

Are you a rural landowner with wetlands on your property? As an owner of agricultural and wetland property in the Lake Ripley Watershed, you are likely to qualify for funding that can help you enhance wildlife habitat or private hunting opportunities. This includes attractive financial incentives through the voluntary Wetlands Reserve Program (WRP), which is administered by the U.S. Department of Agriculture's Natural Resources and Conservation Service. Additional cost-share incentives may be available through the Lake District.

- Restoration of farmed or drained marshes
- Wildlife cover plantings along streams and ditches
- Creation of wetland "scrapes" (shallow ponds)
- Repair and stabilization of eroding drainage ditches
- Voluntary land-protection agreements

Landowners who enroll in the WRP can choose from three participation options:

Option 1 is a cost-share agreement with a minimum 10-year duration. This choice provides funds to protect or enhance wetlands, but does not require the landowner to enter into a property easement.

Option 2 is a 30-year easement where the WRP pays most or all of the restoration cost, as well as an additional easement payment.

Option 3 is a permanent easement. Like the 30-year easement option, the WRP pays for most or all of the restoration costs, and an additional easement payment. Unlike the 30-year easement, this choice requires the landowner to put permanent limitations on the use of the property that will survive even when the land changes hands. The permanent easement payments are larger, and are based on the Geographic Area Rate Caps of the county in which the property is located.

The WRP is a great choice for landowners who are interested in habitat restoration and own property with a low agricultural yield due to wet soil conditions. More information can be found on your local NRCS website, or call the Lake District at (608) 423-4537. ♦



Source: www.wi.nrcs.usda.gov

Ripples
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FROM THE HELM



Summer gives way to fall as boats and piers come off Lake Ripley. The lake is at peace with only visiting flocks of waterfowl breaking the silence. It will rest until the ice forms a stage for winter activities. Even with the arrival of ice fishermen, ice skaters and snowmobilers, the level of winter activity hardly compares to the historic harvesting of ice during the late 1800s prior to mechanized refrigeration. If you are interested in this topic, there are several good books available at the Wisconsin Historical Society library, and a very interesting exhibit at the Neville Public Museum in Green Bay.

As boatlifts and piers get removed from the lake, you may have noticed less evidence of zebra mussels. Only a few years ago, we were scraping encrusted metal to remove what seemed like millions of these invasive species. From 2005, when we first discovered zebra mussels in Lake Ripley, until they peaked a few years later, what has changed? Where did they go? Are they gone forever?

Although the research is limited, there are several theories on what may be happening. One explanation is that the massive population of mussels ate themselves out of their food supply of suspended algae and plankton. This theory was supported by the exceptional water clarity this summer. Because zebra mussels originate from the cooler Caspian Sea area, another theory is that the drought and heat raised water temperatures to a point that the mussels were less able to tolerate.

We know that zebra mussels still remain in the lake, but their populations will be determined by available food sources and other environmental factors. We will continue to monitor these and other aquatic invasive species in Lake Ripley, and encourage you to help prevent their spread to other waterways that are not currently infested. You can do this by cleaning your boating equipment before visiting other lakes, properly disposing of unused bait, and by never releasing aquarium fish, plants or insects into any lake or stream.

John Molinaro, Chair

Drought Leads to Record Harvesting

Last year we witnessed one of the mildest winters on record. Not to be outdone, this past spring and summer also found their way into the record books with oppressive heat and the most severe drought we've seen in the last 50 years. These abnormal weather patterns conspired to lower lake levels 1.5 feet below normal. Elevated water temperatures, reduced lake depths, and gin-clear water generated a bumper crop of aquatic plant growth that kept our diligent harvesting crew literally scrambling in a valiant effort to keep up.



As seen from the operator's perspective, floating mats of aquatic vegetation get gobbled up by the mechanical weed harvester. Photo: Ed Grunden.

Continued on next page >>

Cutting started in earnest around the first of June and never relented until the equipment was removed in late September for end-of-season maintenance and repair. Looking back, there is no doubt that this summer's harvesting intensity reached unprecedented levels, even rivaling the late 1980s when a Eurasian watermilfoil infestation nearly took over the lake. While the latest inventories continue to show a healthy and remarkably improved aquatic plant community, they offer little solace to those who must contend with untangling clogged boat motors or raking up floating mats of plant debris.

