon.

We want safety and security from our lights, but most outdoor lighting provides neither. The light is wasted upward because our lights are poorly designed and inefficient. It is these lights that create the three problems of poor lighting: glare, light trespass, and sky glow.

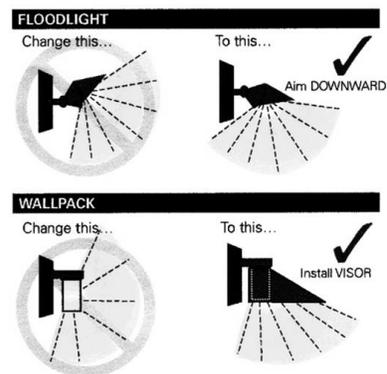
The first principle of good lighting is to illuminate only what we wish to see. When we see a light across the lake we are seeing light from the fixture itself rather than what the fixture is meant to illuminate. This is **glare**.

Glare is also the most common cause of **light trespass**. This occurs when a fixture on one property also illuminates an adjacent or nearby property. At the lake, water reflects glare over long distances to trespass on distant properties.

Much of our existing lighting shines upward and is wasted, creating **sky glow** that obstructs the view of the stars. Ineffective lighting that produces glare and sky glow also makes it difficult to see unwanted persons or activities because so much of the light is wasted; the glare can also dazzle the eye and reduce our ability to see into the shadow.

Best Practices:

- *Provide adequate light for the task but don't over-light.*
- *Don't illuminate the neighborhood.*
- *Glare can be eliminated by shielding light fixtures so the direct rays of light cannot reach your neighbor's eye.*
- *Aim light fixtures away from the water and neighboring property.*
- *Use full cutoff light fixtures (those that emit no light above the horizontal).*
- *Retrofit existing lights with shields.*
- *Aim floodlights downward.*
- *Change over to motion or heat sensitive lights.*
- *Consider turning outside lights off at night, including Christmas lights.*



Noise

One of the most important concerns listed by the respondents to our survey was noise. The natural sounds of the lake environment, such as the call of the loons, the cry of the eagles, coyotes on full moon nights, frogs singing in the spring, even the croak of the Great Blue Heron, are a special part of what makes northern lakes unique.

⁹ This section was adapted from a University Extension pamphlet.

People come to the lake to be free of the constant noise of the city. Of course, some appropriate lake activities do involve noise. Kids playing and yelling is a happy sound at the lake. Noise from power boating and water skiing are also expected lake activity noises; however, these are confined to the daytime hours between the hours of 10 AM and 5 PM. There are other noises, however, that are objectionable, especially before 10 AM and after 5 PM. These include loud radios and CD players. Especially annoying is a radio or boom box that is playing on a boat while cruising around the lake.

Best Practices:

- *Avoid playing radios and CD players at high volume and especially do not play them on a boat.*
- *Don't play music outdoors while raking leaves or doing any other activity. Leave your music inside. If you must listen to music outside, earphones are the perfect solution – you can enjoy your music and not annoy others.*
- *Firecrackers are especially loud. Check the section on fireworks for the law that governs their use.*
- *Obey the no-wake rules. Your boat or personal watercraft should create no wake and only minimal noise before 10 AM and after 5 PM.*
- *Remember, sound carries easily over water, and a radio or loud voices can be heard all over the lake.*

Fireworks

Setting off fireworks is regulated by law and **requires a permit** from the Town Chairman. **It is illegal** to set off fireworks at boat landings.

Fireworks contain a number of suspect chemical compounds and heavy metals including black powder (contains carcinogenic sulfur-coal compounds); ammonium perchlorate (can cause thyroid gland problems); white phosphorus (which persists in aquatic animals and has caused die-offs in fish). The chemicals in the fireworks drift in the winds and settle into our water and soils. Fireworks also leave cardboard, wood or plastic tubes and structural parts that drift up on shore or settle on the lake bottom.

Fireworks create noise that is not only irritating but can also result in hearing damage. The noise can terrify pets and wild animals. They can also cause burns, loss of fingers and hands, and even death. They can result in burn holes in boat seats, carpeting and canopy tops.

Remember, if your fireworks start a wildfire, you can be held liable for all suppression costs.

Best Practices:¹⁰

- *It is safer, cheaper and better for the lake to forego personal displays of fireworks. Instead attend a community display in the area.*
- *If you are compelled to set off fireworks, remember that you must first obtain a permit from the Town Chairman.*
- *Be extremely careful of windage; do not set fireworks off if the wind speed is above 5 mph.*
- *Never aim the fireworks so that chemicals and unburned parts end up in the lake.*
- *Clean up any litter left by your fireworks from the beach and lake.*

¹⁰ This information was compiled from Lake Tides, a publication of the University of Wisconsin Extension.

- *Take special precautions around children.*
- *Please consider the noise pollution and limit fireworks to the July 4th weekend. End your celebration early in the evening.*
- *Report violations of fireworks laws to the County Sheriff.*

Emergency Information

People seek the Northwoods to “get away from it all.” However, it is important to maintain some contact with the outside world in the event of a local emergency situation (wild fire, tornado, snow storm, etc.). Having a NOAA (National Oceanic and Atmospheric Association) radio will allow you to be alerted to such situations. These radios can be set to a channel that will automatically turn itself on in the event of a weather emergency. They can be purchased at electronic stores (such as Radio Shack). They can save your life!

Renting Your Cabin/Home

Washburn County has regulations for short-term rentals of a private cabin/home. Check with the Washburn County Zoning Office before you rent your cabin/home.

BEST PRACTICES ALONG THE SHORE

Natural Shorelines – the Advantages

“Studies have shown that aesthetics is a strong factor when people decide where to build or buy near water. They prefer scenes with more shoreline vegetation and less shoreline alteration. People prefer natural shorelines with structures hidden from view.”¹¹

Healthy, long-sustained ecosystems require diversity of plants and animals interacting in subtle ways. The natural lakeshore is a highly diverse habitat where many kinds of plants and animals depend on one another and provide a healthy ecosystem and scenic beauty for our enjoyment. Even dead trees, either standing or lying in the water, provide critical habitat for birds, turtles, fish, etc. These natural plant communities also filter the runoff water before it goes into the lake. Natural shorelines provide a barrier against foraging Canada Geese and also act as an avenue for birds and other native animals. Natural shorelines are what give the northern lake country its unique character.

When Natural Shorelines are Altered

It is **against the law** to clear all natural vegetation to and at the shoreline (see Washburn County Zoning Ordinance). While lawns are not in themselves harmful, they can eliminate diverse, natural shoreline vegetation. When that occurs, runoff to the lake increases ten-fold and often washes in fertilizers and other lawn chemicals, creating excessive growth of algae and polluting the lake ecosystem with toxins that disrupt the development and survival of aquatic organisms. In addition, the lawn creates a highly desirable food source for Canada Geese, ducks and muskrats which then leave their feces behind. When people cut down all the trees “to get a better view”, not only do they greatly increase the possibility of bank erosion, they also give up their privacy and increase their exposure to noise from boating activities. Boathouses and structures right on the

¹¹ Life on the Edge...Owning Waterfront Property, p. 8.

shore are **prohibited by law**. Seawalls **require a DNR permit** before they can be erected. Seawalls, whether concrete, treated wood or riprap, create a barrier for reptiles, amphibians and other species that must travel to and from the water to complete their life cycles. They also create barren near-shore areas devoid of plant and insect life that fish and wildlife feed on.

