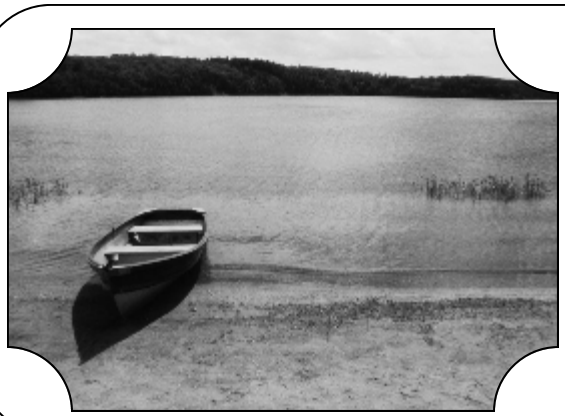

Cattail Chronicles

Issues Affecting the Surface Waters of Lake County

Lake County Health Dept. and Community Health Center
Irene T. Pierce, MSN, Executive Director

Volume 18, Issue 2 Fall 2008

Mussels in Lakes
By: Mike Adam

Freshwater mussels inhabit lakes and rivers throughout the world, and North America has more species than any other continent. Mussels are related to other bivalves such as marine mussels, clams, and snails. Freshwater mussels, also called naiads or unionids by scientists, consist of a soft body enclosed by a hard shell made up of two shell halves called valves. Inside the shell a thin tissue called the mantle completely surrounds the soft body. Mussels filter oxygen and food from the water and are an important part of a healthy stream or lake system.

Many mussels are sensitive to changes in their environments. Populations of mussels have declined alarmingly in recent decades because of siltation, pollution, and competition from exotic mussels like the Zebra Mussel (*Dreissena polymorpha*). Of the 297 known species and subspecies of freshwater mussels in North America, 213 are listed as endangered, threatened, or of special concern.

Freshwater mussels have an amazing reproductive system. While most mussels have separate sexes, some are hermaphrodites, meaning each mussel has both male and female reproductive organs. Fertilized eggs develop into larvae, called glochidia, and are stored for a time in the female. When the glochidia mature, the female expels them into the water where they must attach themselves as parasites to the gills or fins of fish or even a mudpuppy. In some species, part of the female's mantle (soft tissue) resembles a swimming minnow that lures potential host fish and increases the chance that her larvae will find a suitable fish. For a couple weeks or months, larvae remain on the host. After they grow, young mussels detach from their host and drop to the bottom of the body of water and the reproductive cycle is complete.

In general, mussels like moving water and thus, in Illinois, most mussels live in streams, although a few do inhabit lakes. Unfortunately the mussel that receives the most attention in lakes is the Zebra Mussel. If you search the internet for "mussels in lakes" most of the links will be to websites about the exotic Zebra Mussel or its lesser known, but equally invasive cousin the Quagga Mussel (*Dreissena bugensis*). Zebra Mussels have a bad reputation for good reason: they filter the phytoplankton out of the water. While this action makes the water more clear, a couple of potentially damaging impacts may occur. First, the same phytoplankton the

Inside this issue:

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For information contact:

The Lakes Management Unit
Environmental Health Services
847- 377- 8030
http://www.co.lake.il.us/health/ehs/lakes.asp

LakeCounty
Health Department and
Community Health Center

Spotlighting Wildlife: Muskrat (*Ondatra zibethicus*)

By: Adrienne Orr

MUSKRAT

Common in Illinois, the muskrat is a rodent that most of us have seen at some point in time. Muskrats are often blamed for weakening levees on rivers and banks along ponds. The muskrat's name comes from the two scent glands found near its tail that give off a strong "musky" odor. This odor is used for communication as well as to mark its territory.

The average length of a muskrat is 16 to 25 inches and they range in weight from 1.5 to 4 lbs (average size 2.5 lbs). It has very small ears and eyes, and a long, black tail, which is flattened vertically. The hind legs are longer and have partially webbed feet. Fur on the back of the muskrat fades from a dark brown in the back to a light to reddish brown in the front. The underside is light brown with an almost white throat. Muskrats are often confused with mink or beaver, however mink have long sleek bodies and beaver are much larger (40-50 lbs).

