

Pier Pressure Confusion With Pier Rules

The past two decades have brought an incredible surge in growth to the shores of Wisconsin lakes...more homes, more piers and more boats. Some lakes are literally ringed with piers; two lakes in central Wisconsin with a total size of 110 acres had 362 boats moored to their piers. At one site with an extensive wetlands shoreline, the pier extends over 660 feet to reach navigable waters.

Piers are a key component of our lake landscape and anything that may affect them gets our attention. In between boating, fishing, swimming and dodging raindrops this year, you may have had a chance to read the local newspaper. If so, you've probably seen some reports on Wisconsin's pier rules and you may be wondering "how does this affect me and my pier?"

What's been happening?

Recent changes in the way the piers are regulated started with the adoption of Act 118, a Wisconsin law that went into effect in February 2004. Act 118 created some specific new exemptions in chapter 30 of the Statutes, allowing a number of waterway alterations, including placing a pier, to occur without a DNR permit.

The new pier exemption in section 30.12 of the Statutes allows each pier to be up to 6-feet

wide, extend out to the 3-foot water depth or the length necessary to dock your boat. You are allowed to have up to 2 boat slips for the first 50-feet of your shore frontage, and one for every 50 feet after that. If you've ever read DNR's brochure *Pier Planner* (http://dnr.wi.gov/org/water/fhp/waterway/permits/pack07.pdf), this should sound very familiar. The same dimensional guidelines found in the brochure for the past 13 years are now in the statute.

You may ask, "what if my pier exceeds any of those dimensions?" DNR attempted to address that question with an Emergency Rule NR 326 which was adopted by the Natural Resources Board in April to help interpret and implement the new statute. The Emergency Rule NR 326 also made use of a second exemption provision in the statute to allow some flexibility in those dimensions, and created a general permit for pre-existing piers that were a little wider and had a couple extra boats. Misunderstandings and misleading information about the emergency rule led to confusion about the Emergency Rule, and the Legislature's



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Wisconsin Lakes Partnership



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Joint Committee on Review of Administrative Rules suspended Emergency NR 326 after a hearing in Minocqua on June 24.

Where do we go from here?

For this summer, nothing has really changed. If you follow the guidelines and regulations described in the Pier Planner, your pier should be fine. The previously-existing NR 326 rule is still in effect, and solid piers or those with a larger number of boats such as marinas continue to require a permit.

With the *Pier Planner* guidelines now in statute, DNR is working quickly on permanent rule revisions that can go into effect before the 2005 season. The goal of permanent rulemaking is to establish pier standards that will clarify exemptions, speed permitting, and protect the environment. An advisory group began meeting in late July to review DNR's proposed rule changes, and will suggest improvements or alternatives for how pier regulation should function in Wisconsin.

Opportunity Knocks

You can play a role in shaping Wisconsin's pier regulations for the long term. Before the summer is over, take a look around the lakes and rivers you enjoy using. Think for a moment about how you want those shore lands to look 10, 20, 30 years from now.

How would you suggest we balance each waterfront owners' right to place a pier and enjoy their shoreline, while protecting the habitat and natural scenic beauty for future generations? What should be the maximum size limit for piers to be exempt, or to qualify for a permit? Should new piers be treated differently than existing piers? What kind of pier development should require a permit or a public notice, and opportunity for comment? Are there locations where a pier should not be allowed at all to protect sensitive habitat? Are there new trends with waterfront use that we should anticipate in pier rules? How much is enough?

Now take another moment, and turn your answers to those questions into input. DNR wants ideas to help develop common-sense permanent pier rules – rules that are easy to understand, and rules that protect the habitat and beauty of our lakes and streams. DNR will hold open houses and public hearings this fall at several locations around the state - watch your local newspaper, Lake Tides, and the UWEX Lakes or DNR websites to find out where, and to learn more about how you can submit written input or speak at the hearings.

by Liesa Lehmann Statewide Waterway Policy Coordinator Wisconsin DNR

Get Involved

For more information on piers, go to DNR's home page at www.dnr.wi.gov, and choose the topic "Waterway and Wetland Permits." You'll find further detail on how piers are regulated today, and what's proposed for the future.

As of July 1, you can comment online to state administrative rules like Act 118. Go to http://dnr.wi.gov/org/water/ fhp/waterway/publichearings.shtml for details.