Best Practices:

- *Clear no more than a 30 foot corridor for lake viewing purposes.*
- *Create meandering paths and trails to the water's edge to screen buildings from view.*
- *Pathways down to the lake should follow the natural slope of the land using switchbacks.*
- *Screen satellite dishes, swing sets, grills, fuel tanks and outbuildings from view with vegetation.*
- *Avoid erosion. Leave as much natural vegetation as possible between your cabin/home and the water's edge.*
- *Avoid carving stairways into slopes which can concentrate runoff and cause erosion.*

Natural Shoreline Restoration

Many property owners choose to restore their shorelines for several reasons:

1. Concern for water quality. A thick vegetative cover slows water runoff, allowing the water to seep into the soil. Deeply rooted native plants reduce erosion by holding the soil.
2. Sharing the land with wildlife, from butterflies and hummingbirds to frogs and fish.
3. Enhancing the natural beauty with flowering native plants.

Active Restoration: If native plants are missing from your shoreline you can begin to restore it, or portions of it, by planting appropriate native species for your particular site. Assistance to restore a shoreline to a more natural state is available from State agencies, such as the University Extension (UWEX), and from Washburn County Land and Water Resources Management Agency. They can help you determine what can be done with your shoreline, how it can be done, and available funding assistance for the project. Pamphlets may be obtained from UWEX. Web contacts include www.uwex.edu/ces/shoreland and <http://dnr.state.wi.us/org/water/fhp/waterfront>. A list of plants geared to soils and sunlight conditions can be found at the county website www.co.washburn.wi.us. (Click on Departments, Land and Water Conservation, Native Plants).

Passive Restoration: The easiest approach to restoring your shoreline is the “no mow” approach. Simply allow the existing plants to grow in a strip along the shore. Seeds of native plants often lie dormant in the soil for years. By not mowing you allow these seeds to germinate and grow. Removal of undesirable, aggressive plants in this zone will speed the process. Plants growing in this buffer area will trap nutrients and other run-off from the upland and provide wildlife habitat.

Re-planting of a shoreline area is only necessary if native plants have been depleted or bare soils are exposed. If you are developing or building on a lot that has not yet been cleared, consider making the smallest possible “footprint” on the landscape. This can be done by minimizing the size of the area to be cleared, using “green building techniques”, and by removing only single trees or branches to allow a view of the lake.

Best Practices:

- *Purchase plants/seeds from local nurseries that sell plants coming from a seed source no farther than 200 miles from your site in order to have a genotype adapted to your area.*
- *Be sure nursery plants are not dug from natural areas. Inquire about their source.*
- *Generic wildflower seed packages usually contain species from distant areas. These species may wither, die out, or become weeds and are not recommended. Buy seeds from local native plant sources.*
- *Be sure you know what you are planting so that you do not inadvertently plant an invasive species. A list of non-native invasive species is available from the DNR.*

Shoreland Buffer¹²

A shoreland buffer is a zone of native vegetation that extends from the ordinary high water mark inland. It is essential for the existence of many plants and animals as well as to our own lakes. The buffer extends the entire length of the shoreline and to a depth of 25 feet less than the building setback for the water body. **State law requires** “mitigation” of the buffer when you undertake certain actions, including building, renovating or expanding a structure. In essence this means that you are required to lessen the negative effects to the lake caused by the development by preserving, enhancing or creating a buffer. Within that buffer you may not: (1) mow grass or clear other vegetation; (2) remove trees (except dead or diseased trees or those that pose a safety hazard); (3) mechanically grade or redistribute soil; (4) fill areas classified as wetlands.

Best Practices:

- *Before you start your project contact the Washburn County Zoning Office to find out about permit requirements, including requirements of buffer mitigation.*
- *Leave as much natural vegetation as possible between your cabin/home and the water’s edge.*
- *Confer with the Washburn County Land and Water Conservation Department – Land Conservation Division (10 4th Ave., P.O. Box 486, Shell Lake, WI) to get assistance with project design, layout and cost-sharing funding opportunities for shoreline restoration.*

“Nonconforming” Uses or Structures

This applies to uses and structures that predate an ordinance, even though they do not comply with current regulations. Such uses or structures have a protected status and are referred to as “grandfathered.” Replacement and additions to nonconforming structures are often limited by local ordinances in order to eventually eliminate them.

BEST PRACTICES IN THE WATER

¹² This section is adapted from Washburn County Shoreland Buffer Mitigation Standards, Amended Jan. 23, 2007.

What You Can and Can't Do in the Water

Aquatic plants are the underpinnings of a healthy lake. They provide building materials and food for wildlife, homes for loons and other shorebirds, stabilize lake bottoms, provide the best fishing spots, produce oxygen vital to all creatures that live in the water, add natural beauty, purify the water by absorbing nutrients such as nitrates and phosphorus, and can limit the spread of invasive exotics such as Eurasian Water Milfoil.

Controlling the vegetation of a lake can create unexpected management issues. Manipulating one component of a lake ecosystem has consequences for other components of the lake. For example, population growth of microscopic small green algae and macrophytes (large leafy plants and large plant-like algae) are inversely related. Lakes with abundant algae and poor water clarity generally have fewer submersed macrophytes. However, management efforts that reduce algae often result in increased growth of the remaining macrophytes. Removing the remaining macrophytes increases the effects of wind turbulence and redissolves nutrients in the sediments, pulling them back into the water. This results in algal bloom, which turns the water green and produces the opposite of the desired effect. The trade-off is between clear water and abundant submerged macrophytes versus an algae bloom with low water clarity and few macrophytes.

The expectation of a perfectly clear, vegetation and algae-free lake is unrealistic and leads to disappointing results. Shorelines with muddy substrates need aquatic vegetation to prevent suspension of the soil in the water.

A permit is needed for aquatic plant control in any of these situations:

- Chemicals are used.
- Biological controls are used.
- Physical techniques, such as bottom plant barriers, are used.
- Plants are removed mechanically.
- Plants are removed manually from an area greater than 30 feet in width along the shore.

Best Practices:

- *Before removing any aquatic plants on your property, contact the DNR Aquatic Plant Manager (715-635-4074) to determine if a permit is needed and to identify the best methods of control to use.*
- *The goals of a management plan should be clearly identified in advance before any work is started. Be sure you discuss your plan with the DNR before you start work as regulations about what can/cannot be done regarding aquatic vegetation are constantly changing.*
- ***By law cut plants must be removed from the water.*** *This is required because fragments can re-root and because cuttings decompose and add nutrients to the lake and deplete oxygen levels in the water. Cuttings may be used for mulch or compost.*
- *Visit <http://dnr.wi.gov/invasives> for general invasive species information.*

Sand Blankets

Placing sand or gravel on the shore or in the water to create a swimming beach **requires a DNR permit.** Even though this is legal with a permit, sand blankets damage the ecosystem of the lake. The added material kills aquatic plants necessary for a healthy lake environment and often

gets dispersed to other areas by wave action or currents, damaging vegetation and spawning areas. Sand blankets need to be replaced frequently, creating a never ending cycle.

Best Practices:

- *Leaving a natural shoreline, or restoring a damaged one to a natural state, is probably the single most effective thing homeowners can do to protect water quality and wildlife habitat.¹³*
- *Try to avoid landscaping and lake alteration practices that result in an ecologically dysfunctional lakeshore.*
- *Landscape for wildlife, water quality and privacy. Create buffer zones along the shore. These are natural strips of vegetation extending onto the land 30 feet or more and into the water 25-50 feet. If such already exists, leave it primarily intact.*
- *Clear only a 30 foot wide opening for access and view. Even in the 30 foot corridor area some trees can be left that will still allow viewing from the shore but will act as a privacy screen from the lake.*
- *Restore damaged shorelines by planting native trees, shrubs, grasses and aquatic plants. Help is available from the DNR and University Extension.*
- *Avoid putting in stone riprap or timber walls at the shoreline or sand blankets in the lake itself.*

Piers, Docks, Decks, Boathouses, etc.