Muskrats are native to North America and in live in every county in Illinois. The largest populations occur in the northeast and northwest regions of the state. However, populations are down in the last 50-100 years due to habitat loss. Muskrats live in aquatic environments, which include ponds, lakes, swamps, marshes, and drainage ditches. Their habitat is being destroyed due to channelization of streams and wetland drainage. Luckily, they are very adaptable and can be found in urban ponds and detention basins throughout Lake County.

Muskrats dwell in two basic habitats: shallow, stable water like marshes. and rivers, ditches, and ponds. Muskrats often build dome shaped houses made of cattails, bulrushes, or other emergent vegetation. They have an underwater entrance which angles upward to a hollow, above ground nesting area to rest and raise young. Houses can be 8 feet or larger in diameter and have walls up to 1-2 feet thick.

Although muskrats are more active at night, it is not uncommon to see them feeding or building a house during the day. During late summer or early fall they may travel far from their homes, however, they most often stay within a few hundred feet of their homes. The breeding season starts during late winter and ends in September with a pregnancy lasting an average of 28 days. They usually have 2 litters with four to seven young.

Muskrats are generally considered herbivores, but they will eat clams, snails, crayfish, fish and frogs. Their primary diet consists of stems of cattails, bulrush, arrowhead, duckweed, and water lily. In agricultural areas they may eat clover, corn, and grass.

Muskrats that burrow into the shoreline can lead to erosion. In addition, many of the desirable shoreline plants are a preferred food of this rodent. A few management techniques that can be used to help with muskrat populations include trapping, exclusion, and habitat alteration. Trapping is the most effective method and is allowed during fall and winter with permission from IDNR. Urban lake and pond owners with muskrat problems should hire a professional trapper. Another option would be to use exclusion techniques. Excluding muskrats is accomplished by erecting a fence around areas or plants that are to be protected. In all cases, fences should be at least four feet in height and buried into the bank. Altering the habitat around the pond, lake, or stream is another technique used to discourage muskrats. Shoreline banks graded to a gentle slope (3:1 or less) are less attractive to muskrats. Once graded the banks should also be planted with native vegetation and not commercial turfgrass since the natives have deeper roots to help prevent erosion. If grading and planting fails to deter muskrats, then a layer of rock with filter fabric underneath may work.

Muskrats play an important role in our aquatic habitats. Wetland protection, restoration and habitat are important practices to maintain muskrat habitat. Buffer strips around lakes, streams, and rivers provide food for muskrats, as well as improving water quality, reducing erosion and stabilizing banks.

Kelly's Corner Kitchen

HISTORICALLY MUSKRATS WERE SOLD IN MARKETS AS MARSH RABBITS!

Muskrat BBQ Sandwich

1 Muskrat (fat and glands removed)
2 Large green bell peppers cut in strips
1 Medium onion thinly sliced
1 Cup Barbecue sauce
3-4 Teaspoons chili powder
10 Kaiser rolls

In a slow cooker combine bell pepper strips and onion. Cut muskrat to fit into cooker. Place over vegetables. In a medium bowl combine barbecue sauce and chili powder. Pour over meat. Cook on low for 11 hours or high for 6 hours.. Remove meat from cooker, shred and return to cooker; cook on high for 15 to 30 minutes more to heat through. Serve on rolls.

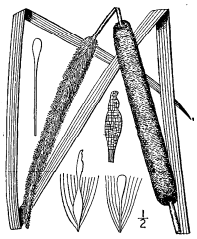
ANSWER: Muskrat Love was released in 1972

Spotlighting Plants: Cattails (*Typha*)

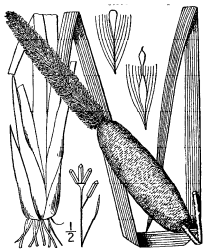
By: Kathy Paap

When people are asked to name an emergent aquatic plant they have seen in wetlands or along the edges of lakes the top answer will likely be cattail. However, most are not aware there is more than one species of cattail. There are actually three species of cattails are present in Lake County. Most of the cattail that is present is either Narrowleaf Cattail or Hybrid Cattail. Both of these species are considered invasive.

•**Narrowleaf Cattail** (Typha angustifolia) -- Whether this species is native is a topic of debate. Narrowleaf can be distinguished from the others by the separation of approximately an inch between the brown spikes (flowers).



•**Common Cattail** (*Typha latifolia*) -- This species is native to the Chicago region. It is easily identified from the other cattails seen in the region as there is no separation between the brown spikes.