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A Case for Leaving Trees in the Water

Being neat is considered an admirable attribute by many mid-westerners. We manicure our lawns and flower beds and are constantly working to spruce up the lake home. You may have observed that we take this ethic to our lake shores which are becoming increasingly "domesticated." We "clean up" the shore and make it nicer for boating and swimming by removing the trees and woody debris that have fallen into the lake on our frontage. But wait a minute...is there a down side to pulling trees out of the lake? Lake Tides first visited this subject in its summer 2002 issue. We discovered that some of those trees may have been there for as long as 600 years and had become a vital part of the lake ecosystem!

Researchers call these sunken and halfsunken trees and brush that provide refuge to fish and other critters, "Coarse Woody Habitat" (CWH). Researchers are currently taking a close look at the ways the removal of downed trees in and near the water influence our fisheries and lake ecosystems. Results demonstrate that lakeshore development may have an indirect, but profound influence on fish communities and food web structure. Overall, CWH removal may be detrimental to many members of aquatic ecosystems which rely on CWH for habitat, including plants, amphibians, reptiles, birds, and mammals.

The Perfect Lake

So how can we confirm that taking trees out of a lake has consequences? Researchers simulated one consequence of human lakeshore development by removing the CWH from a lake to see what would happen. Little Rock Lake in Vilas County proved to be a perfect candidate to help look at the influences of the removal of trees from a lake. Little Rock is undeveloped, unfished, and divided into two basins. This allowed one basin for removal of CWH and one basin to be left untouched for comparison. In July of 2002, more than 75% of the CWH was removed from one of the basins of Little Rock. Researchers wanted to

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Results suggest that removals of CWH and aquatic plants have profound influences on fish predator-prey interactions.



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examine the influences of CWH removal on fish growth, spawning behavior, fish abundance, fish predator-prey interactions and methyl mercury concentrations in fish.

Fish growth and food web responses

The role of CWH in the food webs of lakes and the effects of CWH removal on fish growth and production are not well understood. Prior to CWH removal, the food webs in both basins of Little Rock were functionally similar; largemouth bass ate yellow perch and yellow perch ate aquatic insects. Perch disappeared from the diets of the bass in the basin without CWH in 2003, but remained the dominant prey item in the basin where no trees were removed. The results of the experiment indicate that as the number of trees in the water decreased, fish

switched to alternative food sources coming from the land, not the water. Land creatures such as insects, mice, snakes, and frogs started to play a greater role in fish diets. This occurred because the supply of perch and aquatic insects was reduced by loss of habitat and bass

predation, representing a major change to the food web of Little Rock Lake. The magnitude and rates of change in the food web of the basin with trees removed were greater than those observed in the other basin which was not disturbed.

The structure provided by downed trees in the littoral zone helps to separate predator and prey populations in natural lakes. Results suggest that removals of CWH and aquatic plants have profound influences on fish predator-prey interactions. Prior to the removal of trees, yellow perch were abundant in both basins and stayed in shallow refuge areas to avoid predation from largemouth bass. After the trees were removed, only perch were found in near shore habitats, bass tended to move into the lake's open waters, called the "pelagic zone." Bass growth (body condition, average size at age, size-specific growth rate) decreased following CWH removal, as predicted.

Yellow perch abundance declined in both basins between 2001 and 2003; however, rates of decline were greater in the basin where CWH was removed. Results indicate that yellow perch populations can be severely reduced and potentially eliminated when populations are at low periods of abundance, predator densities are high, and littoral refuge offered by trees is absent.

Increased mercury in fish

Even though there are worldwide decreases in atmospheric mercury (Hg) deposition, lake sediments may still contain large amounts of mercury left over from the days of greater deposition. The CWH found in the littoral zone traps sediments, and therefore, mercury. Researchers hypothesized

physical removal of CWH would increase waterborne methyl mercury (MeHg), which could be incorporated into lower trophic levels of the food web, and be seen as elevated MeHg in fish tissue. Surface water MeHg increased threefold following the CWH removal on Little Rock Lake. Assuming that the pulse of MeHg observed in the water column reached the aquatic food web, modeling simulations predicted large increases of MeHg in yellow perch and moderate increases in largemouth bass. Larger increases in methyl mercury were not noticed in bass because of dietary changes discussed earlier. Results indicate that physical removal of CWH from lake littoral zones can aggravate and prolong the negative effects of methyl mercury accumulation in aquatic food webs through sediment resuspension.

