

Lake Redstone

Protection Connection

LAKE REDSTONE PROTECTION DISTRICT • FALL 2009

Study Shows Phosphorus Up, Water Quality Down

A study released in August indicates that the amount of phosphorus reaching Lake Redstone each year is higher now than a decade ago, and that the quality of the Lake's water has consequently suffered.

The report by the Minneapolis-based Barr Engineering compared tributary and in-lake sampling data from 1996 and 2007 to evaluate changes in phosphorus load and source. Their results indicate that the Lake's annual phosphorus load more than quadrupled between the two years, from 2,220 kg in 1996 to 9,850 kg two years ago.

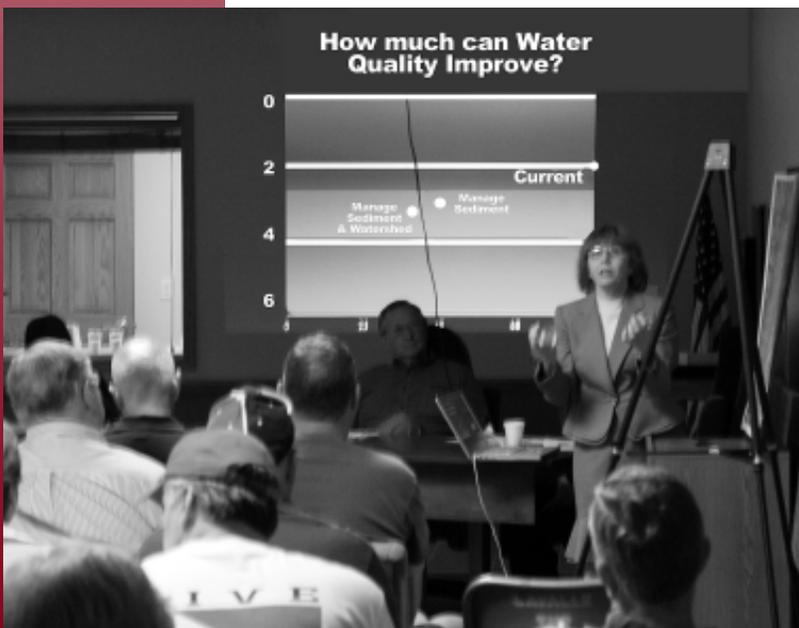
Modelling results also showed that while phosphorus reaching Lake Redstone from its surrounding watershed increased from 1,500 kg in 1996 to 2,626 kg in 2007, the most dramatic surge occurred in internal phosphorus loading, where the annual figure soared from 643 kg in 2006 to over 7,000 kg in 2007.

Internal loading is a consequence of phosphorus which has accumulated over time in the sediment of the Lake. "When the lake's bottom waters become stagnant and lose oxygen, the sediment changes from a phosphorus storage unit to a massive phosphorus pumping system," the report explains. "The lake's sediment pumps phosphorus back into the lake where it can once again fuel algal blooms and degrade the lake's water quality."

The study compares data recorded in 1996 by Jim Leverance and John Panuska of the Wisconsin Department of Natural Resources with 2007 figures reported by the firm Vierbicher and Associates. A total of \$20,000 in grant funding from the DNR helped fund the latest round of data collection.

Barr was hired to evaluate the data quality, summarize conclusions, and draw trends between the two years. Their analysis indicated that increased phosphorus loading in 2007 caused the Lake's water quality to be poorer than observed during 1996. Furthermore, since both internal and watershed phosphorus loads have increased over that period, only an approach which addresses both sources could return the Lake to 1996 conditions or better.

While the report attributes part of the 2007 decline in water quality to high temperatures and drought conditions during June and July, it also recommends a number of proactive steps to prevent further degradation, including:



Meg Rattei of Barr Engineering discusses the conclusions of her firm's report during the 2009 LRPD Annual Meeting in August.

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Repairs Achieved, District Looking for New Opportunities

by Jim Mercier, LRPD Chair

NOW THAT THE BOATING SEASON has come to a close, many of you may not know that the reconstruction of the south end of Mourning Dove Bay has been completed. A new berm has been installed and all the area reseeded. The Township has also replaced their boat landing.

With this project completed, the District has turned its attention to other areas of concern, continuing its efforts to protect our lake and the water that flows into it. Some of these trouble spots are washouts that occurred during the flood in 2008, while others are worrisome because of the amount of silt that washes into the lake. As we try to rectify these problem areas, there will probably be more that will be added to the list. Some of the new projects were pointed out by the Township road crew as I took a ride around the lake with them.

