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August 2020

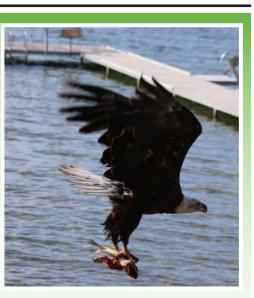
- 2 President's Corner Battle Lake Dining
- 3 Lead-Free for Loons cont. Land Transfers
- 4 Dams Disappear as DNR moves ahead with Free-Flowing Rivers
- 5 Dams Disappear cont.
- 6 Climate Change Heating Up Our Freshwater Lakes
- 7 August 2020 Featured Plant
- 8 Minnesota Effort to Slow AIS is Working
- 10 Young Walleye Are Smaller in MN Lakes
- Lakes area Church Directory 11 BWSR Upcoming Training Events
- 12 Endocrine Disruptors in Lakes
- 13 Lakeshore Owners Loving Their Lakes to Death
- 14 One Watershed, One Plan Clip & Save
- 28 Chosen for MARL 15 Minnesota Native Mussels





A local eagle having shore lunch on our front lawn, then taking his left overs with him, sans doggie bag

Photos submitted by Dave Bernauer





Effort Aims to Persuade Minnesota Anglers to go Lead-Free for Loons

The Minnesota Pollution Control Agency is planning to launch the new program, focused on encouraging anglers to voluntarily switch to lead-free fishing tackle as a way to help save the common loon. Lead poisoning is a leading cause of death for Minnesota loons.

The program will be funded by the federal government's settlement with BP over the 2010 Deepwater Horizon oil spill. The U.S. Fish and Wildlife Service awarded Minnesota agencies more than \$6 million from the BP settlement to help support its loon population. About \$1.2 million of that settlement money will be designated over the next three years for the MPCA program, which the agency is calling "Get the Lead Out."

But a state legislator has delayed approval of the funding -- at least temporarily.

State Sen. Bill Ingebrigtsen, R-Alexandria, chairman of the Minnesota Senate's Environment and Natural Resources

Finance Committee, requested his committee hold a hearing on the program after the legislative session starts.

Ingebrigtsen said he expects the funding to be approved early in the session.

IMPACT ON MINNESOTA LOONS

The Deepwater Horizon disaster dumped nearly 5 million barrels of oil in the Gulf of Mexico, where many of Minnesota's loons spend their winters.

Carrol Henderson, who retired in 2018 after a long career heading the nongame wildlife program at the state Department of Natural Resources, led a seven-year study to determine whether Minnesota's loons had been affected by the oil spill. Researchers used radio implants and geolocators to track loons' movements and how deeply they dove into the water in search of food. They found traces of oil and the chemicals used to disperse the spill in the birds' feathers, eggs and blood. *continued on page 3*

President's Corner

position of President of Otter Tail Lakes Property Owners Association as of our last meeting in July. My wife, Karyl, and I live on the north end of beautiful Ottertail Lake. After my retirement in 2009, we moved from our home in Red Wing, MN and made Ottertail our full-time residence. Before retirement. I worked in banking for 38 years. I have always loved the lakes area and am happy to be near my hometown of Audubon where I grew up on a farm and attended Audubon High School. After high school, I attended the University of MN, Crookston, and Mankato State University.

I am proud to accept the I also served in the US Army osition of President of Otter 101st Airborne Division and ail Lakes Property Owners served in Vietnam for 15 months.

> I joined the OTLPOA Board three years ago, with the hopes of helping preserve one of our greatest natural resources. It's a priority for me to keep our lakes clean and free from Aquatic Invasive Species (AIS). Our lakes are the cornerstone of this area's economy and a great source of pride and joy for the people who live here. We will continue to do all that we can to preserve this beautiful area for the future.

Unfortunately, with Covid-19 restrictions, we have had to cancel several lakes activities such as the Annual Meeting and swimming lessons. We continue to work with the AIS task force, the DNR and other state and county agencies to prevent the spread of invasive species in our area lakes.

We are very close to finalizing the purchase and transfer of the Rearing Pond Project to the Otter Tail Water Management District. Rob Bope, Rearing Pond Committee Chair, is worthy of special mention for all his hard work in seeing this project from start to finish. I'd also like to thank Steven Nelson, Blanche Lake, for his hard work in raising the necessary funds to purchase this property from the DNR. Once the purchase and transfer are complete, this property will be preserved in its current state. We look forward to a formal dedication ceremony before year end.