•**Hybrid Cattail** (*Typha glauca*) -- This species is a hybrid between Narrowleaf and Common. Which can be distinguished from the other in that it has only a slight separation between the spikes.

Narrowleaf Cattail can grow in water depths greater than Common Cattail with both experiencing their peak biomass rates in water levels of approximately 1.5 feet. Cattails are capable of growing in water levels of approximately 2.5 feet.

Cattails have been found to uptake nutrients such as nitrogen and phosphorus more efficiently than many of our native plant species. As a matter of fact there have been applications where cattails have been installed to provide additional cleansing of tertiary waters from water treatment facilities. They are also known to provide habitat for many birds including the endangered Yellow-Headed Blackbird.

Mainly however, where cattail populations occur they dominate the area with few or no other species present. One successful management strategy is to flood the rhizomes by cutting the cattails below the water's surface, and drowning the plants. This method is effective in areas where the water levels are relatively steady. This ensures that the cut plant will not emerge from the water. Another potential strategy is herbicide treatment. Rodeo™ is one herbicide that is approved for aquatic use and uses glyphosate as its active ingredient. For best results, a surfactant is usually added, which helps the herbicide stick on the leaves. Please keep in mind the use of herbicides fall under the Illinois Pesticide Act. We occasionally receive calls from lake owners who want to know if they need permission to kill the cattails along their shoreline. The law states that the property owner (including the lake bottom where the cattails are) owner must give permission and, unless it is your own property, a state certified licensed applicator must complete the treatment. Additional regulations may apply if you live along a public waterway, such as the Chain-O-Lakes.

If the goal is to reduce the population of cattails in your lake or wetland, you should be ready to replace the plants with other more conservative native plant species. Some suggestions are Hard-Stemmed Bulrush (*Schenoplectus acutus-acutus*), Chairmaker's Rush (*Schenoplectus pungens*), Pickerelweed (*Pontederia cordata*), and Lake Sedge (*Carex lacustris*). There are others, however care needs taken or a professional consulted about which species would be appropriate. If you have questions about proper plant selection, please contact us.

Even though cattails provide bank stabilization and filter runoff, they tend to form a monotypic environment and most of the cattails present in Lake County are exotic and invasive. With proper management you can have a stable shoreline that filters runoff and is diverse with colors.

Given the information you now know about cattails...do you think we should change the name of our newsletter?

Kathy is originally from Lake County, and attended University of Illinois at Chicago where she earned her BS in Biology and MS in Ecology. Her focus is on plant ecology. Kathy was an intern in the Lakes Management Unit while working on her BS. She spent the past 14 years at the Des Plaines River Wetlands Demonstration Project restoring wetland landscapes. Her professional interests include invasive species, botany and plant community development. She currently lives in Wisconsin and has two grown children. She enjoys cooking, gardening, practicing yoga, nature walks and lake living.

Go Green Go Paperless

Sign up to receive an electronic version of Cattail Chronicles :

Send us an e-mail requesting the environmentally friendly version of Cattail Chronicles via e-mail to PRaliff@co.lake.il.us or give us a call (847) 377-8030.

KEEP A LOOK OUT for NEW AQUATIC INVASIVE PLANTS in the Midwest!

These species could be spreading in your area... *Early detection and eradication* can prevent an *invasion!*

Download the New Invasive Plants in the Midwest Flyer today.
www.mipn.org

Working as a Beach Sampler

By: Joseph Muller

I am part of a group of people at the Lake County Health Department standing between swimmers and a stomach wrenching salmonellosis, a cold triggering respiratory infection, and a colon cleansing giardiasis. I am a humble beach sampler. Without me, beach water would have no way of finding its way to the lab for testing.

At hours in the morning I previously never knew existed (sometimes as early as 3:40 a.m.) I drive around grabbing water from Lake County's nearly 100 beaches. Doing my job requires no more than a drivers' license, the perseverance to wake up early, and an attention to detail.

Drive and pick up water samples – on the surface, my job seems as shallow as the 120 ml water sample bottles I use every day. But as in many other things in life, an opportunity is what one makes of it. For one, driving for hours a day rekindled my long lost relationship with radio and the alternative rock I so closely followed in high school.

This job has also introduced me to the sunrise over Lake Michigan – a mere legend to many college students. I have the privilege of watching the golden yellows and blood oranges of the morning sun bleed slowly into Lake Michigan's waters. The sounds of morning are no less satisfying, as the chirping of crickets and the morning songs of birds blend into a symphony of relaxation. Few things in life are breathtakingly beautiful, yet so different every morning, as if nature itself leaves a unique fingerprint every day of the year.