Consistent with prior years, East (Inlet) Bay produced the densest growth of the undesirable milfoil, demanding at least half of our total estimated cutting time. It was not unusual for the harvester to collect a full load in this perennially weed-choked location after a mere 25 minutes of cutting. It does this through a system of reciprocating blades and conveyors that can efficiently cut and collect anything growing within 5.5 feet of the water surface. To see a short video on harvesting, go to www.lakeripley.org.

The remainder of our cutting time was spent clearing boat-lane from piers to deeper, open-water areas. Work involved trimming back not only milfoil, but also dense stands of our native sago pondweed (pictured above) that were getting chopped up by waves and boat propellers along the north, east and southwest shorelines. While sago pondweed (*Potamogeton pectinatus*) is not typically targeted for control, it did prove necessary as thick surface growth threatened to take over busy traffic corridors. Whenever practical, the harvester was also used to collect floating mats of vegetation that was otherwise destined to blow into shore.

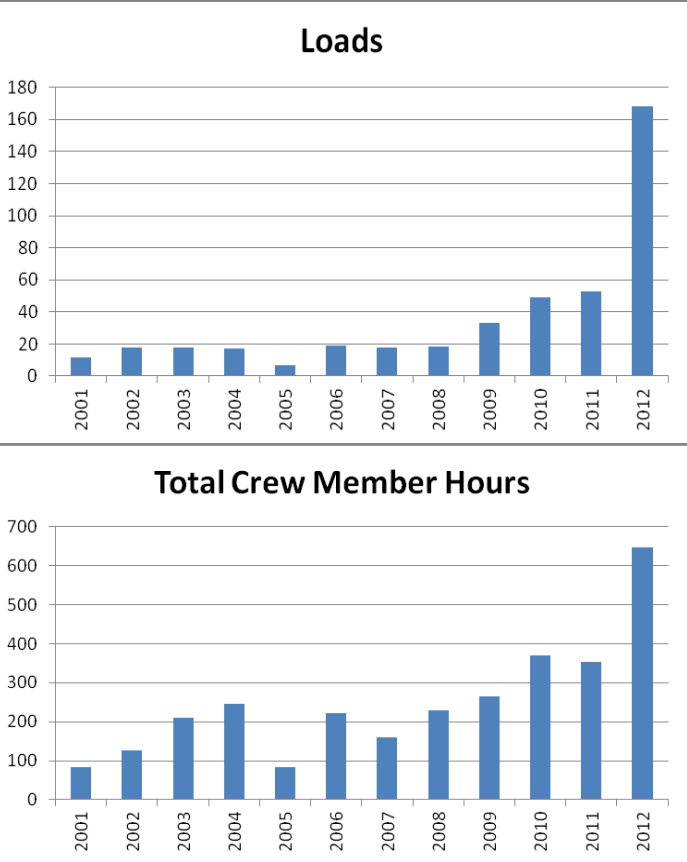


We applaud our crew of part-time operators—most of whom own property on the lake—for their dependability, proficiency and long hours working in the broiling summer heat. Typical operating hours were roughly 8:00-1:30 Monday through Friday, with an average haul approaching five loads per day. In total, an eye-popping record of 168 dump truck loads of plant material were removed from the lake!

All cutting was completed by two-person operating teams working in water depths of no less than 3.5 feet, namely to prevent damaging the equipment and unnecessarily stirring up the lake bottom. This left many shallow areas inaccessible to the harvester.

Collected plant material gets transported to an off-loading site near the public landing, loaded into a dump truck, and taken to a farm for composting.

Of this year's roughly \$13,500 in harvesting-related expenses, 62% went to wages, and 31% went to fuel, supplies and repairs. The remaining 7% went to renew a 5-year harvesting permit, and to rent the Hoard-Curtis Scout Camp as a base of operations. ♦



The above charts provide year-to-year comparisons since 2001. **Top chart:** One load is equal to the amount of wet plant material that can completely fill the weed harvester and a dump truck. **Bottom chart:** Crew hours reflect two-person operating teams, and include training, cutting, off-loading, dumping, equipment maintenance and repair time. Actual on-the-water cutting time represents about one-third of the total, but can vary depending on the density and location of plant growth and equipment-repair needs.