As summer is slowing giving away to fall, let's all continue to be good stewards of our lakes as we enjoy the beauty, relaxation and fun of being property owners in such a beautiful area. I look forward to meeting more OTLPOA members in the coming year!

> Roger Anderson OTLPOA President



Lakeshore News — The Voice of Otter Tail Lakes Property Owners Association

August 2020 Page 3

Lead-Free for Loons... continued from page 1

"They were bringing them back to Minnesota and they were actually passing these contaminants on in the eggs that they laid," Henderson said.

Henderson helped put together a plan to use BP settlement dollars to help the loons. Most of the more than \$6 million Minnesota was awarded was reserved for the DNR's efforts at protecting and restoring loon habitat, including conservation easements and nesting platforms.

URGING ANGLERS TO DITCH LEAD About \$1.2 million of the settlement money was designated to address a common cause of loon mortality: lead poisoning. Loons are especially susceptible to lead poisoning because they swallow pebbles at the bottom of a lake to help them grind up their food. "When they accidentally pick up a lead jig or sinker off the bottom, all it takes is one split shot or one jig to kill the loon from lead poisoning," Henderson said. Lead is toxic for loons and other waterfowl. The MPCA estimates that lead poisoning causes about 14 percent of Minnesota loon deaths.

"It's something that's totally avoidable if people simply learn to shop for nontoxic igs and sinkers." Henderson said.

Lead-free alternatives made from materials like tin, steel, bismuth or tungsten sometimes can be hard to find in sporting goods stores, Henderson said. He said consumers can help change that.

"This is a growing portion of the retail market for angling," he said. "But it needs a little bit of a push to get people to ask for it. Otherwise, the market doesn't grow."

Some states, including New Hampshire, Vermont, New York and Massachusetts, have total or partial bans on the use of lead sinkers and jigs. Minnesota's lead-free campaign is voluntary. To date, efforts to prohibit lead tackle and ammunition in the state have been unsuccessful.

FUNDING DELAY

The MPCA received notice in November from the U.S. Fish and Wildlife Service

that it had been awarded the \$1.27 million for the lead program.

But the MPCA didn't get immediate approval from the state's Legislative Advisory Commission, which would allow the agency to begin spending the money on Jan. 1. The commission has authority to review and grant requests by state agencies to spend federal funds.

The approval was delayed after Ingebrigtsen requested to hold a committee hearing first. He said he's not opposed to the MPCA's Get the Lead Out program, but wanted his committee to hear details about how the money will be spent.

"From that point on, I think the money will come," he said. "We just needed to know exactly how it's going to be spent."

Ingebrigtsen said he also wants more information about the involvement of the planned National Loon Center in the MPCA's program. The center, which is set to be located in Crosslake, Minn., north of Brainerd, hasn't been built yet, but the MPCA is working with its parent organization to place outdoor educational kiosks about lead poisoning at the future site.

Henderson worries that any delay could put the federal money at risk.

"We can reduce the amount of lead that we're putting into our lakes," he said. "There's no good logical reason that I can see why we need to be holding back on this thing."

Kate Healy, a biologist with the U.S. Fish and Wildlife Service's Gulf Restoration Office in Alabama, is overseeing projects that received funding from the BP settlement. She said Minnesota's delay in approving the federal funds is unusual, but at this point, she's not concerned.

In the meantime, the MPCA is moving forward with plans to launch the program. The agency has already posted a website that lists more than three dozen companies where anglers can find lead-free fishing tackle that won't harm loons.