One new program that the District is looking into involves obtaining land around the lake to protect our resources. If there happens to be anyone who owns land or wetlands around the lake and would be interested in donating it to the Protection District, we would be glad to hear from you. By donating land that you cannot use for anything, you probably would be able to claim the gift as a charitable contribution, and then would no longer have to pay taxes on that property. By obtaining these properties it would give the District the ability to proceed ahead with other possible projects. Again, if there is anyone interested in donating land, please contact any one of the LRPD commissioners.

Hope you all have a great fall and winter and we will keep you updated as projects move ahead.

-Jim

Zebra Mussels Yet to Reach Redstone, Though Close

by Dave Starin, Project Coordinator

The LRPD, in cooperation with the Wisconsin Department of Natural Resources, monitors for the presence of zebra mussels at Lake Redstone. A series of traps is placed at all three Redstone boat landings in the spring, and checked in the fall at the end of the boating season. I am happy to report that no zebra mussels were detected this year. I also periodically check with local marinas to see if they find any on the boats and piers that they service.

A mature female zebra mussel can produce up to 1,000,000 eggs in one year, according to the DNR. The eggs meet up with male sperm in the water and become veligers—little swimmers—that at about four weeks drop to the bottom and attach to rocks, boat hulls, dock pilings, engine intakes, and other stable surfaces. Those that survive become mature, hard-shelled adults in their first year and continue the cycle.

Once a lake is infested, it is very difficult to get rid of these pests, authorities report. So, the best course is to limit their arrival:

- ✓ Clean boats with hot water or dry for five days after visiting any lake;
- ✓ Empty bait buckets and live wells before leaving the landing; and
- ✓ Remove aquatic water plants from boats and trailers.

The little invaders originated in western Russia and travelled to the Great Lakes in ballast waters. They were first found in Wisconsin waters in 1990, and are as close as Lake Wisconsin, about thirty miles from Lake Redstone. Let's hope they don't get any closer.

For more information visit <http://dnr.wi.gov/invasives/fact/zebra.htm>. ♦

Lake Redstone Protection District

Protecting and rehabilitating the water quality of Lake Redstone for its residents and the public.

www.lakeredstonepd.org

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Mourning Dove Cleanup Nears Completion

by Cal Brey, Town of LaValle Chair

All the major work to repair last year's erosion damage at Mourning Dove Bay is completed, with just a few finishing touches on the driveway to the landing.

During the storm event of June, 2008, the berm on the edge of the lake that held back the prairie broke, dumping many yards of sand and soil into the lake. This property is owned by the Protection District and has been instrumental in filtering runoff from the 260-acre watershed that feeds into it. Adjacent to this property, the township's patrol boat access point was also destroyed, and the pier and boat lift left buried in sediment.

In addition, the washout created a number of large ditches, exposing many feet of unstable soil and providing it with a direct path into the lake.

The LRPD and the LaValle Town Board decided to join together on the restoration project to bring this area back to its earlier state, and hired General Engineering Company of Portage to develop design options. In August, the groups chose to replace the berm and remove the sediment that had washed into lake and place it back into the prairie, rejecting an alternative which would have merely stabilized the site in its current state.

At the same time, the township would remove the buried lift and pier and rebuild the access to the lake. The new access will be limited to use by the town patrol boat, maintenance, rescue, and the Department of Natural Resources.

Completed in mid-September, the main purpose of the rebuilt berm is to slow any incoming water so that sediments will settle out before they enter the lake. The water needs to be four feet deep in the detention pond before it will pass over the overflow rock chute. It is expected that over time, the sediment pond will fill and need to be cleaned, but hopefully that will be many years down the road.

Both boards feel this is a very beneficial solution to improving and sustaining the water quality on the lake. Our hope is that this berm will last for many years. It is designed to handle a 100-year flood, though hopefully we will never see a rain event of that magnitude again! ♦

CAL BREY



The shore of Mourning Dove Bay shows the damage from 2008's flood (above, below) and the repair work completed in September (bottom right).

ERIK HENNINGSGARD, GENERAL ENGINEERING CO.



The BOT

If you're like most homeowners, you probably never give much thought to what happens when waste goes down your drain. But if you rely on a septic system to treat and dispose of your household wastewater, what you don't know can hurt you. Failing septic systems can lead to the pollution of local wells, streams, lakes, and ponds, exposing family, friends, and neighbors to waterborne diseases and other serious health risks.