After I bring my water samples into the Health Department, I also use a water monitoring system called SwimCast – a cutting edge form of beach testing technology developed by the Lake County Health Department – to test beaches. Through careful monitoring of a beach, the Lake County Health Department can predict a beach's bacteria level, cutting the testing time down from a whole day to only an hour. This new beach testing method is groundbreaking enough that Environmental Health Associate Director Mark Pfister has spoken at national beach conferences and even to the US EPA about the project.

But of all the aspects of my job, the things I treasure most are the relationships I have formed. My friendships at the Health Department have a made an otherwise shallow job an enjoyable experience. Working with Senior Biologist Michael Adam has shown me how involved the Health Department is in preventing disease. While testing water at the Great Lakes Naval Base, I was able to learn about the Navy's complex and evolving culture. And while cleaning test tubes and graduated cylinders for the lab, I learned that each of the environmental lab workers were great people to talk to.

All of these things have made the Lake County Health Department a great place to work, even more so than my previous jobs. After all, where else could I discover that the probability of catching West Nile virus may decrease with more floodwater mosquitoes? Where else could I hear firsthand about the latest alleged cougar sighting? Where else could I learn about the large, indoor mock ship the Naval Base uses to train its recruits the proper response to a sinking vessel? – Only at the Lake County Health Department.

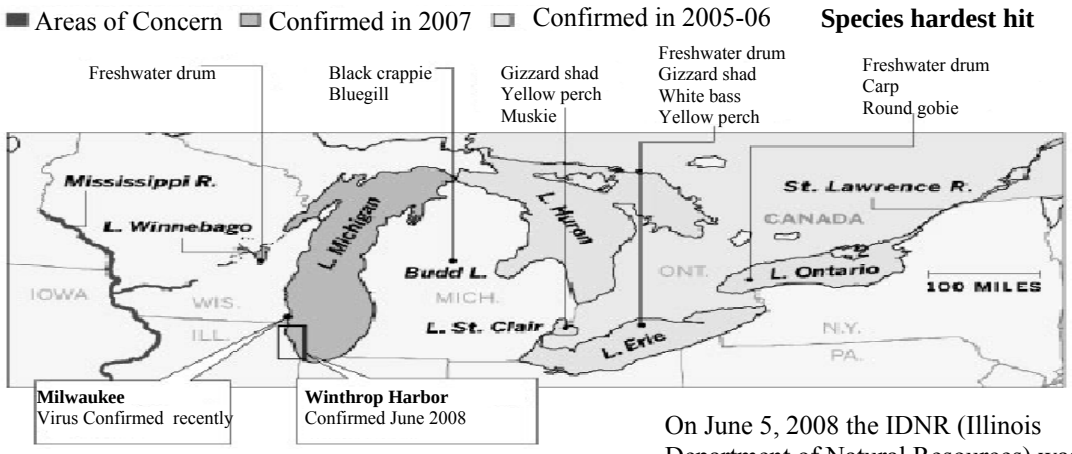
Environmental Links

www.mipn.org
Midwest Invasive Plant Network , help stop the spread of aquatic invasive species

http://web.extension.uiuc.edu/wildlife/about.cfm
Provides residents of Illinois with information about how to coexist with Illinois' wildlife

www.dnr.state.mn.us/shorelandmgmt/apg/index.html
Shoreline habitat restoration projects establishing a "buffer zone" between land and water

Viral Hemorrhagic Septicemia: What it means for Lake County Residents



By: Kelly Deem

Viral hemorrhagic septicemia (VHS) is a fish disease caused by a virus that has produced large-scale fish kills in aquaculture operations in Europe and in wild herring and sardine populations along the Pacific Coast of North America. VHS was first identified in the Great Lakes region in 2005 and has caused mortalities in a number of fish species in the Michigan waters of Lake Huron, Lake Erie, Lake St. Clair and Detroit Rivers, and inland in Budd Lake near Harrison, MI. VHS has been identified in Lake Michigan waters of Wisconsin and Illinois.