Shoreline structures are all regulated with regard to the shoreline. Generally speaking, any over-the-water structure, such as a pier, shades out aquatic plants and limits wildlife production. Boathouses over water are not allowed unless built before 1979. Boat lifts are allowed, but size is limited to 12 feet wide by 24 feet long on waters under 1,000 acres. DNR regulations limit the size (both length and width) and number of piers that are allowed along the shoreline. Swim rafts are allowed within 200 feet of shore as long as they do not interfere with navigation.



Best Practices:

- *Check with the DNR before making any alterations to structures that are over the water or before erecting any new structures.*
- **Check DNR regulations before placing a new pier in the water.** (<http://dnr.wi.gov/waterways/recreation/piers.html>)
- *Minimize the size and number of piers and use natural materials and colors.*
- *Place reflectors on swim rafts. Remove swim rafts from the water when not in use for an extended period of time.*

Refurbishing your Dock/Pier

¹³ See Landscaping for Wildlife and Water Quality. Help is also available from the DNR, University Extension (both offices in Spooner), and the Washburn County Planning, Land and Water Resource Management (found on the Washburn County Government homepage).

If you refurbish your dock, do it when the dock is out of the water. Place a tarp under the dock before applying varnish or sealer.

Pumping Water from the Lake

Pumping water from the lake for irrigation purposes can potentially pollute the lake (if a gas pump is used) as well as the air (through noise created by the pump).

Best Practices:

- *Check with the DNR before pumping any water from the lake.*
- *If you do pump, use an electric pump.*

Boating Regulations

All citizens are guaranteed the right to boat on our lakes. However, boating is subject to legal restrictions. According to state law, townships may regulate boating including restrictions on speed, on certain types of boating activities in specified parts of the lake, and during specified hours of the day or week. The County Sheriff is responsible for enforcement although he may delegate that power to other agencies. DNR wardens may also enforce boating regulations. Local boat patrols or constables must consist of law enforcement officers duly trained and authorized. Citizens may, however, politely provide information regarding the regulations to those they see violating them and they are encouraged to report persistent violators.

The lakes are a kind of playing field where fast power boats and personal watercraft, slow moving canoes and fishing boats, and swimmers all play in close proximity, making attention to safety a high priority. Where, when and how fast a watercraft may be operated is **regulated by state and local law.**

Best Practices:

- ***It is illegal*** to operate a watercraft if one is legally intoxicated.
- On all Wisconsin Lakes there is **no wake** within 100 feet of shore for powerboats and within 200 feet of shore for personal watercraft. No wake is defined as “the slowest possible speed at which you can still steer your boat.” This applies to North and South Twin Lakes.
- There is **no wake** within 100 feet of any other boat, any swimmer or any swim raft.
- On Middle Lake there is **no wake at any time** (State Law).
- On South and North Twin Lakes there is **no wake before 10 AM and after 5 PM.**
- When skiing or towing tubes, all boats should travel counter-clockwise around the lake to avoid head-on confrontations. There must also be a second person (“spotter”) watching the tow.
- Each boat must have a personal flotation device for each person in the boat.
- ***It is illegal*** to harass loons or any wildlife with a boat or personal watercraft.
- Leave nothing behind but your ripples. Do not throw cigarette butts, bottles, cans or any other litter into the lake.

What to Do If You See a Boating Infraction

If you see a boating infraction, first politely inform the offenders of the rules; many visitors do not know them. If that fails, or if there are repeated abuses, call the DNR game warden or the Sheriff.

- The nearest DNR Warden is Dave Swanson. Call 715-466-2022 (DNR Field Office in Minong) or 715-466-5358 (home).
- The other warden for the county is Jon Hagen. Call 715-635-4099.
- The Washburn County Sheriff Dispatch Office is 715-0468-2720 or 715-468-4700.
- You may also contact the DNR Hotline at 1-800-847-9367.

Boat Motors and Pollution¹⁴

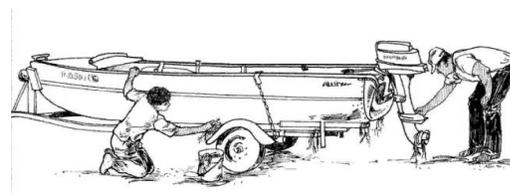
Boaters should be encouraged to use only four-stroke motors for their outboards and jet skis. These motors are 95 percent cleaner than most two-stroke motors. Traditional two-strokes discharge large quantities of carcinogenic and otherwise harmful chemicals (including benzene and toluene) into lakes, rivers and reservoirs used for drinking water. While the effects of hydrocarbon pollution are largely invisible, the spent oil from pleasure boats floats on the surface micro layer of bays, lakes, rivers and seas – all important sites for fish reproduction and home to the algae, zooplankton and larvae so essential to the food web.

Best Practices:

- *Before purchasing a new motor or personal watercraft, investigate the emissions information. If at all possible, purchase the least polluting type of motor.*
- *In less than six feet of water, however far from shore, operate watercraft at slow speeds only to prevent turbulence that adversely affects the lake bottom.*

Fishing

Fishing licenses can be purchased at several locations throughout the county (see <http://dnr.wi.gov/org/caer/cs/licenseagents/>) or http://jc.activeoutdoorsolutions.com/wi_public/goHome.do online).



In Wisconsin it is the law:

- To INSPECT boats, trailers and equipment for aquatic plants, animals and mud.
- To REMOVE all attached aquatic plants, animals and mud before launching and before leaving the water access.
- To DRAIN all water from your boat, motor, bilge, livewells, bait containers and all equipment before leaving the water access.
- To NEVER MOVE plants or live fish away from a waterbody.
- To BUY minnows from a Wisconsin licensed bait dealer.
- To DISPOSE of unwanted bait and other animals or aquatic plants in the trash.

Minnows as Bait

¹⁴ Adapted from “Two Strokes and You’re Out”, by Russell Long, Blue Water Network.

- You may not possess or use minnows for bait that were obtained outside of Wisconsin.
- You may take live minnows purchased from a Wisconsin bait dealer and use them on other Wisconsin waters only if no lake or river water or other fish were added to their container.
- Dispose of any unused minnows in the trash.

Fish Virus

A new fish virus, the *viral hemorrhagic septicemia (VHS) virus*, has caused large fish kills in several eastern Great Lakes states and appears to be spreading. The virus can easily be spread to healthy fish that eat infected fish or absorb water carrying the virus. Signs of infected fish include bloody spots on the skin and in the muscle and tissues, pale or swollen internal organs, and swollen eyes. VHS is not a threat to people who handle fish or who want to eat their catch.

Ice Fishing

It is illegal to leave tip-ups unattended when ice fishing.

How to Increase the Size of a Small Lake

Our lakes are, by any standards, small. North and South are a little over a hundred acres and Middle is just twenty-one acres. A high-speed motorboat can go from one end of South Twin to the other in about a minute. However, a fishing boat or pontoon at trolling speed, or better yet a canoe or row boat, takes about twenty times as long, prolonging the experience of being on the lake. Going slow makes it seem like a much bigger lake, and it allows you to enjoy the shoreline and wildlife. Take a slow tour of the lake and see how big it really is.