The Basics

There are two main parts to the basic septic system: the septic tank and the drainfield.

Household wastewater first flows into the septic tank where it should stay for at least a day. In the tank, heavy solids in the wastewater settle to the bottom—forming a layer of sludge, and grease and light solids float to the top—forming a layer of scum.

The sludge and scum remain in the tank where naturally-occurring bacteria work to break them down. The bacteria cannot completely break down all of the sludge and scum, however, and this is why septic tanks need to be pumped periodically.

The separated wastewater in the middle layer of the tank is pushed out into the drainfield as more wastewater enters the septic tank from the house. If too much water is flushed into the septic tank in a short period of time, the wastewater flows out of the tank before it has had time to separate. This can happen on days when water use is unusually high, or more often if the septic tank is too small for the needs of the household.

When wastewater leaves a septic tank too soon, solids can be carried with it to the drainfield. Drainfields provide additional treatment for the wastewater by allowing it to trickle from a series of perforated pipes, through a layer of gravel, and down

through the soil. The soil acts as a natural filter and contains organisms that help treat the waste. Solids damage the drainfield by clogging the small holes in the drainfield pipes, and excess water strains the system unnecessarily.

Care & Feeding

What you put into your septic system greatly affects its ability to do its job. Remember, your septic system contains living organisms that digest and treat waste. As a general rule of thumb, do not dispose of anything in your septic system that can just as easily be put in the trash. Your system is not designed to be a garbage can and solids build up in the septic tank that will eventually need to be pumped. The more solids that go into the tank, the more frequently the tank will need to be pumped, and the higher the risk for problems to arise.

In the kitchen, avoid washing food scraps, coffee grinds, and other food items down the drain. Grease and cooking oils contribute to the layer of scum in the tank and also should not be put down the drain. Garbage disposals can increase the amount of solids in the tank up to 50 percent and should not be used.

The same common-sense approach used in the kitchen should be used in the bathroom. Don't use the toilet

to dispose of plastics, paper towels, facial tissues, tampons, sanitary napkins, cigarette butts, dental floss, disposable diapers, condoms, kitty litter, etc. **The only things that should be flushed down the toilet are wastewater and toilet paper.**

When used as recommended by the manufacturer, most household cleaning products will not adversely affect the operation of your septic tank. Drain cleaners are an exception, however, and only a small amount of these products can kill the bacteria and temporarily disrupt the operation of the tank.

Household cleaners such as bleach, disinfectants, and drain and toilet bowl cleaners should be used in moderation and only in accordance with product labels. Overuse of these products can harm your system. It makes sense to try to keep all toxic and hazardous chemicals out of