This viral fish disease is **not** a human pathogen, as it cannot replicate in warm-blooded animals. Although there is no known threat to human health, VHS has the potential to kill a substantial number of fish and spread throughout the Great Lakes. An outbreak of VHS is most common and severe during the winter. Water temperature is an important component to the disease that thrives in temperatures from 6-9°C (43-48°F) and is active at 2 to15°C (36-59 °F). Due to the temperature range, fish mortalities attributed to the virus can occur in the spring and fall.

Symptoms of VHS vary with the severity of infection; at low infection a fish may display little or no symptoms, as is the case with most wild fish disease outbreaks. Hatchery fish are more susceptible due to their confined conditions. As the severity of the infection increases, fish become darker and the eyes bulge with some bleeding around the eye and base of the fins. Physical signs are also apparent in the gills as they start to lose color turning pale with pin point bleeding. Physical characteristics exhibited in the final stages of the disease include dark red patches appearing on the front and sides of the head. Mortalities begin to occur at this stage due to hemorrhaging that reduces the oxygen carrying ability of the blood. The time to death for an infected fish is variable due to several factors including species and overall health. Mortalities can occur within days after exposure in optimal conditions to a few weeks; however not all fish that are exposed to the virus die; many are capable of fighting off the disease.

VHS Susceptible Species

- Black Crappie
- Bluegill
- Bluntnose Minnow
- Brown Bullhead
- Brown Trout
- Burbot
- Channel Catfish
- Chinook Salmon
- Emerald Shiner
- Freshwater Drum
- Gizzard Shad
- Hybrid (Tiger) Muskie
- Lake Whitefish
- Largemouth Bass
- Muskellunge
- Shorthead Redhorse
- Northern Pike
- Pumpkinseed
- Rainbow Trout
- Rock Bass
- Round Goby
- Silver Redhorse
- Smallmouth Bass
- Spottail Shiner
- Trout-Perch
- Walleye

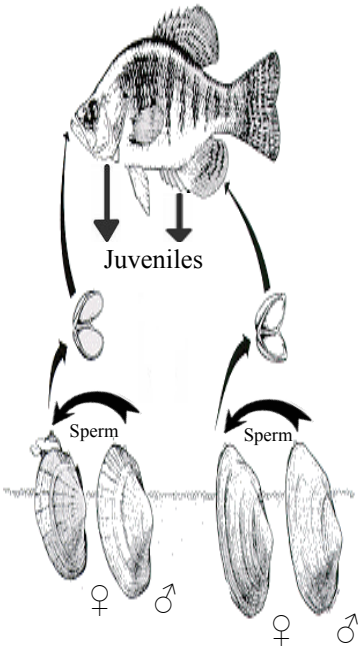
On June 5, 2008 the IDNR (Illinois Department of Natural Resources) was notified by the Wisconsin DNR of positive VHS samples from a fish kill involving Round Gobies in the Milwaukee area. On June 13 positive samples were discovered from Yellow Perch in the same location. As a result IDNR fisheries biologists submitted samples of Bluegill, Rock Bass, Round Gobies, and Pumpkinseed from Winthrop Harbor on June 10-11. Although the fish sampled showed no clinical signs of disease and were not part of a fish kill, tests confirmed the presence of VHS in the Round Goby and Rock Bass samples.

There is no known treatment for VHS in affected waters, so preventing the spread of the disease is the best way to protect our fisheries resource. VHS can be transmitted by exposure to urine, feces, reproductive fluids, and by ingesting infected prey. With the discovery of VHS in Illinois and the posing danger of infection to our inland waters, the IDNR introduced emergency regulations as the key to slowing the spread of VHS. The success of these regulations relies on the cooperation of anglers, boaters, and the aquaculture industry. The new emergency regulations being implemented by the IDNR that affect recreational anglers and boaters include:

- Eliminate natural water from all equipment when leaving a body of water.
- Empty and drain all bait buckets, livewells, baitwells, bilges, or any other compartment capable of holding natural water when leaving a body of water.
- Do not remove live VHS-susceptible species from any waters. Anglers may catch and keep VHS-susceptible species, but may not transport those fish live from the waters where caught.
- Use of wild-trapped fishes from within the state as bait will be restricted to the waters where legally caught.

The threats induced by VHS to Lake County's fisheries resources are valid, with verification of the presence of VHS in Winthrop Harbor. As we have seen with other exotic species, such as Eurasian Watermilfoil and Zebra Mussels, all it takes is a boat going from one lake to another to potentially introduce long-term harm to a lake. Residents need to be diligent in their efforts to stop the spread of the disease to our inland lakes.