Left: A load of cut plant material gets off-loaded from the back of the harvester and into a dump truck next to the public boat landing. **Right:** A load of harvested lake weeds are dumped at a nearby farm for composting. Photos: Ed Grunden.

The Lake District Board consists of seven commissioners who meet on a monthly basis, volunteering their time, talents and unique perspectives as representatives of Lake Ripley-area property owners. Five board members are elected to three-year terms and must own property within the District. The other two serve as appointed Town and County Board representatives.

Starting with the two individuals featured below (others to follow in future editions of *Ripples*), we invite you to get to know the people who so generously donate their time on behalf of the District. If it's true that strength comes with diversity, you will soon discover that we are in good hands with this passionate and eclectic mix of devoted trustees.

Georgia Gomez-Ibanez has lived near ponds, lakes, wetlands, creeks and rivers all her life. Interest in these ecosystems is what brought her to serve on the Lake District Board, starting in 2007. She has put her knowledge of restoration and stewardship of prairies and woodlands to work in the Lake District Preserve.



Georgia volunteers full-time at Cambridge Elementary School, engaging students in environmental education activities in the school woods and prairie. She lives at the western edge of the Lake District near Cambridge High School as a full-time resident.

Walt Christensen retired from his day job this year after many years working as a mechanic at Ford dealerships. He was born in Billings, Montana, but grew up in Racine and Kenosha. Walt is a Vietnam-era veteran and has a B.A. in Art from U.W. Parkside. He served two terms on the Town of Koshkonong Board of Supervisors (1997-2001), and is currently serving a third term on the Jefferson County Board of Supervisors.



In addition to his 2008 appointment to the Lake District Board, he chairs the Jefferson County Land and Water Conservation Committee and is on the board of the Community Action Coalition of South-Central Wisconsin. Walt's interests include motorcycling, hiking, art, reading, managing wildlife habitat, and working on his home and property in Fort Atkinson. ♦

Additional \$1,600 Awarded

Woodland-restoration activities planned for the Lake District Preserve just received another boost, thanks to \$1,600 in additional County Conservation Aid. This brings our grant total to almost \$12,000, or about half of the three-year cost estimate. Work is set to begin this winter.

Here Fishy, Fishy...

As previously reported, Lake Ripley's nearshore, non-game fish populations were evaluated earlier this year. One of the main objectives was to determine the status of several environmentally-sensitive and rare fish species. The following link provides fascinating background on how and why this study came to fruition: <http://dnr.wi.gov/wmr/mag/html/stories/2005/feb05/shore.htm>.

Findings suggest that several species have likely disappeared from Lake Ripley since 1975. With improved water quality, the question remains if these species can be successfully re-established. A \$3,000 Wisconsin DNR grant has been awarded to help answer that question.

Meanwhile, waterfront property owners can help create the conditions necessary for their survival: 1) maintain or restore natural plant cover at the lakeshore; 2) avoid over-raking aquatic plant beds around piers and beaches; and 3) leave fallen trees as valuable shoreline habitat.

Lawn Fertilizers Back in the News

Starting in 2013, the North American Lake Management Society reports that Scotts Miracle-Gro Company will only sell phosphorus-free lawn fertilizer products in the U.S. The movement to eliminate the excessive use of phosphorus on lawns, which contributes to poor water quality when it enters surface waters, is slowly growing across the country. There are approximately 50 million acres of turf in the U.S.—and area roughly the size of New England. In Wisconsin, the sale and use of phosphorus lawn fertilizers is prohibited except in limited circumstances.

Willerup Bible Camp Seeks Assistance

The Willerup Bible Camp on the west shore of Lake Ripley will be raising funds to protect and naturalize more than 350 feet of shoreline. Contact Perry Oates (608-228-4952) to learn how you can support this ambitious effort.