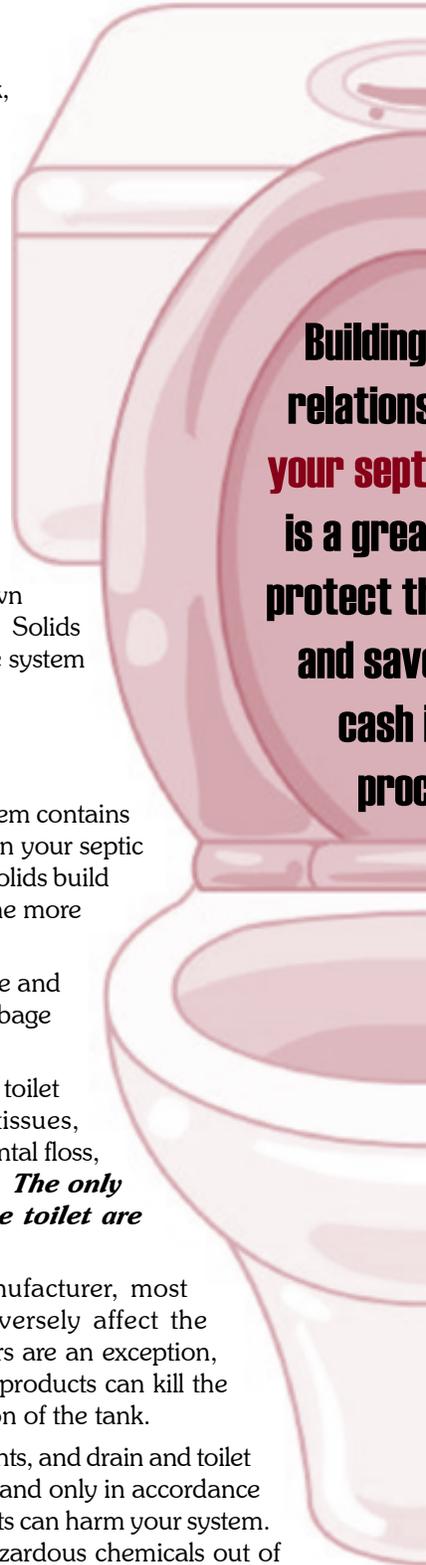


Homeowners should stagger their laundry throughout the week and try to do no more than two wash loads per day.



Looking for a responsible way to dispose of household hazardous waste? The Sauk County Land Conservation Department anticipates having one or two collection dates in 2010. Call 355-3245 for more information. In the meantime, LaCrosse County maintains a hazardous waste drop-off site three days a week, with a nominal charge for use by non-county residents. Details are available at www.co.lacrosse.wi.us/SolidWaste/hhm/index.asp or (608) 785-9999.

**Building
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is a great
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To avoid disrupting or permanently damaging your septic system, do not use it to dispose of hazardous household chemicals. Even small amounts of paints, varnishes, paint thinners, waste oil, anti-freeze, photographic solutions, pharmaceuticals, antibacterial soaps, gasoline, oil, pesticides, and other organic chemicals can destroy helpful bacteria and the biological digestion taking place within your system. These chemicals also pollute the groundwater.

Even latex paint is unhealthy for your septic system. To reduce the cleanup of these products, squeeze all excess paint and stain from brushes and rollers on several layers of newspaper before rinsing.

To help prevent groundwater pollution, be sure to dispose of leftover hazardous chemicals by taking them to an approved hazardous waste collection center.

While many products on the market claim to help septic systems work better, the truth is there is no magic potion to cure an ailing system. In fact, most engineers and sanitation professionals believe that commercial septic system additives are, at best, useless, and at worst, harmful to a system.

Time for a Check-Up

Septic system maintenance is often compared to automobile maintenance, because only a little effort on a regular basis can save a lot of money and significantly prolong the life of the system.

Annual inspections of your septic system are recommended to ensure that it is working properly and to determine when the septic tank should be pumped. Systems that have moving parts may require more frequent inspections. By having your system inspected and pumped regularly, you can prevent the high cost of septic system failure.

A professional contractor can do a thorough inspection of the entire system and check for cracked pipes and the condition of the tees or baffles and other parts of the system. Remember that toxic gases are produced by the natural treatment processes in septic tanks and can kill in minutes. Even looking into the tank can be dangerous. Leave inspections to the trained professionals.

A thorough septic system inspection will include the following steps:

- 1. Locating the system.** Even a professional may have trouble locating the system if the access to your tank is buried. One way to start looking is to go in the basement and determine the direction the sewer pipe goes out through the wall. Back outside, the inspector will use an insulated probe inserted into the soil to locate the buried piping. Once the system components are found, be sure to sketch a map and keep it on hand to save time on future service visits.
- 2. Uncovering the manhole and inspection ports.** This may require some digging in the yard. If they are buried, it will help future inspections if elevated access covers or risers are installed to make it easier to access the ports and manhole.
- 3. Checking connections.** Flushing the toilets, running water in the sinks, and running the washing machine through a cycle will help to determine if the household plumbing is all going to the system and working correctly.
- 4. Measuring the scum and sludge layers.** The inspector will measure the scum and sludge layers with special tools inserted through the inspection port. A proper inspection will also include a visual observation of the scum and sludge layers. If the sludge depth is equal to one-third or more of the liquid depth, the tank should be pumped.
- 5. Checking the tank and the drainfield.** The inspector will check the condition of the baffles or tees, the walls of the tank for cracks, and the drainfield for any signs of failure. If the system includes a distribution box, drop box, or pump, these need to be checked too.

Calling the Pros

How often the tank needs to be pumped depends on the tank size, the number of people living in your home, and the habits of your particular household. Garbage disposals and high water-use appliances, such as a hot tub or whirlpool, also affect the pumping frequency. When it's time to pump, be sure to hire a licensed contractor. He or she will

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Keep a detailed record of all inspections, pumpings, permits, repairs, and any other maintenance to your system, along with a sketch of where your septic system is located. Having this information on hand for service visits can save you both time and money.