that sediment suspension caused by the

Trees falling in our waters are as natural as trees falling in the forest and are a vital part of the engine of life that keeps our lakes flourishing. We are starting to provide evidence for what many of us know intuitively, these logs and fallen trees need to remain in shallow water or on shore to protect our lake ecosystems. All manner of critters live and raise their young in association with CWH and the persistence of these plants and animals are based on a healthy linkage between the lakeshore and lake. We can all help our lakes stay alive by limiting the disturbance of our natural shores.

Yellow perch populations decresed with the removal of Coarse Woody Habitat.

by Greg G. Sass, James F. Kitchell, and Stephen R. Carpenter working from the UW Trout Lake Station in Vilas County

August 12: DNR Aquatic Invasive Species Control Grants Public Hearings. For more dates and times call Carroll Schaal at 608/261-6423 or see http://www.dnr.state.wi.us/org/caer/ce/news/hearmeet.html.

August 20-21: Citizen-Based Monitoring Workshop. Citizens and scientists working together to monitor Wisconsin's natural resources. Monona Terrace in Madison. Contact 715/966-1048.

September 15: Lakes and Rivers Grants Workshop: 6-9 p.m., Oshkosh. Contact Chad Cook at 920/232-1990 or chad.cook@ces.uwex.edu or Mark Sesing at 920/485-3023 or sesinm@dnr.state.wi.us.

October 8: Eurasian Water Milfoil Workshop. Wintergreen Resort and Conference Center in WI Dells. Contact WAL at 800/542-5253 or wal@wisconsinlakes.org.

October 23: Connecting Kids with Watershed Through Poetry and Art workshop. Black Earth, 9 a.m.-4 p.m. Contact 715/346-4978 or mpardee@uwsp.edu.

November 3-5: NALMS 2004: 24th International Symposium. Victoria Conference Center Victoria, British Columbia. See http://www.nalms.org/symposia/victoria/index.htm for information.

November 13: Midwest Environmental Ethics Conference, Severson Dells Education Foundation, Rockford, IL. Contact 815/335-2915.



High Water Notes from a Riparian Righter

I've never seen a spring or summer like this, and we've lived along the shores and watched the lake for 33 years. We've seen the moon's path come straight to our pier, and a huge flock of whistling swans spend the day. We've seen the lake clean and sparkling, and looking like yesterday's pea soup, but we've never seen so much rain. How can there be any more water left in the sky?

Ten years ago I was on the Lake District Board, which made me the person my neighbors asked, "What will all this do to the lake?" I replied, "How much time do you have?" One thing is for sure, we know where our floodplain is, and we don't need a map to find it. It even includes some local roads.



Holding down a pier at Lac La Belle Photo by Lisa Conley

While my husband was looking for more garbage cans to fill with water to keep the neighbor's pier from floating away, I was searching for my paddle, life jacket and Secchi disk.

Down at the lake, the first thing I noticed was that our pier was not in yet, and it was

mid-June. My husband decided not to put it in underwater – good choice. Many of the neighbors had the lovely garbage can décor, or had lost pieces of their piers when the wind and waves picked up.

I looked gratefully at our wild shoreline. The plants were holding rock and soil together. It was an amazing demonstration of the tenacity of the long-rooted native grasses, shrubs and wildflowers. Other folks on the lake have learned the hard way that short grass has short roots – not much help in preventing lawns from eroding into the lake.

The kayak slipped into the water. It was a nice summer day, and usually the lake is pretty busy, but there was an emergency, high water, slow-no-wake ordinance. The city launch site was under water, so it was just me, two sailboats, and a few fishermen trolling slowly along. I smiled and dipped my paddle; it was not often I could be sure of safe paddling. There were no skiers, jet skis, or speed boats to watch out for. The quiet was wonderful. I could smell the lake, and feel the cool breeze off the water.

Gliding over a mix of milfoil and pondweeds, I noticed the skeletons of several tiny fish and a dead bluegill floating on the surface. I wondered why they died. I thought about all the lawn chemicals and runoff from streets and farms that must have washed into the lake with all this rain. I also worried about the new exotic blue-green algae that are harder to notice and release toxins more continuously than our native species.