During the fall, it is not uncommon to find large mats of aquatic plants accumulating along shorelines. Many of these plants appear to have been uprooted. This is especially true of our native **EEL GRASS**, or water celery (*Vallisneria americana*).

Anglers can usually tell you where to find stands of eel grass. They create good fishing spots by providing cover for the forage fishes pursued by big bass and walleye. The plant beds form safe havens for forage fishes, breeding substrate for fishes that lay eggs during the spring, and areas where herbivores can find the bacteria and algae on which they feed. The plant beds also help to support zooplankton and other organisms that are important to the food web.



The ribbon-like eel grass. Photo: Jeanne Scherer

In many lakes, eel grass stands occur in up to 15 feet of water but rarely reach the lake surface. The exception is in late summer when they extend their corkscrew-like reproductive structures above the water surface, and in early fall when the plants themselves release from the lake bottom and float to the lake surface. Hence, the somewhat surprising appearance of these floating masses in the fall can be a source of consternation to lake users and residents.

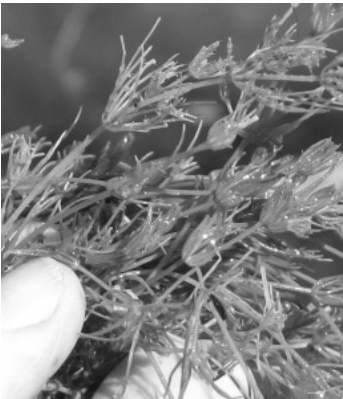
Fear not! This uprooting is part of the natural reproductive cycle of eel grass. During the summer, the plant stores starches and other nutrients within its root system in the bottom of the lake. This provides for the next year's growth and forms a food source to allow the plant to overwinter.

Late in the growing season, the green part of the plant has done its work of converting sunlight and nutrients into the starches that have been stored in the root system. So, with the typical efficiency of the natural world, the green portion of the plant is set free, accumulating at the lake surface as one of many "floaters." As the plant senescens and decays, many of the nutrients that were contained in its cells are released back into the water. By raking the plants from the water's edge, we can take advantage of the nutrients released from the plant cells as well as the water and organic material contained in the plants as compost.

In most years, this release of eel grass from the bottom of our lakes is a harbinger of cooler weather and a signal that summer is drawing to a close!

-Environmental Horizons, Inc., 09/30/12 E-letter

CHARA (*Chara vulgaris*) is commonly known as Muskgrass due to the strong musky odor it emits when crushed. Light green in color, chara may grow several feet long and resemble larger aquatic plants, but it is actually an algae. It feels somewhat rough and prickly to the touch.



Native to most of the U.S., chara is usually found in clear, hard water (high in dissolved calcium carbonate), and prefers either muddy or sandy substrate. It grows entirely below the water surface and can often be found in deeper water than other plants. Chara begins growing when the water warms in the spring and continues through the fall.

Chara stabilizes sediments by forming a protective carpet on the lake bottom, and provides food for waterfowl and cover for fish. It also supports insects and other small aquatic animals which larger fish rely on for food. It is often one of the first species to colonize open areas and is frequently found growing with pondweed and eel grass.