Source: www.inforum.com Article written by Kirsti Marohn/MPR News





LAND TRANSFERS July 1, 2020 until Aug. 10, 2020

| TWP | LAKE | PROPERTY TYPE | | GRANTOR | | GRANTEE | | PRICE |
|-------------|----------------|---------------------|---------|-----------------------------------|----------------|-------------------|--------------------|-----------|
| GIRARD | W BATTLE | RESIDENTIAL | | ARONE, E. MICHAEL & KE | RISTINE | IVERSEN, RYAN 8 | ELIZABETH ANN | \$567,600 |
| OTTERTAIL C | TY DONALD (OT | CTY) SEASONAL RES F | REC | CHMIELEWSKI, GERALD | & DEANNA | ARENTZ, NATHAN | N & AIMEE | \$105,000 |
| OTTER TAIL | OTTERTAIL | SEASONAL RES REC | | FLUCK, KENNETH 0 & DC | NNA M | HOLZER, NATHAN | I & DISIREE | \$398,000 |
| GIRARD | W BATTLE | SEASONAL RES REC | | LUCY, ROGER & STEPHAN | NE | WALSTEAD, MAR | IK D & BETH A | \$461,000 |
| AMOR | OTTERTAIL | RESIDENTIAL | HANS | ON, STEPHAN R & KRISTII | N A ISAKSO | N,SARAH L & RICH | HARD & DIANE | \$668,800 |
| OTTER TAIL | OTTERTAIL | RESIDENTIAL | | BEELER, GERALD J. & IRE | NE K. | DUNN, DUANE & | KATHIE & JUSTIN | \$625,000 |
| EVERTS | SILVER(EVERTS) | SEASONAL RES REC | | HOHN, JEFFREY J & CHR | ISTINE & CRAI | G A & PATRIC DAL | ZELL, TODD & JULIE | \$129,900 |
| GIRARD | ETHEL | SEASONAL RES REC | | KROG, GERALD & DEANN | ΙE | HAGEN, MICHAEL | & JILL | \$152,500 |
| OTTERTAIL C | TY BUCHANAN | I SEASONAL RES REC | | OLSON, JEFFREY & APRIL | - | SCHMIDT, ANTHO | NY & BRITTANY | \$274,300 |
| EVERTS | SILVER(EVERTS) | RESIDENTIAL | ROBEF | rt F. Duerr and Jane L. | DUERR, CO-TF | RUSTEE WEAR | R,ERIC & SARAH M. | \$540,000 |
| OTTERTAIL C | TY PORTAGE | SEASONAL RES REC | | SENECHAL,LINDA L | | SMITH, ROBERT 8 | & MICHELLE M | \$229,000 |
| GIRARD | W BATTLE | SEASONAL RES REC | | SUNDERLAGE, JACK W. 8 | & NORMA JEA | N FOOTE,BRYAI | N R. & DANA N. | \$42,000 |
| EVERTS | SILVER 3RD | RESIDENTIAL | | FLOERSCH, EUGENE B & | KRISTI L | FISCHER, PAUL J 8 | & PATRICIA M | \$416,500 |
| GIRARD | W BATTLE | RESIDENTIAL | | LINDNER, JOHN M | | PASEK, GREGORY | & SHIRLEY | \$449,420 |
| EVERTS | BLANCHE SE | ASONAL RES REC R | ICHAF | RD L. DAVIS AND MARIAN | NNE D. DAVIS I | LIVING LEINEN,J | IEFFREY & MAXINE | \$459,500 |
| OTTERTAIL C | TY OTTERTAIL | RESIDENTIAL GULIC | K-COC |)PER,TERESA / COOPER,V | ERNON L FRI | ITCHMAN,APRIL LY | (NN & PHILLIP EARL | \$218,000 |
| GIRARD E | BATTLE SEAS | ONAL RES REC MULLA | ANEY, J | JAMES D & JENNIFER A | HAUGDAHL,C | HRISTOPHER S / E | LLENSON, MATTIE R | \$99,900 |



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Dams Disappear as DNR Moves Ahead with Free-Flowing Rivers

May 19th 2020

Aiming to return Minnesota's river systems back to their original, untamed state, the DNR has for several years now been chipping away at older dams and other obstructions and replacing them with rock arch rapids -- or sometimes leaving the dams in place and building rock "ladders" to let fish move around them. The idea is to help not just fish, but turtles, frogs, ducks, river otters and all manner of other critters, said Amy Childers, who works in the Minnesota Department of Natural Resource's River Ecology Unit. Most recently modified were the outlet dams on Prairie and Lizzie Lakes, on the Pelican River chain between Dunvilla and Pelican Rapids, which saw work done over the winter and early spring.