BEST PRACTICES FOR WILDLIFE

Wildlife are not pets. They act according to natural instincts, and “We are not generally included in their life plans...”¹⁵

Best Practices:

- *Protect wildlife habitat as much as possible.*
- *Improve wildlife habitat by creating brush piles, leaving dead trees, and constructing nesting boxes and platforms.*
- *Avoid feeding deer as it can increase population above what natural habitat can support, resulting in overbrowsing, chronic wasting disease and die-offs.*
- *Injured wild animals may be reported to the DNR (715-635-2101) or to the sheriff’s office (715-468-4720).*
- *Information on controlling wild nuisance animals is available by calling the Wildlife Services (1-800-228-1368) or the DNR (715-635-2101).*

Bears

¹⁵ Life on the Edge, p. 34.

The black bear is a native resident of our lake region and a frequent visitor to our yards in the spring and summer. Generally bears are harmless, but under certain conditions they can be dangerous.

Best Practices:

- *Never leave garbage outside. Store it in a shed or in the garage.*
- *Stop feeding birds after the bears come out of hibernation because feeders attract them. They will come right up on your deck to tear the feeders down.*
- *Never get between a mother bear and her cubs.*
- *During bear season, be watchful and whistle or talk loudly as bears will generally try to avoid humans. If you see a bear, move away from it slowly. Do not harass it.*
- *If a bear becomes a nuisance, call the DNR. The DNR has a policy of relocating problem bears to less populated areas.*
- *Remember, bird feeders do attract bears.....day or night.*

Song Birds

A wide variety of birds visit the Twin Lakes ecosystem. Some winter over (chickadees, crows, nuthatches, woodpeckers) and others come to visit in the summer (indigo buntings, Baltimore orioles, hummingbirds).

Best Practices:

- *Maintain as much natural habitat as possible for nesting sites.*
- *Do not let cats roam free. **It's against the law.***
- *If you see feral cats, live trap them and take them to the local humane shelter.*

Loons¹⁶

These large waterfowl with their haunting calls are perhaps the signature feature of northern lakes. Loons do not always nest; when they do, the eggs (usually 2) are easy prey, especially given the long (28 days) incubation period. To have a successful nesting pair is a great good fortune. In 2005 we had two on our lakes.

Because loons have difficulty walking on land, they nest near the water's edge, preferably on an island. Loons need undisturbed shoreline; if too much development occurs, lakes can lose their loons. They are easy prey for foxes, dogs and cats. The chicks are in danger from eagles and even large game fish and turtles.

Best Practices:

- *Stay well away from nests – 100 feet or more.*
- *Do not let dogs or cats roam free. **It's against the law.***
- *Never harass loons with a boat or personal watercraft.*
- *Stay well away from swimming loons.*
- *Maintain a natural shoreline to encourage nesting sites.*



¹⁶ For more information contact the local loon rangers (contact information available through Twin Lakes Preservation Association) or Sigurd Olson Environmental Institute, Loon Watch Program, at Northland College, Ashland, WI 54806-3999.

Geese and Ducks

Waterfowl are a common occurrence on lakes, streams and wetlands throughout Wisconsin. Their presence adds to the beauty and charm of our region's water resources. A family of mallards or Canada geese is enjoyable to watch.....at a distance. But when they show up in your backyard with several dozen of their friends, the appreciation quickly turns to frustration. The resultant droppings reduce the usefulness of your yard or dock. Geese graze primarily on grass, so well maintained lawns provide a great food source.

Best Practices:

- *Maintain a natural shoreline. Planting trees, shrubs and groundcovers along the shoreline is the best way to discourage geese from coming onto your property.*
- *Do not feed the ducks or geese. This only keeps them interested in your property and may ultimately result in water quality problems.*
- *In areas where geese are walking into your yard, border your property boundaries with two strands of string fencing at 5 and 14 inches off the ground.*
- *To further deter geese:*
 - *Place bright orange flags, ½-3 feet in size on your lawn.*
 - *Place owl or snake decoys on your lawn. They must be moved frequently to be effective.*
 - *Apply natural goose repellent to your lawn made from grape extract diluted with water.*

Frogs and Other Amphibians

A healthy frog population equals a healthy lake. Frogs are important bioindicators, that is, their status can tell us if good or bad things are happening to the lake ecosystem since they spend part of their time in the water and part out. They have a permeable skin (which means substances can move relatively freely into their bodies) and bioconcentrate pollutants.

Something mysterious is happening to frogs and other amphibians around the world – their populations are declining rapidly. Some species have already become extinct. Badly deformed frogs are showing up in the Midwest. The causes are probably multiple and primarily human in origin. Loss of habitat is one major factor as frogs need wetlands and natural shorelands. Also suspected is the increase in ultra-violet radiation as a result of the destruction of the ozone layer caused by the aerosol propellant, chlorofluorocarbons (CFCs). Another culprit may be pesticides, including Methoprene, used to control mosquitoes, ticks and fleas. Other causes may include parasites and fungus.

Best Practices:

- *Preserve vernal ponds and micro-wetlands. Do not dump grass clippings or pine needles or other yard refuse into them. **It's against the law.***
- *Preserve or restore natural shorelines.*
- *Avoid broadcast spraying of pesticides. It does little good in any case and can cause great harm to frogs, amphibians and many other species. If you need to treat, do limited spot applications with a hand pump sprayer.*
- *Do not introduce frogs from other areas as bait when fishing. This is also **against the law.***

- *Keep an eye out for deformed frogs and report any occurrences to the DNR.*

INVASIVE SPECIES AND OTHER PESTS

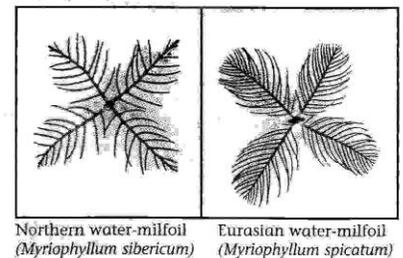
The list of invasive species, both plant and animal, changes over time as new invasives are identified. Check with the DNR to obtain the most current list of invasives (<http://dnr.state.wi.us/org/water/wm/glwsp/exotics>) and (dnr.wi.gov/invasives).

Invasive Plants

These are organisms introduced into habitats where they are not native and, lacking competitors or predators, their populations explode, altering and degrading the environment and crowding out native species. They cause a loss of biological diversity and are considered a biological pollutant. Once established they can be controlled but rarely eliminated. **It is against the law** to transport any aquatic plants. Always contact the DNR before attempting to control an invasive species. The most threatening to the Twin Lakes include:



1. **Curly-leaf Pondweed**: It forms dense surface mats that interfere with recreation. These usually drop to the bottom by mid to early July.
2. **Eurasian Water Milfoil**: It is spread by boats and water birds in nutrient-rich lakes. It forms vast underwater stands of tangled stems and surface mats, interfering with swimming, fishing and boating, and it shades out native plants. It is often confused with native Northern Water Milfoil which has 5-9 pairs of leaflets, whereas Eurasian Water Milfoil has 12-21 pairs and can reproduce a colony from a single fragment and through underground runners. It is introduced via boats, trailers, motors, bait buckets, and any apparatus that moves through water.



Best Practices:

- **The law requires** you to inspect all boats, trailers, etc. for aquatic plants, animals, and mud before entering the lake and upon leaving the lake. If found, wash off or pick off every fragment and place in trash.
- **The law requires** you to drain water from your boat, motor, trailer and live wells before transporting.
- Do not remove native vegetation as doing so creates a perfect habitat for these exotics.
- Maintain healthy water quality which will maintain a diverse, healthy plant community making it harder for the exotics to thrive.
- Monitor boat landings for nascent colonies. Notify the DNR if found.