-Aquarius Systems, 10/20/12 E-letter

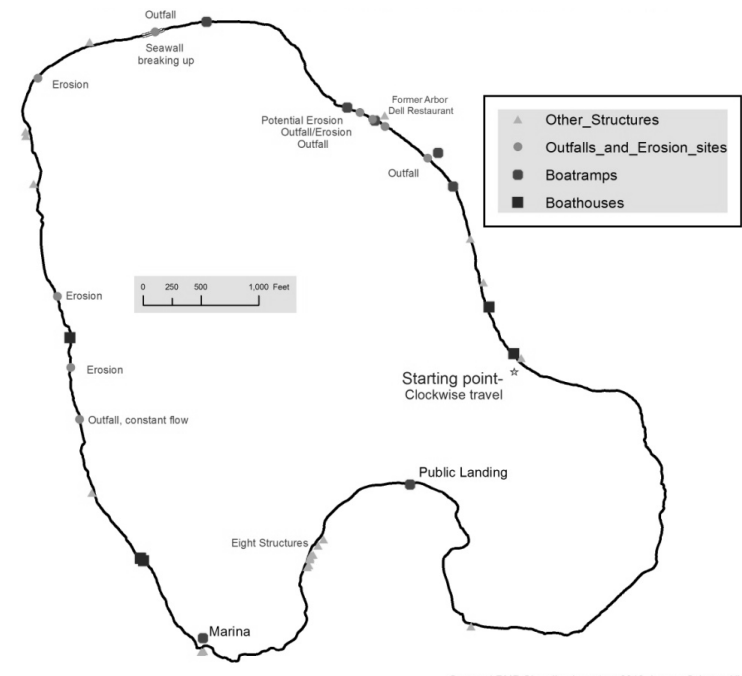


Milfoil weevils feeding on Eurasian watermilfoil. Sources: Enviroscienceinc.com and Michiganlakeinfo.com (right)

The **MILFOIL WEEVIL** (*Euhrychiopsis lecontei*) is a small, herbivorous aquatic beetle that feeds on milfoil plants. Through their selective feeding habits, weevils act as effective, biological weed-control agents. In the fall, adults migrate to well-vegetated lakeshores where they overwinter in organic matter. ♦

In August, an investigation was conducted to document the general condition of Lake Ripley's four miles of shoreline. This involved evaluating habitat, bank stability, and development characteristics within areas located 35 feet of the lake edge. The resulting information is being used as a baseline to: 1) identify current concerns and improvement opportunities, and 2) track changes in lakeshore conditions as they evolve over time.

The map below illustrates a few of the many points of interest that were identified. Points of interest within the area of focus included wet boathouses (9), buildings (19), boat ramps (7), stormwater outfall pipes (4), and signs of obvious shore erosion. Compared to 1993 when 31% of the total lakeshore exhibited moderate to severe erosion, very few erosion problems still remain. Since that time, 6,261 feet (1.2 miles!) of eroding shoreline have been repaired through Lake District grants and project assistance.



One of the most developed shoreline segments on the lake had hard, water-impervious surfaces comprising over 50% of the 35-feet-from-shore study area. For all of Lake Ripley, about 13% of the total shoreline was at least 25% covered with hard-surface development (patios, driveways, etc.). To counteract these high-runoff impacts, the Lake District offers grants to help landowners incorporate lake-friendly rain gardens and shoreline buffers into their landscaping.

The suburban lawn was well represented around Lake Ripley, with 30% of the total shoreline having at least 50% turf within 35 feet of the lake edge. More

natural and heavily-vegetated lakeshores critical to good lake health represented about 36% of the overall shoreline. Looking strictly at the shoreline edge, about 46% of Lake Ripley is lined with rock or seawall, 36% remains in a natural state, and 18% is comprised of sand beaches, boat ramps and wet boathouses.

Within Lake Ripley's 35-feet-from-shore aquatic zone, about one-quarter of the shoreline had little evidence of rooted aquatic plants growing near shore. This was likely due to unfavorable substrate human factors like sand dumping and raking. Most of the habitat-deficient areas were found next to sand beaches, and in scattered locations along the northwest and east shorelines. Conversely, just over half the shoreline supported moderate to high levels of rooted aquatic plant growth, especially in the two bays. Waterfront owners who enjoy fishing and seeing a diversity of lake life will benefit from leaving aquatic plant beds next to piers as fish cover. ♦

Lakeshore edge	% of Shore
Mostly rock or seawall	46.1%
Mostly natural vegetation	36.4%
Sand, boat ramps, boathouses	17.5%