The DNR works with whoever can get the job done -- lake improvement districts, counties, soil and water conservation cities, districts. townships, lake associations, private property owners -- and every project is different, and has different funding sources, said DNR assistant fisheries supervisor Howard Fullhart in Fergus Falls. In the case of dam-modification projects on Fish, Lizzie and Prairie lakes, the Pelican Group of Lakes Improvement District "was the driving force on all three," Fullhart said. It started with Fish Lake. "They wanted to create a fish passage and rock arch rapids," in place of the outlet dam there, he said. The Pelican LID landed a grant from the state's outdoor heritage fund, which drew some federal Fish & Wildlife Service dollars, and then it added some of its own money, Fullhart said.

When the Fish Lake project was done, there was money left over. People on Lizzie and Prairie lakes liked the look of the new rock rapids, wanted it done on their own lakes, and the Pelican LID helped make it happen, with more support from the outdoor heritage fund, Fullhart said. On the Fish Lake project, Houston Engineering of Fargo did the

survey work and concept design, let the bids, and oversaw the project. Hough Inc. of Detroit Lakes won the contract and did the construction work. Local contractors benefited and the DNR saw three dams modified on the Pelican River chain without having to be deeply involved, "which makes for faster projects, also," Fullhart said. DNR Fisheries oversees work on many of the smaller projects, when smaller, older dams are on DNRowned land, Childers said.

What's the point of it all?

Birds aren't the only animals that migrate. When the rivers are open and free-flowing, then all sorts of animals -- fish, mammals, reptiles, amphibians, invertebrates -- use them as a path to migrate, according to written information from Childers. Clean, free-flowing water, different water depths, and a good mix of streambeds -- including gravel, sand, boulders, and even woody debris -- are what make for diverse aquatic ecosystems, she added. Let's talk fish: They come in all forms and sizes, eat all sorts of different things, and have their own ideas about the best place to spawn or take cover. Some fish, like redhorse suckers and darters, live their lives mostly in those fast flowing, shallowish, rocky areas called riffles. Walleye, catfish, and rock bass, on the other hand, prefer deep, cool, slower moving pools, Childers said. These areas also give fish vital shelter during the cold winter months and refuge during the low-flow, dog days of summer and into autumn. A lot of the smaller minnow species prefer the shallow, sandy, clearer areas to avoid predators. Few fish were able to power over the crest. The dam was enhanced with rock rapids earlier this year.

And of course, fish of all shapes and sizes love the cover and feeding opportunities along banks with vegetation, downed trees, exposed roots or overhanging plants, she said. As people are becoming more and

Continued on page 5





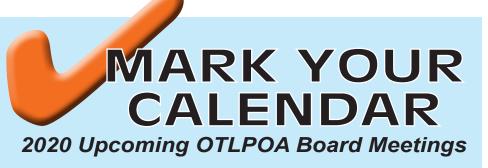
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more aware, everything in this world is connected: Childers says survival of river animals depends on the connectivity of where they live -- from backwaters to floodplains to lakes and wetlands. As birds travel, so do fish and water critters, which migrate long and short distances, upstream and downstream, throughout the year, to breed, eat and recolonize. Even those tasty walleyes, loved by fishermen, migrate out of the lakes every spring to spawn in the rocky riffles, or to escape low oxygen conditions in shallow lakes or wetlands during the winter.

Return of the lake sturgeon

Childers says some fish, like the mighty lake sturgeon (which can be more than six feet long and weigh almost 200 pounds) will migrate surprisingly long distances -- hundreds of miles. Sturgeon spawn in the spring in steep riffles and rapids, and they travel hundreds of miles to search for, or return to, the fast flowing, rocky waters of their spawning areas. Lake sturgeon were wiped out by the late 1800s in the entire Red River Basin -doomed in part by dam construction and habitat degradation, Childers said. Now they are back, after dams were removed on the Red River. Fingerlings have been stocked in Otter Tail Lake since 2002 and some are now 5 feet long.

And lake sturgeon aren't alone: Childers says other fish and aquatic species were eliminated by barriers as well. Stream surveys analyzed by the DNR River Ecology Unit in Fergus Falls showed that an average of 41% of the fish species downstream of dams were absent upstream of the barrier. When the dams were removed or modified, most of these fish species returned. The rock arch rapids which replace dams are also safer for people to fish and boat around, Fullhart said. "Anytime you have a dam, you have a chance of someone drowning," he said. For all those reasons, the DNR has been working with local communities on its "Reconnect the Red" initiative by removing or modifying dams throughout the basin. And yes, both the Pelican River and the Otter Tail River are part of the Red River Basin -- the Pelican joins the Otter Tail just west of Fergus Falls, and the Otter Tail then heads west to join the Bois de Sioux. Together they form the start of the Red River, which flows north to Lake Winnipeg.