The GPS told me I was paddling at 3.2 knots at 10:34 AM, and that I had arrived at the 30-foot deep basin that I monitor. I was surprised the water didn't look too bad after all the rain. After the last storm, I checked the creek coming through the golf course and



was surprised that it didn't look like chocolate milk pouring into the lake. I noticed more of last year's cornstalks on the upstream farmer's field this spring. Wouldn't it be great if this really helped keep the erosion down? Our lake district has worked with the Village, the DNR and the golf course to stabilize and buffer the stream winding through the course, and I am very grateful for their efforts. I remember past springs when septic systems along the lake were under water. Putting sewers around the lake was worth every penny.

My Secchi disk reading was 8.25 feet – pretty good for Lac La Belle. I feared much worse, but this was not the whole story. Maybe the cool weather kept the algae down, and we'll see some record blooms when the water warms up. Maybe the floodwater is full of runoff and we'll be the unlucky recipient. The truth is that it takes a lot more than one Secchi disk reading to figure out what is going on. Lakes are complex and very individual, and it takes many years of lake watching to be able to sort out any real trends. The over 1000 volunteer monitors have contributed enormously to our understanding of water quality in Wisconsin, and I'm proud to be one of them.

What Now?

So what can we do about the impacts of high water on the lake? Does your shoreline help the lake by providing important habitat and stabilizing the land's edge? Does rainwater soak into your yard or runoff into the lake? Do you use lawn and garden chemicals that can wash into the lake? Do you have an erosion problem that needs attention? During times of floods and high water, these questions are doubly important.

And then there's all this rain – we can't do much about that, or can we? Global Climate Change is very real, and it is thought that heavy rainstorms will be more common in Wisconsin. If you can help convince your



This duck takes a leisurely bath on a submerged pier at Lac La Belle.

Photo by Lisa Conley

elected representatives that state and federal policy need to address global climate change, it will help. It may seem your efforts are as little as a drop in the lake, but where would the lake be without all the drops?

Oh, no – It's raining again.

by Lisa Conley Waterfront Property Owner, Lac La Belle

More Educational Support for Wisconsin Lakes

Tiffany Lyden Joins Lakes Partnership

We are pleased to announce that Tiffany Lyden has joined the Lakes Team as a new UW-Extension Lake Specialist. She comes to us with a wealth of experience in Wisconsin Lake Management. Tiffany is a skilled educator with over ten years in the field to complement her academic credentials. She



will be working with lake communities, UW-Extension, DNR and local units of government on a host of issues facing our lakes. Tiffany can be reached after August 23rd at <u>tlyden@uwsp.edu</u> or 715-295-8903.



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Blue-Greens Algae from Brazil Migrates Northward

Wisconsin researchers and water quality experts are gearing up this summer to monitor an exotic blue-green algae that has been migrating northward in the US, and has been detected in Madison-area lakes over the past few years.

The algae, *Cylindrospermopsis* raciborskii, or "Cylindro," was originally identified in Brazil and in recent years has been found in several southern states as well as in Illinois, Indiana, Michigan, Minnesota and Ohio. Starting in late July and extending through September, DNR and University of Wisconsin water quality experts will look for Cilyndro by collecting additional water samples from selected nutrient-rich lakes in south central, southeast, northeast, and west central parts of Wisconsin.

"While this species of blue-green algae has also been found in other Midwestern states, this is the first time we have seen what may be characterized as 'bloom densities' in Wisconsin and we'd like to find out how widespread it is," says Bob Masnado, who serves as DNR's lead representative on a state and local team of environmental and health experts involved in monitoring the algae. Blue green algae are common in Wisconsin lakes and can reach high concentrations during summer that cause smelly, nuisance blooms on the water's surface that make swimming and other water-recreation unappealing. Some of these algae can produce natural toxins. They are normally short-lived, but may pose health risks to fish, pets, livestock and even humans if they are present in high enough concentrations. Little is known about Cylindro and its effects, Masnado says,



Photo by William Doeden 2004 WI Lakes Convention Photo Contest

although it is receiving an increasing amount of attention from scientists throughout Europe, Australia, and the United States. The available scientific literature suggests Cylindro differs from other blue-greens because it may produce more toxins more frequently than the blue-green algae species commonly found in Wisconsin lakes. Cylindro doesn't always form visible mats of algae at the surface like other blue-greens, and can be found throughout the water column.