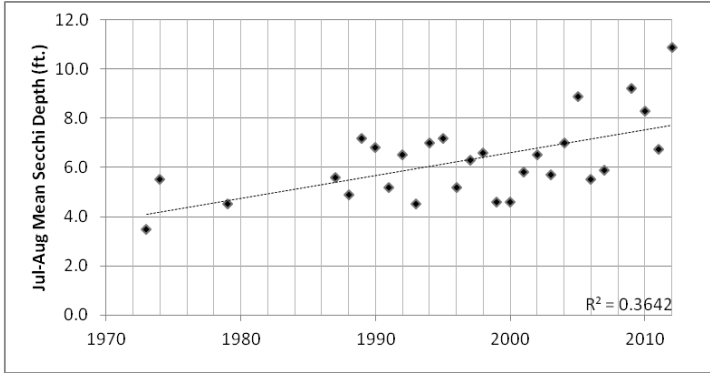
Land cover (35 ft. of lake edge)	% of Shore
Mostly lawn	30.1%
Mostly natural, non-turf vegetation	39.9%
Hard surfaces > 25%	12.8%

Shoreline vegetative buffers*	% of Shore
Mostly lacking a buffer	37.2%
Mostly a small buffer (4-10 ft. width)	11.2%
Mostly a moderate buffer (10-20 ft. width)	6.0%
Mostly a heavy buffer (> 20 ft. width)	40.6%

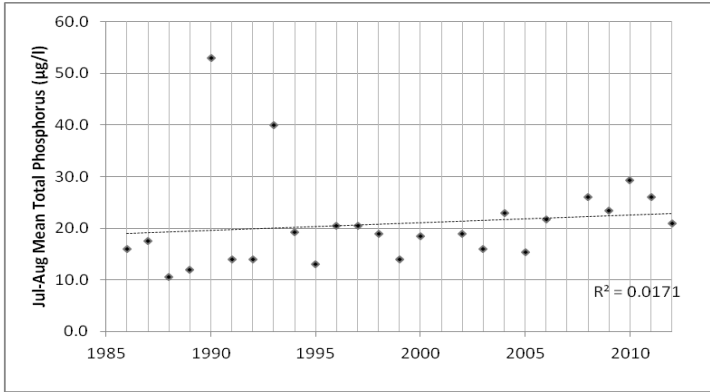
* Buffers = dense, non-turf vegetation parallel to and contiguous with the shoreline that offers habitat and water quality benefits

Aquatic plant coverage (35 ft. of lake edge)	% of Shore
None	24.8%
Low (< 25% of lake bottom)	21.1%
Moderate (25-75% of lake bottom)	20.1%
High (>75% of lake bottom)	34.0%

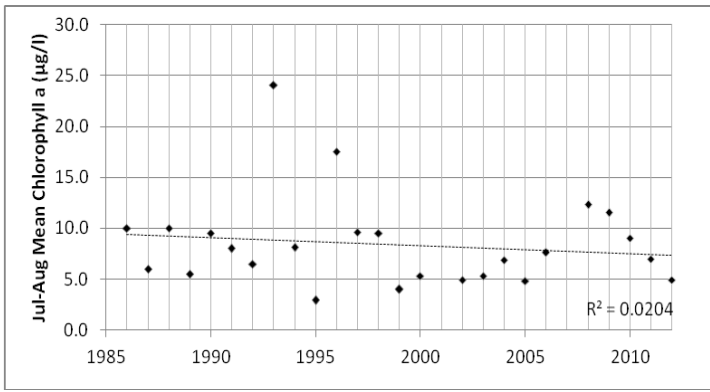
Making sure that Lake Ripley stays clean and safe is our top priority. By tracking certain water quality variables over long time periods, we are better equipped to identify real trends and diagnose emerging problems. Below are the results of long-term-trends monitoring associated with three key variables: water clarity (measured as Secchi depth from the lake surface), phosphorus (the nutrient responsible for algal blooms), and chlorophyll-a (an indicator of algae in the water). Taken together, these variables provide good snapshots of how the lake is doing, and how conditions are trending over time.



Above left: Average summer water clarity has been trending up, which is welcome news for Lake Ripley. Our goal is to maintain mid-summer water clarity of at least 6.5 feet. While the average summer clarity for 2012 was an exceptional 10.9 feet, the average over the last four decades has been 6.3 feet. Among the factors that have been shown to *reduce* water clarity include: 1) polluted stormwater runoff, 2) boating activity that stirs up the lake bottom, and 3) waters that are high in phosphorus. **Above right:** Based on clarity alone, the lake is trending favorably from a “eutrophic” to “mesotrophic” condition. Eutrophic lakes are very fertile with lots of algae and poor water clarity. They are the opposite of oligotrophic lakes, which are very clear and nutrient-poor. Eutrophic lakes are more common in the southern part of the state where watersheds contain higher-phosphorus soils. A reasonable goal for Lake Ripley is to maintain a Trophic State Index (TSI) value under 50, which puts the lake in the mesotrophic category, or a condition that is between eutrophic and oligotrophic.