So how is the initiative going?

Round these parts, more dam removal work has been done in the Detroit Lakes area than in the Fergus Falls area, at least for now: On the Otter Tail River, the dams that have been removed or modified into rock rapids include one at 335th Avenue in Rochert; the Lions Park dam in Frazee; and the Frazee mill dam.

On the Pelican River, the dams that have been removed or modified into rock rapids include a major project at Dunton Locks; the Shoreham dam; and of course the Fish Lake, Lake Lizzie and Prairie Lake dams. On the Pelican River. the major projects remaining in this area are bigger dams that completely block fish access at Bucks Mills and in Pelican Rapids. And changes are coming there as well. The Pelican Rapids City Council has voted to proceed with modifications at the city dam site. The Bucks Mills dam is on state-owned land, and "we'll probably take on that project ourselves," perhaps with a local partner, Fullhart said. It's not yet clear what the project will entail. "We're just scratching the surface with that one," he said."What can be done, what can't be done -- there's a whole lot of community outreach that needs to be done -- we can remove the dam, turn it into a rock rapids, or build a fishway around it." Moving southward, the dam at Dunvilla is a low dam that allows some fish access during high flows. That's also true of the Otter Tail Lake outlet dam. Further south, more work remains to be done on both rivers, since the privately-owned Elizabeth dam, the Phelps Mill dam and the Friberg dam completely block fish access, as do the Pisgah dam and the Central Wright dam near Fergus Falls.

On the plus side, the Diversion dam and the Steam Plant dam near Fergus Falls have both been modified to allow full fish access. The Diversion dam has a fish ladder. Lakeshore owners are often concerned about water levels dropping if a dam is removed, but engineers using rock rapids "are able to maintain about the same flow as the dam," Fullhart said. Ultimately, opening back up a river into a free-flowing system could be a win-win situation: "People are impressed by how the projects look," Fullhart said, and the rock rapids can create spawning areas that will lead to more natural reproduction of fish.

Source: MN DNR Article Written by: Nathan Bowe

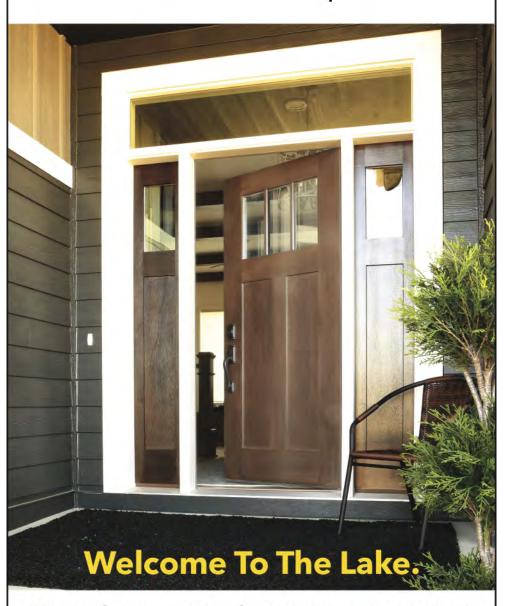


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Page 5



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Hot Enough for You? Climate Change Also Heating Up Our Freshwater Lakes

By Jeff Forester

All things considered; it's been a hot Minnesota summer in 2020, on top of everything else this disastrous year has brought us. Two years ago, two dramatic climate change reports came out in the fall, The October 2018 Intergovernmental Panel on Climate Change's "Special Report on Global Warming of 1.5C" and the November 2018 study, the Fourth National Climate Assessment" from administration. Trump the Both warned of continuing and severe economic and environmental damages, mass migrations, and other global consequences unless more direct action is taken by countries now.

Minnesota was identified as one of the few states where the impacts from warming climate are already evident! We're seeing dramatic climate change effects with wetter weather, added heat stress, more severe seasonal storms and potentially chronic impacts to food production and other related issues.

That was one of the key takeaways Minnesota Public from Radio's Meteorologist, Paul Huttner, last summer while addressing members and guests at Minnesota Lakes and Rivers Advocate's "Water Connects Us All" annual meeting in Cass County last summer. The emeritus "weatherman" at the University of Minnesota, Mark Seely, has issued similar observations, along with his university research colleagues, who say the state is one of the three fastest-warming in the nation.