Mussels in Lakes (continued from page 1)



This guide can be downloaded in PDF format from The Field Museum web site at: www.fieldmuseum.org/chicagoguides. For information about obtaining a hard copy, contact Openlands at 312-863-6250.

phytoplankton the Zebra Mussels are filtering out are needed by small zooplankton. This can offset the food chain, having ramifications to the lake's ecology, including the fishery. Second, Zebra Mussels have few natural enemies here in North America. They reproduce so rapidly that they can suffocate native mussels by growing on the shell so densely that native mussel cannot feed. Currently, there are 14 lakes Lake County with confirmed Zebra Mussels present.

Despite Zebra Mussels getting all the bad press, there are some native species of mussels that we have found in our lakes here in Lake County. While we do not intensely survey for mussels when conducting our water quality studies, we do keep an eye out for them in shallow waters. Sometimes we find an empty shell of a mussel that died or was eaten by a predator like a raccoon or mink. Other times we can see them on the bottom (assuming the lake is clear enough!). By far the most common native mussel in our lakes is the Giant Floater (*Pyganodon grandis*). We have found this in a wide variety of lakes including those which have relatively poor water quality. However, the Giant Floater is probably an exception to the rule. Other mussels we have found tend to be in lakes with good water quality. West Loon Lake in Antioch takes home the prize as the lake with the most number of mussels. There are a total of five known species in the lake. In addition to the Giant Floater, the Fatmucket (*Lampsilis siliquoidea*), the Plain Pocketbook (*Lampsilis cardium*), and the Paper Pondshell (*Utterbackia imbecillis*) can also be found there. Unfortunately, the 5th species is the Zebra Mussel. Shells of native species have been found in West Loon Lake covered with Zebra Mussels. Since this will eventually kill the native mussel, the future of these mussels in the lake is in question. None of the species found in lakes are threatened or endangered.

Two other noteworthy mussels are the Fingernail Clams (various species) and the exotic Asian Clam (*Corbicula fluminea*). As their name implies, the Fingernail Clams are small, usually <0.5 inches. We have found these only in Timber (a.k.a. Huntley) Lake, but they were found in deeper water (>10 feet) so they may be found in other lakes in the area as well. The introduced Asian Clam is similar but grows slightly larger (to 1.5 inches) and has been found in several Lake County lakes. It does not appear to be as potentially harmful as the Zebra or Quagga Mussels.

The toughest thing about mussels is trying to identify them as most of them look very similar. However, a 2008 publication *A Field Guide to the Freshwater Mussels of Chicago Wilderness* provides excellent pictures and descriptions of the mussels in our area.

As you can see, mussels are quite fascinating. Consider yourself lucky if you have native ones in your lake. If you find a live mussel in your lake, please leave it where you found it. Please contact us if you suspect your lake has Zebra Mussels, or if you are curious please call us about another mussel you found in your lake, we can help identify it.

Calendar of Events

Wild Things Conference
University of Illinois Chicago, February 7
Chicago area nature conservation community
www.habitatprotect.org

Snowmobile Safety:
Class and Certification exam, led by Forest Preserve
Free for adults, families, with children age 10 and up

Illinois Lakes Management Association
Peoria, IL 61602 February 18-20
24th Annual Conference
www.ilma-lakes.org

Illinois American Fisheries Society Meeting
Fifth Season Conference Center, Moline, Illinois
Joint meeting with Iowa on February 24-26 2009

Lake Issues: Salt Alternatives and Phosphorus Bans

Winter Forcast: Road Salt Costs Increase Dramatically…Consider Salt Alternatives

By: Leonard Dane

Salt (sodium chloride) is the most commonly used winter de-icer for highways, sidewalks, and driveways. The main reason for its popularity is because it is cheap and relatively easy to get. This may not be the case this winter. Due to the harshness of last winter, the supply has diminished and prices have increased nearly four fold. With prices reaching $165 per ton, now is the time to consider alternatives. In addition to the damage to our cars, sidewalks, roads, and budgets salt can have negative effects on the environment.

Almost all of the lakes in the county are experiencing increases in conductivity for the same reason – road salts runoff into the lakes and build up because aquatic organisms cannot use them. This leads to an increase in both conductivity and chloride concentrations. If fact, studies have shown that aquatic organisms can be affected by chloride concentrations as low as 12 mg/L.