3. **Purple Loosestrife:** This is a tall (2-7 ft.) ornamental with a purple spike flower that invades wetlands and lakeshores, replacing cattails and other wetland plants and forming dense, impenetrable stands which are unsuitable as cover, food, or nesting sites, crowding out many desirable native plant species. One plant can disperse 2 million seeds annually; this species can also re-sprout from roots and broken stems.

Best Practices:

- Distinguish Purple Loosestrife from native species that look similar (Swamp Loosestrife, Blazing Star, Fireweed, Pickerel Weed, Lupine and Winged Loosestrife).
- Do not plant in gardens around lakes.
- If colonies are already established, contact the DNR for control methods. In some cases physical removal at the right season is effective. A species of beetle that attacks the plant can also be introduced.



4. **Japanese Knotweed:** This plant is a large, aggressive perennial with roots that grow as deep as 9 feet and rhizomes that grow out to 60 feet. It is an upright shrub-like herb that can grow 10 feet tall. It spreads quickly and, once established, defies control.

Best Practices:

- Do not plant in lands around the lake.
- Destroy these plants before they become large clones.
- Contact the DNR for control methods.

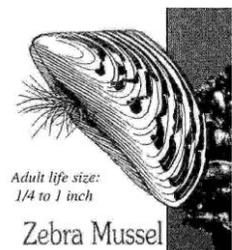


5. **Spotted Knapweed:** Spotted knapweed is a short-lived perennial forb of the Asteraceae family. It commonly grows to 3-4 feet in height. The basal leaves are deeply lobed and arranged in a rosette. Stem leaves are arranged alternately and are not lobed. Single thistle-like, pinkish-purple flower heads reach 3/4 inch in diameter and occur at the tips of terminal or axillary stems from late June through August. **Always wear gloves when handling this plant.**

Invasive Animals

It is against the law to transport any invasive animals.

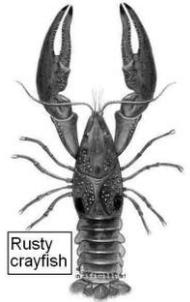
1. **Zebra Mussels:** These are small fingernail sized mussels which clog cooling systems of boat engines and attach themselves to piers, pipes and any firm surface. They will cover rock, gravel, metal, rubber, wood, crayfish, native mussels and each other. They can produce as many 1 million eggs per year and discharge "pseudofeces" which can harm the plankton food chain. They are introduced in bait buckets, live wells and can ride in on boats and trailers.



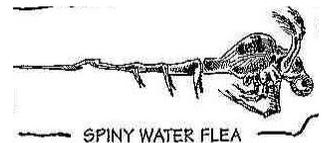
Best Practices:

- Never bring bait or water from one lake to another.

- *Never dump live fish from one lake into another.*
- **The law requires** you to inspect and remove all aquatic plants, animals, and mud from boat, trailer and motor before launching and leaving a boat landing.
- **The law requires** you to drain all water from boat, motor and live well before transporting.
- *Wash tackle and trailer with hot water when you get home.*
- *Flush water through your boat motor's cooling system.*
- *Disinfect your boat and recreational equipment by washing it with a mixture of 2 Tbsp. household bleach per 1 gal. of water.*
- *Let everything dry for three days before taking your boat to another lake or river.*
- *Report sightings to the DNR.*



2. **Rusty Crayfish:** Rusty crayfish cause a decline in abundance of the native crayfish and clear-cut the weed beds. In smaller lakes, removal by trapping is effective.



3. **Spiny Water Flea:** These invasives eat the smaller forms of zooplankton that fish depend on. They are tough for fish to eat because their barbed terminal spines are sharp enough to puncture the lining of the fish stomach.

4. **Emerald Ash Borer:** This is a small beetle that is metallic green in color with a slender body that measures about ½ inch in length. It attacks all types of ash trees except mountain ashes, which are not a true ash. An EAB infestation is always fatal to ash trees.



Best Practices:

- Don't move firewood.
- If you have ash trees, visually inspect them to determine if they display any sign or symptom of EAB infestation.
- Buy firewood only from local sources.

Pests

1. **Jack Pine Budworm:** This worm is killing many of the jack pine trees in this part of Wisconsin. It is a naturally occurring infestation and peaks in 8-9 year cycles and then dies back. Standing dead jack pine can be left in place as long as they do not pose a threat of injury or damage to dwellings. Dropping these trees and burning them does not control the pest.

2. **Swimmer's Itch:**¹⁷ Technically known as schistosome dermatitis, swimmer's itch appears as red itching, bite-like welts within several hours of leaving the water. The irritation can last from two days to several weeks, depending on the individual's susceptibility. Preventive measures can be taken, and there are no permanent effects from swimmer's itch.

The irritation is caused during a life stage of a flatworm parasite which lives as an adult in suitable mammals and birds, such as mice and ducks. One of the stages of this parasite's development, the cercariae, occurs when water temperatures reach their near maximum summer temperatures, usually in late June or early July. It is at this time that the organism can accidentally contact bathers and cause swimmer's itch. There is no effective way to eliminate swimmer's itch on your beach but you can reduce your exposure to it.

Best Practices:

- *It is best to regard swimmer's itch in the same manner as mosquitoes, wood ticks and deer flies; there really is nothing that can be done to eliminate them, and our best practice is to learn how to reduce exposure.*
- *Feeding ducks should be discouraged since water fowl are an important adult host to the parasite.*
- *Small children playing in shallow water are most susceptible because of the alternate wetting and drying with the arms, legs and waist area that are most prone to infection.*
- *Swim rather than play or wade in shallow water to reduce exposure. Swim off-shore if possible.*
- *Towel vigorously immediately after leaving the water to crush the cercariae before they can penetrate the skin.*
- *Once the irritation has developed, various soothing lotions or ointments may be applied to relieve the itching.*

A PLAN FOR PROTECTING AND PRESERVING THE HIGH QUALITY OF TWIN LAKES ENVIRONMENT

1. The Twin Lakes Preservation Association will continue to provide helpful information to all residents and users of the lakes by:
 - a. Making this Handbook available to everyone.
 - b. Updating the Handbook as needed.
 - c. Providing 3-4 newsletters each year to residents.
 - d. Holding informational seminars at the Annual Meeting and at other times.
 - e. Providing welcoming brochures to all newcomers and non-members.
2. The Association will encourage the further development of a concerned community by:
 - a. Advertising more widely the annual Social/Picnic Event and encouraging attendance more actively.
 - b. Encouraging membership in the organization.

¹⁷ Adapted from Lake Tides, Vol. 24, No. 3, Summer 1999.

- c. Working with County and State level organizations, such as the Washburn County Lakes and Rivers Association and the Wisconsin Association of Lakes.
 - d. Holding other community building events such as gatherings to discuss how to move forward in a proactive way toward the preservation of the quality of life that we enjoy in the Twin Lakes watershed.
 - e. Providing volunteer monitoring of boating abuses and abuses of wildlife.
 - f. Creating a collaborative relationship with local and county government and the University Extension for making and preserving effective policies that maintain a high quality lake community.
3. The Association will continue to monitor the quality of the biological community by:
- a. Participating in the Citizen Lake Monitoring Program.
 - b. Conducting informational inspections for exotic invasive species at the landings on holiday weekends.
 - c. Seeking assistance from the DNR in managing exotic invasive species.
 - d. Maintaining a loon monitoring and protection collaboration on the lakes.