Revival Planned for Colorful ‘Meadows’

In the mid-1990s, Bev Vaillancourt and several home-schooled youngsters trekked through the tallgrass prairie of the Badger Army Ammunition Plant, collecting seed for LRPD land at the end of the Mourning Dove cove. With students from Sacred Heart School, they cleared, raked, seeded the land—and hoped for the best. They were assisted by the Sauk County Natural Beauty Council and the LaValle Fire Department, which watered the prairie to give it a good start.

Over the years, Bev brought out her students from the Reedsburg School District, along with a high school science class, and continued to manage the area, burning the prairie to spur new growth. The efforts paid off, and for several years the prairie at “Meronek Meadows” grew tall and filled the point with flowering prairie plants.

Alas, in the last few years, little was done to the Meadows, and it became overcome with scrub trees. However, new efforts are underway to restore the once-colorful prairie. Bev approached the Board in October with a restoration plan that, once again, includes the Beauty Council and student volunteers. Their first job will be to cut and treat the scrub trees so they don’t overtake the prairie again. Then the area will be burned and reseeded in the spring.

Anyone wanting to help should call Bev at 985-8180 for details on a planned work day and additional ways to help with this project. ♦



BEV VAILLANCOURT

Reedsburg-area students clear brush from “Meronek Meadows” at the end of Mourning Dove cove during initial prairie restoration efforts over a decade ago.

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have appropriate equipment and will dispose of the sludge at an approved treatment site. It’s a good idea to be present when your tank is being pumped. Make sure that the contractor uses the manhole, not the inspection ports, to pump the tank to avoid damaging the baffles or tees. Also make sure all of the material in the tank is removed. It is not necessary to leave anything in the tank to “restart” the biological processes, but it is also not necessary to scrub or disinfect the tank.

Pumping your septic tank is probably the single most important thing that you can do to protect your system. If the buildup of solids in the tank becomes too high and solids move to the drainfield, this could clog and strain the system to the point where a new drainfield will be needed.

Inspecting your septic system annually is a good way to monitor your system’s health.

Inspections can reveal problems before they become serious, and by checking the levels of sludge and scum in your tank, you can get a more accurate idea of how often it should be pumped.

Sound septic system operation and maintenance practices include conserving water, being careful that nothing harmful is disposed of through the system, and having the system inspected annually and pumped regularly.

It may be the most overlooked and undervalued utility in your home, but with proper care and maintenance, your septic system can continue to work for you for at least 25 to 30 years. ♦

Adapted from the Fall 2004 issue of Pipeline, published by the National Environmental Service Center (800-624-8301, www.nesc.wvu.edu). Toilet image courtesy of www.DailyClipArt.net.



Protect your septic system from potential damage. Don’t plant anything but grass near your septic system—roots from shrubs and trees can cause damage—and don’t allow anyone to drive or operate heavy machinery over any part of the system. Also, don’t build anything over the drainfield. Grass is the most appropriate cover for the drainfield.

Inaugural Carp Shoot Aims for Clearer Water

by Gary Herritz

With the support of lake residents, the first annual carp shooting tournament on Lake Redstone was held in early June. Even though the daylight portion of the shoot was rained out, teams still managed to harvest over 2,000 pounds of this destructive species in just five hours of nighttime shooting.

Common carp (*Cyprinus carpio*) are native to Asia, and were introduced into Wisconsin waters in 1881. Within two decades, fishermen began to recognize the detrimental effects carp were having on lake ecosystems and other fish populations. Though stocking was discontinued in 1895, carp today are present in 63 of the state's 72 counties, and can be found in nearly every lake in southern Wisconsin. This invasive species is classified as "restricted" by the Wisconsin DNR.

Carp love to roll in the silty bottom of a lake, which kicks up a mucky underwater "dust." This not only blocks sunlight that helps beneficial lake vegetation go through photosynthesis, but also covers up game fish eggs on the nest, robbing them of oxygen and suffocating them.

During the time that the carp are rolling, game fish (i.e. bass, pan fish) are going through the spawn. Predation is bad enough during this period, but the carp create an even more hostile environment. With vegetation stunted because of the lack of sunlight, oxygen levels in the water drop, making sustainable life in shallow areas even more difficult than normal.

"Many fishermen and duck hunters resent the carp. These large, omnivorous fish browse on submerged vegetation—uprooting plants on which ducks feed, muddying the waters and destroying vegetative foods and cover needed by other fish."