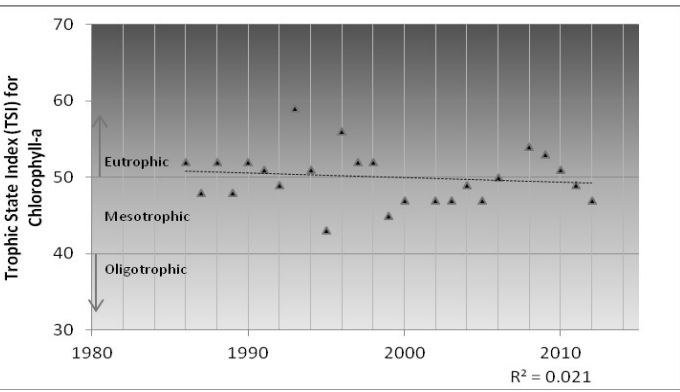
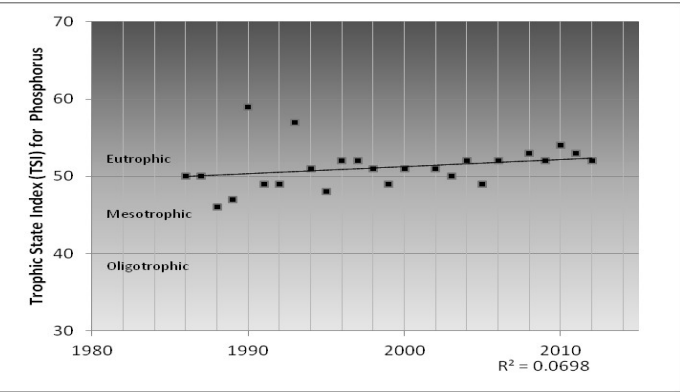
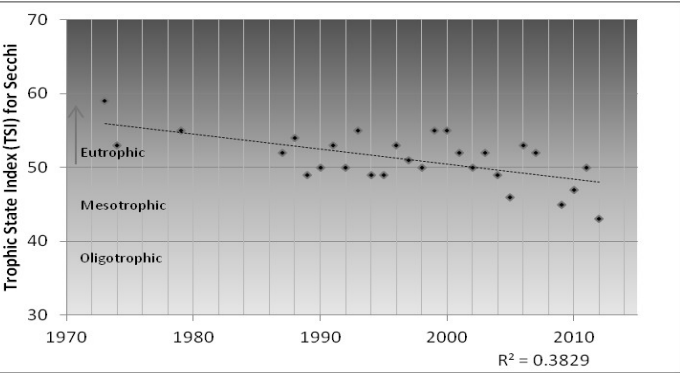


Above left: Phosphorus levels appear to be trending ever-so-slightly higher over time, which is a concern. More recent spikes are likely due to the lingering effects of 2007 and 2008, which were high-runoff “flood” years. Our goal is to maintain mid-summer phosphorus concentrations below 24 µ/L. The 21.0 µ/L average summer phosphorus level for 2012 was essentially equal to the historic average of 20.9 µ/L. Higher phosphorus levels are generally the result of activities on the surrounding landscape that increase soil erosion and the delivery of nutrient-rich material to the lake. **Above right:** Based on phosphorus alone, the lake is trending weakly from a slight “mesotrophic” to a slight “eutrophic” condition. A realistic goal for Lake Ripley is to maintain a Trophic State Index (TSI) value of less than 50. Based on these data, more needs to be done to eliminate sources of phosphorus to the lake.