APPENDIX A

Summary of the Lake Studies¹⁸

TWIN LAKES BENCHMARK DATA

Based on scientific studies funded by the Wisconsin Department of Natural Resources and carried out by Barr Engineering in 2000 and 2001, these three lakes are “healthy and in good condition. There are no problems evident in the lakes’ current water quality.” (Twin Lakes Management Plan: Phase I, Executive Summary) The studies examined water chemistry, plant and animal life in the lakes (lake ecology), runoff from the watershed, and comparative population density. This data provides a benchmark from which we can measure change and upon which we can draft a plan for the protection of the lakes and the continuation of their near pristine quality.

Lake Morphology

North Twin	113 acres, mean depth—6 ft, maximum depth—20 ft, volume 678 acre-ft
South Twin	115 acres, mean depth—16 ft., maximum depth—29 ft, Volume 1,848 acre ft.
Middle Twin ¹⁹	30 acres, maximum depth—6 ft.

Water Quality

- 1) The lakes are oligotrophic to mesotrophic, that is, pure enough to support healthy plant and animal communities and provide clean and healthy recreation. (A eutrophic or degrading lake becomes choked with weeds and algae blooms. While some eutrophication is natural, it can be rapidly accelerated by nutrient and sediment loading from septic tanks, runoff from lawns.) The Nitrogen to Phosphorus ratio in our lakes is above 40 on average (a ratio of 12 or below results in deteriorating conditions) (Ref. p. 13, Phase I)
- 2) Chlorophyll-a, too much of which is a sign of a eutrophic lake, is at 1.1 to 1.2 ug/K, a level that indicates excellent water clarity conducive to swimming and boating (Ref. p. 18, Phase I)
- 3) Secchi disk readings averaged 4.2M (North Twin), 5M (South Twin), and Clear to bottom in Middle Twin.
- 4) Dissolved Oxygen levels at lake bottom average 1mg/L, minimizing the recycling of phosphorus from bottom sediments which, if it became abundant, would cause algae blooms. (Ref. p. 23, Phase I)

¹⁸ Complete results of these studies are available for review from the Twin Lakes Preservation Association.

¹⁹ Wisconsin DNR references list Middle Lake as 21 acres.

- 5) Conductance profiles indicate low concentrations of dissolved solids and indicate the lakes' water quality is excellent (Ref. p. 23, Phase I)

Lake Ecology

- 1) Phytoplankton (microscopic plants which are the base of the food chain leading all the way up to eagles and ospreys): a diverse community of phytoplankton exists in the lakes, with a low percentage of blue green algae (which is the substance of algae blooms). (Ref. p. 24, Phase I)
- 2) Zooplankton (microscopic and tiny animals which feed on the phytoplankton and in turn provide food for fish); the community is diverse and healthy. (Ref. p. 28, Phase I)
- 3) Macrophyte or plant community (all too often called "weeds"); showed a diverse and healthy community with no population of exotics such as Eurasian Milfoil. The distribution of plants is good (Ref. to color maps pp. 33-35 of the full-length reports), providing habitat and food for the fish population. [Note: while not mentioned in the reports, an exception does occur in the north bay of North Lake where weed choking and sedimentation are a significant problem for property owners; and Middle Lake may be on the verge of experiencing overabundant weed growth. These areas require further study.] (Ref. p. 32, Phase I)
- 4) Fish and amphibians: The Barr study did not survey these populations: anecdotal observations seem to indicate a variety of fish with an overpopulation of stunted Bluegills and a few stunted Perch; Crappies appear to be small on average. Northerns, Bass and some Walleyes are also present. Several species of frogs are also present. These populations require further study.
- 5) Shell fish: A large population of snails bears further study. To date there is no observance of Zebra Mussels.
- 6) Other animals: the Barr study did not include a survey of these but simple observation shows a wide variety of birds including orioles, scarlet tanagers, waterfowl (ducks, geese, herons, loons, etc) and topped by eagles and ospreys; mice and voles, rabbits, squirrels, fox, badgers, deer, frogs, porcupines, turtles and black bear. This population appears quite healthy.

Impact of Land Use: the Hydrologic and Phosphorus Budget of the Watershed

The outlines of the watershed are depicted in two maps in the Appendix to Phase II.

This study determined the runoff into the lakes of water and the phosphorus it carries and evaluated population density around the shoreline.

The Executive Summary (Ref. p. I, Phase II)

- 1) Approximately 65% of the water inflow comes from precipitation and the rest from surface and subsurface runoff, with the heaviest concentrations of inflow of the latter in April, due probably to snow melt.
- 2) The groundwater table is near the surface and groundwater moves from SE to NW.
- 3) 50% of the phosphorus loading comes from septic systems which may not indicate malfunctioning systems but only that the total loading is quite small at this point. Because the soils are sandy, they retain less phosphorus than other soils, and hence more makes it to the lake. (Note: If the number of homes in the watershed increase, or the number of days spent at the lake increases, especially as summer visitors retire to become full time residents, the overall loading from septic systems will also increase as new residences are built and, in some cases, as forest cover is replaced by lawns; more phosphorus will run off into the lakes. If nitrogen based fertilizers are used, nitrogen loading will also increase.)
- 4) Annual phosphorus loading:
 - North Twin 107.5 pounds
 - South Twin 126 pounds
 - Middle Twin 23.4 pounds
- 5) Conclusion and Warning: “. . .it was demonstrated that a small increase in total phosphorus in the water column of the Twin Lakes can result in a relatively large loss of lake clarity.” (Ref. p. 10, and Fig. 7, Phase II
Also note: Since over half of the phosphorus loading in our lakes comes from septic systems, an undetermined increase in the number of these and/or septic failures, could alter the balance and result in loss of water clarity. Density of development figured as structures per mile of shoreline:

Middle Twin	11		
North Twin	16		
South Twin	22	and for comparison:	
		Nancy Lake	11
		Gilmore Lake	20
		Shell Lake	37

While the above data prompted Dr. Meg Rattey, the biologist who was chief researcher for these studies, to describe these water bodies as “dream lakes” they can easily be tipped into degrading lakes by more development of the wrong kind. With regard to the phosphorus, we are on the edge of the downward curve toward negative consequences. (Ref. fig. 11, Phase II)

APPENDIX B²⁰

Lake Property Owners Survey, Summer, 2005

Results and Discussion

In the summer of 2005, a survey of the property owners around the Twin Lakes was carried out in order to assess opinions about a variety of lake issues. Of the 130 property owners contacted, 70 returned the questionnaire, a 54% response rate.

Only limited demographic data was collected, but the available information suggests that the responses were fairly representative of the entire group of property owners. Of those who are not year-round residents, 37% are from Minnesota and the remaining 63% live in other states. A substantial proportion, 42%, indicated they are retired compared to 58% who are still employed. On the average, the respondents have been coming to the lakes for a substantial length of time, from 4 to 40 years, with an average of 17.5 years of lake ownership.

The graphs which follow this discussion show the way in which people responded to the closed-response items on the questionnaire.

Summary of and commentary on open-ended items

The survey also encouraged people to respond openly to several items. This was done to not predispose the kinds of answers by providing limited options. These answers were rich, thoughtful, and interesting. The following is an attempt to capture the flavor of these responses and to indicate the most common views.

- **Shoreline Aesthetics**

Questions 7 and 8 asked people to describe the general attractiveness of the shoreline around the lakes. Less than 5% described the shore as unattractive and over 40% view it as “very attractive” with the rest in between. The large majority indicated that the naturalness of the shoreline in most places is what is important.