Road salt alternatives are compounds used for the same function as road salt, but are less detrimental to the environment. While some alternatives may still contain chloride, less quantity is needed to achieve the same effect as traditional road salt. Last year the Lake County Division of Transportation (LCDOT) began using a liquid mixture of 75% salt brine, 15% sugar beet juice, and 10% calcium chloride to de-ice 800 lane miles of county roads. We partnered with LCDOT to spray this mixture on our North Chicago clinic parking lot last winter. By spraying prior to a storm, LCHD maintenance staff dramatically reduced the amount of road salt that needed to be applied, while at the same time keeping the parking lot ice free. Many municipalities are looking into using this mixture this year as an alternative to traditional road salt. There is an initial cost associated with purchasing storage tanks and outfitting the vehicles with tanks and sprayers, but less salt is required. With prices sky-rocketing, this may be the way to go.

As the county and municipalities take care of our roads, we can also use alternatives on our driveways and sidewalks. Consider using traction only alternatives such as sand, gravel, sawdust or regular (non-clumping) kitty litter. If a de-icer is absolutely necessary, there are alternatives to road salt that require less application for the same effect. Most hardware stores carry at least one salt alternative. Some names to look for are: EnviroMelt, Zero Ice Melter, Vaporizer™, and Ice Away™. Check product labels or ask a sales associate before you buy in order to ensure you are purchasing an alternative.

MUNICIPALITIES WITH PHOSPHORUS BANS:

ANTIOCH
LINDENHURST
THIRD LAKE
ROUND LAKE BEACH
ROUND LAKE PARK

Summerhill Lake Algae Bloom with Miracle Grow container found in lake.

More Lake County Villages Go P-Free

Fertilizer containing phosphorus (P) is needed for a green lawn, right? In most cases this isn't true, since soils in Lake County generally have adequate amounts of P. When you purchase a bag of fertilizer, there are three numbers listed. The middle number represents P and should be listed as zero. Soil tests can be done to determine whether your lawn needs additional P, but new lawns are typically the only lawns in this area that need it. One pound of phosphorous can produce 300 – 500 pounds of algae.

Local Lake County municipalities are starting to take notice of the benefits of instituting a no P fertilizer ordinance. In 2008 the Villages of Antioch, Lindenhurst, Third Lake, Round Lake Beach, and Round Lake Park enacted bans on the use of P lawn fertilizers within village limits, requiring stores that carry fertilizer to post signs about the ban and provide a no P fertilizer alternative. Village officials are encouraging others in the county to follow in their footsteps. Other municipalities are looking into similar ordinances and the Lake County Health Department-Lakes Management Unit strongly encourages the use of P free lawn fertilizers and hopes that it becomes a popular trend in Lake County.

Try our link for a list of stores carrying P free fertilizer http://www.co.lake.il.us/health/pdfs/ehs/

Can You Name This Lake?

Clues:

Dry, fresh or frozen, this 16.3 acre lake is named after a berry native to North America and is located in the Village of Hainesville and is the only lake in Lake County to currently have the aquatic plant watershield! It is also one of the lakes being monitored from 2005-2009.

Water Shield

(*Brasenia schreberi)*

Water shield is a perennial plant with relatively small, floating oval to elliptical leaves (to 5 inches in diameter) with no slit. Water shield has a distinctive gelatinous slime on the underside of the leaves and coating the stems. Leaves are green above while the underside of leaves and stems are reddish-purple. Stems attach at the center of the leaves. Flowers are small (9 1/2 to 3/4 inch), rise above the surface, are dull-reddish in color and consist of 3 to 4 sepals and petals. Water shield tends to be found in soft, acidic waters and can form large colonies.

Submerged portions of all aquatic plants provide habitats for many micro and macro invertebrates. These invertebrates in turn are used as food by fish and other wildlife species (e.g. amphibians, reptiles, ducks, etc.). After aquatic plants die, their decomposition by bacteria and fungi provides food (called "detritus") for many aquatic invertebrates. Water shield seeds are consumed by ducks and other waterfowl while the roots and stems are consumed by muskrats and nutria.

Answer pg. 2

Inside:

What year was the song Muskrat love released?

Environmental Health Services
3010 Grand Avenue
Waukegan, IL 60085

LakeCounty
Health Department and
Community Health Center

PRSRT STD
US. Postage Paid
Gurnee, IL
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