Above left: Chlorophyll-a levels appear to be holding steady or trending ever-so-slightly lower, which is good news for the lake. A realistic goal is to maintain mid-summer chlorophyll concentrations below 7.3 µ/L. While the average summer chlorophyll level for 2012 was a low 4.9 µ/L, the historic average has been 8.4 µ/L. Lower chlorophyll levels are associated with less suspended algae in the water column. **Above right:** Based on chlorophyll alone, the lake is trending favorably from a slight “eutrophic” to a slight “mesotrophic” condition. A realistic goal for Lake Ripley is to maintain a Trophic State Index (TSI) value of less than 50.

2012 was a great year for high clarity and low bacteria. A lack of runoff-producing rain does have its benefits! ♦



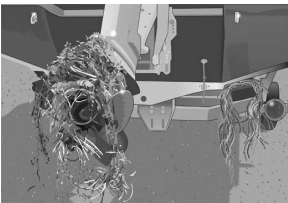
1 Adopt a public shoreline or rain garden. The recent drought took its toll on the Town of Oakland's shoreline restoration (corner of Beach Lane and Ripley Road) and town hall rain garden. Although most of the prairie plants survived the brutal temperatures thanks to their deep roots and natural drought tolerance, many still took a beating. The loss of plant cover creates bare soil and increases the chance for erosion and weed infestations. If you enjoy gardening, help is needed to keep these public spaces in top shape. This includes hand-pulling weeds, cutting back dead vegetation, planting wildflowers, and harvesting fall seeds.



2 Join the Friends of the Preserve. The Lake District Preserve's 167 acres of rolling prairies, woodlands and marshes provide an endless source of natural beauty and community pride. Sign up to help control garlic mustard; clear trails of downed trees; monitor wildlife; clean nesting boxes; maintain information kiosks; plan educational events; collect prairie seeds; support fundraising efforts; and assist with prescribed prairie burns.



3 Be a “Clean Boats, Clean Waters” volunteer. Each summer, countless boaters travel to Lake Ripley and launch at the public landing. Many boats are used on multiple waterways, and risk spreading aquatic invasive species (AIS) between lakes. As a volunteer, you can help raise boater awareness of AIS threats, and demonstrate how simple precautions can prevent an infestation. This includes briefly greeting boaters at the public landing, handing out AIS information, and assisting with the inspection of boating equipment.



4 Contribute photos and stories for Ripples and Facebook. Do you have a good picture to share or story to tell? Is there a Lake Ripley topic you would enjoy researching and writing about? If so, consider submitting your photographs, intriguing lake trivia, or special-interest articles. We will make



every effort to include them as future newsletter articles, Facebook postings or newspaper publications.

5 Serve on our citizen audit team. It only happens once a year, but it's an important job that saves the Lake District thousands of dollars in professional auditing fees. While a financial or accounting background is a plus, the only requirement is an attention to detail. Citizen auditors meet for two hours in the summer with our board treasurer to verify the accuracy of the prior year's financial records. This includes cross-checking receipts with reported expenditures. It may not be glamorous, but it's a great way to learn more about Lake District operations while providing a valuable community service.



6 Become a lake monitor. Measuring changes in water quality, lake levels, boating activity and other conditions helps us better understand the lake, identify concerns, and evaluate the effectiveness of management initiatives. Ideally, interested volunteers will have access to a boat and can get out onto the lake at least twice per month from May through September. We provide all the equipment and training.



7 Register to attend an educational event. The Lake District routinely hosts seminars and community workshops covering a variety of themes: family “Discovery Days” at the Preserve; how to build your own rain garden; native plant sales; lake tours; and facts about aquatic plants and algae.



On May 18th, John J. Gishnock III, owner of Formecology LLC, will lead the next seminar on sustainable landscaping and shoreline enhancement. This free, two-hour event will be offered at the Oakland Town Hall starting at 10:30 a.m. to pre-registered participants. Call (608) 423-4537 or email us at ripley@oaklandtown.com to reserve your spot. To vote on future topics and formats, go to www.lakeripley.org to participate in our online, instant opinion poll.

If any of these activities sound appealing, contact us at 608-423-4537 or ripley@oaklandtown.com to inquire about how **you** can get more involved. ♦