- **Changing conditions, disturbance**

Questions 10 and 11 asked people to assess change in lake conditions over time. Two-thirds indicated that conditions have changed since they have been using their property. When asked “How?” the responses overwhelmingly indicated changes for the worse. These concerns were:

1. Noise and crowding
2. Building/Development
3. Ecosystem deterioration

²⁰ Complete results of this study are available for review from the Twin Lakes Preservation Association.

This issue was continued with questions 12 and 13 which asked how often the respondent's use of the lake is disturbed and by what sorts of things. Forty-two percent (42%) indicated that they are disturbed "frequently" or "sometimes." The rest (58%) responded that they are disturbed "only occasionally" or "almost never." The concerns of this substantial minority are almost exclusively centered around noise and building/development.

Questions 14, 15 and 21 asked people to explain the level of connection they feel to the Twin Lakes area. The overwhelming majority (84%) feel strongly or very strongly connected to the area. The reasons for this are expressed by three themes:

1. The natural beauty of the surroundings and the peacefulness this provided for rest and relaxation
2. Association with friends and family.
3. The large investment of time and of money in creating and maintaining a lake refuge.

- **Development issues**

The majority (53%) of respondents believe that there is already too much development on Twin Lakes. Eight percent would like to see more development, and the remainder is satisfied with things as they are.

Related to the question of development is the response to Question 18, which asked if people could foresee their lake experience being spoiled, so that they would want to sell. While many believe that the level of property taxes might force them out, as many or more mentioned similar issues to the questions on development, deterioration of the quality of the lake experience through ecological deterioration, noise and crowding from continued increase in the number of lake users, or overdevelopment from condominiums and back lots.

- **Personal Practices**

There is a generally high awareness of the fragility of the lake ecosystem. Many people say they either have never used fertilizer on their property or attempt to maintain the land in as natural a state as possible through little mowing, shoreline restoration, etc.

Conclusion

There is substantial consensus among the residents of Twin Lakes about the importance of maintaining a sound ecosystem here so that the commitment people have to the lake lifestyle can be preserved. There is also a significant level of concern that the lakes are close to or have reached some sort of negative tipping point which will lead to a deterioration of the quality of life.

While there is recognition of the fragility of the lake ecosystem, the main concern people have is the level of human activity: the noise, crowding, watercraft, etc. Whether or not these activities are having a measurable impact on the lake itself—on water quality or fish population, for example, the degree of activity is already having an impact on the quality of people's lake experience.

This presents a difficult dilemma. The lake is a public good which all people have a right to enjoy. But too many people lower the quality of the experience for everyone. Regulations like "no wake" and "quiet hours" go a long way to limit the activity level to a tolerable level. Zoning laws regarding shorelands and set-backs, similarly, limit unattractive development to some degree. And there is clearly a continuing need to educate people about the former and enforce the latter.

The question is what, if any, additional steps might be taken to assure that we do not destroy that which is loved by so many—the beauty and peacefulness of the Twin Lakes.

**Lake Users Survey -- Graphical Summary
Summer, 2005**

130 questionnaires mailed out; 70 questionnaires returned
(54% response rate)

The following charts summarize the answers to those questions where a graph is appropriate

(1) Why do you own property on or around Twin Lakes? Please check all that apply

	Counts	Percents	Percents	
			0	100
As a gathering place for family and friends	52	74.3%		
As an investment	32	45.7%		
For fishing	45	64.3%		
To observe wildlife	48	68.6%		
For swimming/scuba/etc.	46	65.7%		
To water ski or jet ski	20	28.6%		
To go boating	45	64.3%		
To preserve family tradition	32	45.7%		
For an escape, a retreat	64	91.4%		
Other	5	7.1%		
Totals	70	n/a		

(3) How often do you come to the lake?

	Counts	Percents	Percents	
			0	100
Intermittent in summer	15	21.7%		
Intermittent throughout the year	39	56.5%		
Summer resident	4	5.8%		
Year-round resident	10	14.5%		
Other	1	1.4%		
Totals	69	100.0%		

(5) When you are here, what activities are you most likely to do? Please check all that apply.

	Counts	Percents	Percents	
			0	100
Entertaining friends and relatives	48	68.6%		
Fishing	41	58.6%		
Observing wildlife	59	84.3%		
Water sports (swimming, water or jet skiing, etc.)	38	54.3%		
Enjoying the view, peace & tranquility, resting	66	94.3%		
Boating	41	58.6%		
Working to maintain/improve the property	56	80.0%		
Other	8	11.4%		
Totals	70	n/a		

(6) Which of these activities are most important to you?

	Counts	Percents	Percents	
			0	100
Entertaining friends and relatives	30	43.5%		
Fishing	25	36.2%		
Observing wildlife	33	47.8%		
Water sports (swimming, water or jet skiing, etc.)	21	30.4%		
Enjoying the view, peace & tranquility, resting	63	91.3%		
Boating	19	27.5%		
Working to maintain/improve the property	22	31.9%		
Other	2	2.9%		
Totals	69	n/a		

(7) How would you describe the general attractiveness of the shoreline around Twin Lakes?			
	Counts	Percents	Percents 0 100
Very attractive	28	41.2%	
Fairly attractive	37	54.4%	
Unattractive	3	4.4%	
Totals	68	100.0%	

(9) How would you evaluate the quality of Twin Lakes' water?			
	Counts	Percents	Percents 0 100
Pure	18	26.1%	
Pretty clean	50	72.5%	
Other	1	1.4%	
Totals	69	100.0%	

(10) Since you have been using your property, have conditions changed?			
	Counts	Percents	Percents 0 100
Yes	45	66.2%	
No	23	33.8%	
Totals	68	100.0%	

(12) We are interested in your opinion about the level of activity overall here at the lake. How often is your use of the lake disturbed?			
	Counts	Percents	Percents 0 100
Frequently	9	13.0%	
Sometimes	20	29.0%	
Only occasionally	25	36.2%	
Almost never	15	21.7%	
Totals	69	100.0%	

(14) How strong a connection do you feel to the Twin Lakes area?

	Counts	Percents	0 Percents 100
Very strong	40	59.7%	
Strong	16	23.9%	
Average	10	14.9%	
Other	1	1.5%	
Totals	67	100.0%	

(16) What is your opinion about the level of development on or around Twin Lakes?

	Counts	Percents	0 Percents 100
Too much	35	53.0%	
About right	24	36.4%	
Too little	2	3.0%	
No opinion	5	7.6%	
Totals	66	100.0%	

(20) The Town of Chicog has an ordinance that boats may make no wake on township lakes between 5 p.m. and 10 a.m. the next day. Presumably this is to restrict noisier activities to the daylight hours. In y

	Counts	Percents	0 Percents 100
A good balance for all users	55	83.3%	
Not restrictive enough	10	15.2%	
Too restrictive	1	1.5%	
Totals	66	100.0%	

APPENDIX C:

Court Cases that Contributed to the Development of the Public Trust Doctrine

1848: *Martin v. Waddell*: The U.S. Supreme Court established that the people of each state hold absolute right to all their navigable waters and soils under them for common use.

1901: *Illinois v. Bilot*: The Wisconsin Supreme Court held that the title to the waters had been held in trust by the federal government and that trust was transferred to the state and “must continue there forever, so far as necessary to the enjoyment thereof by the people.”

1969: *Reuter v. DNR*: Confirmed the citizens’ rights to clean, unpolluted waters.

1972: *Just v. Marinette County*: The justice concluded that “An owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it is unsuited in its natural state and which injures the rights of others.”

1973: *Claffin v. DNR*: The Wisconsin Supreme Court upheld a decision ordering removal of a boathouse based on aesthetic impact, stating “the natural beauty of our northern lakes is one of the most precious heritages Wisconsin citizens enjoy.”