The Wisconsin team, which includes DNR, the University of Wisconsin-Madison, the Department of Health and Family Services, the City of Madison and the State
Laboratory of Hygiene, is preparing a research and monitoring plan to help answer where Cylindro is found in Wisconsin waters and what its potential effects are.

Researchers from DNR and the University of Wisconsin-Madison's limnology department routinely sample water quality in Madison-area lakes as part of a long-term monitoring project to better understand and

Some of these algae can produce natural toxins that are short-lived but may pose health risks to fish, pets, livestock and even humans if they are present in high concentrations.



chart what's going on in the lakes. Counts of algae are normally determined for the samples collected from Lakes Mendota and Monona and they have shown that Cylindro has been present for the past few years, although at very low concentrations. In the process of checking microscopic slides of samples collected from Lake Wingra last summer, the species was found to be present in much higher concentrations than seen in Lakes Mendota or Monona. As a result, a Michigan firm is now examining archived algae samples collected from Lake Wingra from past years to determine whether Cylindro was present and to what extent.

Cylindrospermopsis raciborskii - a microscopic image *multiplied* 400x. Courtesy of Botany and Plant Pathology at Purdue University.

u/cnr/uwexlakes/conventions

Most of the work in the coming months will focus on trying to understand the distribution of Cylindro in Wisconsin's shallow, eutrophic lakes. Eutrophic lakes are those which either naturally or as a result of man-made pollution are rich in nutrients such as phosphorus, which spurs production of algae and other organic material. "We believe this is the time of year to sample based on the monitoring efforts of state agencies who have found that Cylindro is not expected to reach nuisance densities in early summer or late fall." Masnado says.

The State Laboratory of Hygiene will be working to develop a rapid screening method that would enable Wisconsin to quickly and inexpensively detect elevated Cylindro densities in Wisconsin lakes instead of having to send water samples to a Michigan laboratory for confirmation of the algae's presence. For more information contact Bob Masnado at the Wisconsin DNR, (608) 267-7662.

2005 Wisconsin Lakes Convention **April 28-30**



The Wisconsin Lakes Partnership is inviting proposals for stimulating and educational presentations and posters for the 2005 Wisconsin Lakes Convention. This convention will focus on the important roles of volunteers on our lakes.

Guidelines for submission, presentation and poster topics, and an application form can be found on the UWEX-Lakes website at www.uwsp.edu/cnr/uwexlakes. Click on Conventions/Events. If you would like a paper copy, contact 715/346-2116.

> The deadline for submission is **September 17, 2004.**

Partnership Photography Contest

To celebrate the 27th annual WIsconsin Lakes Convention, the Wisconsin Lakes Partnership is sponsoring a photo contest. Here is your chance to show your love of Wisconsin's lakes and display your skills with a camera. See details on our website.

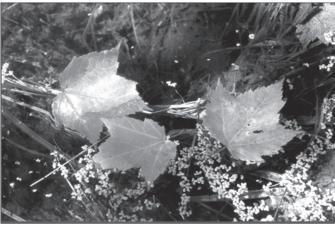


Photo by Frank Koshere 2004 WI Lakes Convention Photo Contest



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What's Best on the Lakeshore?

Study finds nutrient loss from near shore areas in northern Wisconsin is 8 times greater from turf than from trees.

The escalation of shore land development in northern Wisconsin has brought with it the concern that this domestication of our shores may impact lake-water quality. In order to assess the effects of development on lakes, the Wisconsin Department of Natural Resources in cooperation with the U.S Geological Survey conducted a study to explore the differences in nutrient movement to lakes, from lawns and forested areas near lakes in northern Wisconsin.

The study monitored adjacent lawns and wooded areas continuously for a 23-month period. Data was collected on precipitation, surface and ground-water flow, water quality, soil temperature and moisture. The study examined paired sites on Lower Ninemile, Butternut, Anvil and Kentuck Lakes in Forest and Vilas counties. The lawn sites consisted mainly of turf grass but did include a portion of a porch at one of the sites. The wooded sites

consisted of varying mixtures of mature and immature, deciduous and coniferous trees, plus a ground cover of leaf litter and other decaying organic matter.