-UW Sea Grant Institute



GARY HERRITZ

Removed from Lake Redstone during June's carp shoot, these invasive fish will be used as fertilizer on nearby farms.

I cannot emphasize enough how destructive these fish can be to a nest of eggs: a carp is a bottom feeder with a sucker mouth, so when they want to feed they suck up a bunch of silt off the bottom and spit it back out. Doesn't sound so bad? Imagine a few thousand (50,000 pounds!) of these fish concentrated in the same area all doing this at the same time.

Studies done on a few lakes in Wisconsin (including Lake Wingra in Dane County) have found that reducing the carp population makes the water substantially clearer, and with that comes better plant growth, lower mortality on game fish eggs, and higher oxygen levels in the water to support life.

Although we will never be able to remove all the carp from Lake Redstone, we can keep them in check with yearly shoots, and trigger a chain reaction that will continue to benefit the lake.

The easiest way to harvest these carp is at night, when the fish are less spooky and tend to hang out in shallower waters. Though generators and lights need to be used, we tried to limit disturbance to residents as much as possible by having the shoot on a Friday night and ending it at 1 a.m.

How do we harvest carp? Great question. We use bow and arrows that have a string attached to them to bring the fish in. Although these carp can be quite skittish during daylight hours, they usually have no problem with the noise from a generator or bright

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Take a Stake in Your Lake!

Here are a few simple ways you can help enhance Lake Redstone and protect your property investment:

- **Establish a rain garden;**
- **Use low- or no-phosphate detergents;**
- **Ensure proper maintenance of your septic system;**
- **Keep hard surface on your property to a minimum;**
- **Choose zero phosphorus fertilizer or use no fertilizer at all;**
- **Properly dispose of household hazardous wastes and medicines;**
- **Protect your property from soil erosion by maintaining shoreline buffers;**
- **Keep garden refuse, grass clippings, leaves, pet waste, and campfire ashes out of the water; and**
- **Don't feed the geese.**

You can learn more at:

- www.dnr.wi.gov/lakes
- www.uwsp.edu/cnr/uwexplakes/
- www.wisconsinlakes.org/

Lake Redstone

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halogen lights in their eyes. Once a fish is positively identified as a rough fish, the bow is drawn back and the arrow is released, hopefully finding its mark somewhere on the fish. The string is attached to a reel and the fight begins; most of the time the bow is set on the deck of the boat, and the hands are used to bring in the catch.

We have found some local farmers are interested in using the fish as fertilizer, so that even these rough fish are not wasted.

The biggest carp harvested during the shoot was 24-½ pounds and almost 3 feet long, with many others coming in over the 20-pound mark. This size of fish can wreak havoc on a small ecosystem like Lake Redstone, so with your support we will continue to have the shoot in the spring. The Lake Redstone Property Owners Association and Wisconsin Bowfishing Association partnered in this inaugural event, and we hope for their cooperation in the future. ♦

Gary Herritz owns LaValle Outdoors and welcomes your questions at 608-985-8448 or gary@lavalletrophytackle.com.

Drive Mellow when the Water Reaches Yellow!

During the past year, depth gauges at both the north and south ends of Lake Redstone have been recalibrated. During major storm events, water levels will be monitored at both ends to advise the Town of LaValle and the Sauk County Sheriff's Department in determining when to declare all of Lake Redstone as SLOW/NO WAKE area.

In addition, in an effort to make everyone aware of when the lake water level is approaching the point of concern, yellow lines have been painted on the pavement of the boat landings. When the water reaches those lines, the entire lake should be considered as SLOW/NO WAKE.

Phosphorus Study...continued from page 1

- Mapping of sediment conditions to determine where alum treatments might be effective at binding mobile phosphorus and preventing it from re-entering the water;
- Increasing the frequency of lake data collection to twice per month and raising the number of variables recorded;
- Collecting data from multiple sources along East Big Creek and West Big Creek to better understand where LRPD efforts should be focused; and
- Evaluating the economic and technical feasibility of installing one or two alum inflow treatment facilities on East and/or West Big Creek.

"The 1997 report gave us great insight into the condition of Lake Redstone's water at that time," said LRPD Secretary Warren Frank. "In coming months, the Board will consider Barr's findings and define a plan to take advantage of what we have learned to guide future efforts."

The complete report may be viewed at www.lakeredstonepd.org/studies/. ♦