1983: *State v. Bleck*: Determined that while riparian owners do have rights such as access, piers, reasonable use, that nevertheless when these conflict with the public’s interest in navigation, fishing, recreation, hunting and the enjoyment of natural scenic beauty, “then “the riparians’ interests become secondary to those of the public.”

1996: *Sterlingworth v. DNR*: Denied a condo developer the right to increase the number of docks, thus providing support for the concept of cumulative impacts.

1998: *Gillen v. the City of Neenah*: Upheld the citizens’ right to have an “independent authority” to decide under the public trust doctrine to challenge violations of the doctrine that may constitute public nuisances.”

The Federal Congress and the Wisconsin Legislature have also provided for the protection and recovery of Wisconsin waters. A few representative laws include:

1923: The Legislature granted counties power to zone unincorporated areas subject to Town Board approval.

1935: The Legislature granted counties power to zone shoreland including setbacks, size of buildings, commercial activity and to restrict further industrial development.

1961: Wisconsin's Outdoor Recreation Act Program provided \$50 million to protect high value lands including shorelands and to buy easements for public access.

1966: Wisconsin's Water Resources Act defined shore land as 1000 feet from the ordinary high water mark of a lake and 300 feet from a river and to establish zoning including minimum setbacks, lot sizes, frontage lengths and limited vegetation removal in a 30 foot riparian zone. It also placed restrictions on dredging, filling, lagooning, ditching and excavating.

1967: The Wisconsin Legislature created the Department of Natural Resources.

1968: Local governments required by law to adopt shoreland and floodplain zoning.

1997: Legislature created the 3-tiered lake classification system based on a water body's sensitivity to development as determined by size, depth, physical characteristics, fish and wildlife. As the classification goes from 1 to 3, setbacks, etc., increase to protect the more fragile water body.

1999: The State Omnibus Budget provided the legal basis for comprehensive planning by local governments, to be completed by 2010.

These and many other laws and court decisions make up the Public Trust Doctrine.

APPENDIX D: More Useful Information

- **Contact Information**

The most comprehensive Directory of local contacts for government, business, social services, etc. is The Source, available from the Spooner Advocate, 251 E. Maple Street, Spooner, WI 54801 (715-635-2181). This is published each Fall.

- **EMERGENCY NUMBERS:** Call 911 for all emergencies (injury, fire, theft in progress, acute illness, etc.)

POLICE

- **Wisconsin State Patrol (715-635-2141)**
- **Washburn County Sheriff (911) or (715-468-4720)**

FIRE

- **Chicog Volunteer Fire Department:** Fire Chief Brad Harrison (911) or (715-466-2845)
- **Minong Area Fire Department:** Fire Chief Harold Smith (911) or (715-466-2060)

POISON CONTROL (1-800-815-8855)

TIME OUT FAMILY ABUSE SHELTER (1-800-924-0556)

- **TLPA Board:** See names of officers and directors in the current newsletter.
- **Washburn County Government Homepage:** www.co.washburn.wi.us/index
- **Fire Wardens: Town of Chicog:** Kelly Grimes, Mack Lake Tavern (715-416-3310); Ron and Bonnie Crosby, Pappy's Bar (715-466-2568).
- **Town of Minong:** Kurt and Linda Featherly, W8236 Peninsula Rd. (715-466-5514); Bob Gruzlewski, Gruzzy's, Nancy Lake Rd. (715-466-4301); Dan and Bonnie Myers (715-466-2108)
- **Town Boards:** Membership changes by election. Check The Source under "Leaders and Lawmakers" for current names and numbers.
- **WISCONSIN DEPARTMENT OF NATURAL RESOURCES (DNR):** District Office is located in Spooner on Hwy. 70 just west of Hwy. 63 (715-635-2101). Minong Field Office is located at the east edge of Minong on Hwy. 77 (715-466-2022).
DNR Water Regulation Violations and Information: Dan Harrington, Water Management Specialist, Spooner Office.
DNR Wardens: The nearest DNR Warden is Dave Swanson at the DNR Field Office in Minong (715-466-5428). The other warden for the county is Jon Hagen (715-635-4099).
- **Washburn County Sheriff Dispatch Office (715-468-4720).**

- **University of Wisconsin Extension (UWEX):** Extension Agent, Beverly Stencil, is located at 850 Beaverbrook Ave., Spooner (715-635-4444). www.uwex.edu/ces/cty/washburn
- **Washburn County Board:** See The Source, available from the Spooner Advocate Office.
- **Washburn County Zoning Committee:** Web Macomber, Zoning Administrator (715-468-4690) or call the County Clerk for more information (715-468-4600).
- **Washburn County Planning, Land/Water Resource Management:** Brad Robole, Director (715-468-4654)
- **Lake Classifications, Zoning Regulations and Permits** (715-468-4690)

MORE READING MATERIAL (Books, Guides, Pamphlets)

- A Field of Aquatic Exotic Plants and Animals, and other pamphlets available from Wisconsin DNR, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707
- Checklist of Wisconsin Birds, Wisconsin DNR, P.O. Box 7921, Madison, WI 53707
- Division 27. Shoreland Regulations (Ord. of 3-19-2002, Art. XXVII: Washburn County Ordinance regarding what can/cannot be done on shorelands. Available from the Washburn County Planning, Land & Resource Management Department, Washburn County Courthouse, Shell Lake, WI
- Guide to Wisconsin Aquatic Plants, Wisconsin DNR, P.O. Box 7921, Madison, WI 53707
- Hitching a Ride: invasive species awareness pamphlet, PUB-CE-4014-2005, WI DNR: available from the Washburn County Planning, Land & Resource Management Department, Washburn County Courthouse, Shell Lake, WI
- Lakescaping for Wildlife and Water Quality, Minnesota DNR, 500 Lafayette Ave., St. Paul, MN 55155
- Life on the Edge...Owning Waterfront Property, UWEX-Lakes Partnership, College of Natural Resources, University of Wisconsin, Stevens Point, WI 54481; also available from the County UW Extension Office in Spooner
- Loon Ranger Materials, Loon Watch, Sigurd Olson Environmental Institute, Northland College, Ashland, WI 54806
- Protecting Your Waterfront Investment: 10 Simple Shoreland Stewardship Practices, UW Extension, DNR Pub. WT-821, 2010; also available from the Washburn County Zoning Office
- Washburn County Shoreland Buffer Mitigation Standards, amended Jan. 23, 2007: available from the Washburn County Planning, Land & Resource Management Department, Washburn County Courthouse, Shell Lake, WI
- Zoning Regulations: Guidelines for Buyers and Builders in Washburn County, Dec. 2010: available from the Washburn County Planning, Land & Resource Management Department, Washburn County Courthouse, Shell Lake, WI

NEWSLETTERS:

- Laketides: The Newsletter for People Interested in Wisconsin Lakes, published by the Lakes Partnership, UW Extension, 800 Reserve St., Stevens Point, WI 54481. www.uwsp.edu/cnr/uwexplakes Laketides is free.
- Wisconsin Lakes, published by the Wisconsin Association of Lakes, a nonprofit group of citizens, organizations and businesses working for clean, safe, healthy lakes. Available from WAL, One Point Place, Madison, WI 53719 www.wisconsinlakes.org
- On the Waterfront, published by Washburn County Lakes and Rivers Association, Inc., 850 W. Beaverbrook Avenue, Suite 1, Spooner, WI (715-635-4444)
- Twin Lakes Preservation Association Newsletter, published and distributed by the Twin Lakes Preservation Association

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