Results

The volume of water that ran off the wooded areas was generally an order of magnitude less than the volume that ran off the lawns. The low runoff observed in the wooded areas may have been due to a number of factors:

- The tree canopy probably intercepted a portion of the precipitation.
- The thick organic-matter layer and leaf letter at the surface may have absorbed the rainfall.
- The upper soils may have been able to absorb more moisture because they would be less compacted than lawns.
 The forested areas would have a natural increase in porosity caused by such things as worm holes, root tunnels, and insect borings.

The nutrient concentrations of the lawn runoff were compared to the adjacent woods runoff concentrations. In most cases, concentrations of nutrient in lawn runoff were not significantly different from concentrations of runoff in adjacent woods. Because of the greater volume of runoff from the lawn areas as compared to the wooded sites, the total amount (or mass) of nutrients lost from the lawn sites was much greater than from the



Residence on Anvil Lake

water that ran off the wooded areas was generally an order of magnitude less than the volume that ran off the lawns.

The volume of



wooded areas. In the case of phosphorus, the difference was approximately eight-fold.

Conclusions

The study points out the significant role of water movement in the transfer of nutrients from land to water. Less water is absorbed by the lawns therefore more water flows over the lawns than over the wooded areas. In this study the amount of nutrients coming from lawns was

significantly greater than the amounts of nutrients coming from the wooded areas.

In this study the amount of nutrients coming from lawns was significantly greater than the amount of nutrients coming from the wooded areas.

This study indicates surface-runoff from the wooded sites will have less effect on the lake water quality than the surface-runoff from the lawn sites. Runoff volumes were the most important factor in determining whether lawns or woods contributed more nutrients to lakes. The higher the volume of water flowing over the land, the more nutrients it can carry.

What You can Do

If you must have a turf grass lawn, choose wisely. Resist the urge to grade to the lake, limit compacting the soil and use landscaping techniques such as swales and rain gardens that slow or stop water flow toward the lake. It will also help if you limit the existence of lawns that run to the water's edge. You can reduce the adverse effect of the lawn on lake-water quality by having natural vegetation buffering areas between any lawn and the lake.

For complete details of this study go to http://water.usgs.gov/pubs/wri/wrir-03-4144/

Obituary

Lost Lake Dies After Short Illness

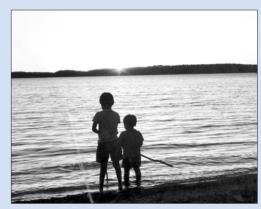


Photo by Carolyn Betz 2003 WI Lakes Convention Photo Contest

Lost Lake, daughter of Wisconsin and sister of our waters, passed away on July 4, 2004 at the age of 11, 216. She was born on June 12th, 9212 BC during the Wisconsin glaciation. She lived a normal and healthy life until recently (200 years ago) when she contracted an illness after numerous encounters with human activities. Lost Lake left us before her time — a casualty of increased exposure to human desires, apathy, polluted runoff, shore land development, heavy boat traffic, aquatic invasive species, and public neglect.

Lost Lake is survived by 15,080 sister lakes and thousands of cousin rivers and streams. Lost Lake was a time-honored and respected member of her aquatic community and will be missed by many species that enjoyed her and called her home. Lost Lake loved the caravan of life that grew in and around her. The fish that tickled her ribs, the frogs that sang on her shores and the people that found peace with her.

There will be few more visitations, burial will be gradual and interest will fade. In lieu of flowers, loved ones are asked to join their lake organization and take responsibility for the stewardship of our water resources.

On behalf of Lost Lake we would like to thank those of you that have dedicated your lives to the comfort and loving care of her many sister lakes. Your generosity and support is greatly needed and appreciated.



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Reflections

long the Shore

Pearly grey of sky unites With pearly grey of lake Silent drifting depths dream on

Softly murmured sigh

Etched into the rusted shore An aimless path winds off Polished bones softly laid *Upon these sands of rest* Caught in a branch strewn on the strand A wisp of paper, gently blown Waves a sad farewell

Joanna Foster, age 17 2004 Wisconsin River of Words National Finalist Grades 10-12 Poetry