Warming climate in Minnesota is already having a negative effect on our lakes. According to an October 2018 news story by MPR, "The most significant change Minnesota has seen is warmer winters, which can affect everything from ice on lakes to the snow season for winter recreation — and even the types of animals, trees and insects that are thriving across the state.... Minnesota is also getting wetter, thanks to climate change, as more of the state's precipitation comes in the form of heavy rainfall."

The story, which remains as relevant today as it was two years ago, notes how wetter weather has a domino effect. "That has a whole range of effects — in cities, it means more flooding and problems with infrastructure. And in the rural areas of the state, it can hurt farmers: Heavy rain can erode the soil they use to grow crops, making it tougher to do field work..." and I would add that includes the whole cropgrowing cycle, from planting on time to managing crop growth and preventing washouts to harvesting on time. The increased runoff of the many pesticides, herbicides, fertilizers and fungicides used on industrial agriculture fields washes away with the soil and is carried to the lakes.

More Research Needed on Warming and Waterways

We know there have been studies that have looked at how forests and agriculture are affected by climate change, but we need more research about the effects warmer weather has on waterways. For example, there are significant impacts due to climate change on metro lakes. But there is not much data on climate impacts on all lakes. Likewise, we have good models for city infrastructure, agricultural land and forest land because cities, the timber industry and agricultural interests have largely paid for that research. But there is no concentrated industry to pay for the needed research to safeguard freshwater lakes as temperatures keep rising.

Despite not having a genuinely clear picture, those paying close attention already know that lakes are in trouble. Lakes, however, are more complex than forests, fields or cities. Temperatures from the top of a lake to the bottom can span many degrees, changing the amount of dissolved oxygen and other elements. The interactions among the very small single cell plants and animals and the larger and more complex species is also highly complex and not completely understood.

Changing lakes, or attempting to "restore" a lake, is usually unsuccessful and exceedingly expensive. Often some rehabilitation is possible, but total restoration is elusive. Unlike forests and farm fields, lakes are public waters with social/cultural factors that are complex. And there is an alphabet soup of agencies and organizations that have some role in water management, including DNR, MPCA, Department of Agriculture, Lake Associations, Lake Improvement Districts, Watershed Districts, Soil and Water Conservation Districts, the Army Corp of Engineers, the United States Forest Service, and even the National Oceanic and Atmospheric Administration. The silos are plentiful. Water flows around and between them on its way towards impairment.

Our group members and statewide lake association members are trying to educate lakefront property owners to restore their shorelines as one preventative measure against things like shoreline erosion. But more research and action are needed to keep lakes as fresh as possible. Unfortunately, it's likely that not all the effects of climate change and rising temperatures can be reversed. Minnesotans will have to adapt, including their choices of fish. Research suggests that we're not going to have the bountiful walleye lakes, like we have now.

If we want to protect family time at the lake – and our \$13 billion dollar tourism industry that's driven mostly by our natural resources like our lakes -- we need to address a lot of issues including pollution, fisheries issues, and guard against aquatic invasive species. But changing water temperature needs to be high on our priority list. The warming climate demands it.

Jeff Forester is an avid outdoorsman, a cabin owner on Lake Vermillion, and the Executive Director of Minnesota Lakes and Rivers Advocates, a non-profit organization: www.mnlakesandrivers.org



AIS Inspector Ryan Stegman working at Blanche Lake access Photos submitted by Ken Wentz





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IRID

August 2020 Featured Plant: Prairie blue-eyed grass (Sisyrinchium campestre)



Photo Credit: Tony Randazzo

Planting Recommendations & Uses

Prairie blue-eyed grass can grow as small, individual stems or as clumps a couple of inches in diameter. Because this tiny iris is both small and early blooming, it fits easily into nooks and crannies where larger, showier species do not. It does well in sandy to moist soils. Growing readily from seed, it requires a cold period to break dormancy. Seeds can be scattered over bare soil in the fall or kept cold over winter and then broadcast onto the last couple of inches of snow in early spring. Plants will re-seed and spread easily if not out-competed by more aggressive species. Container plants, available from native plant nurseries, can be planted individually or as dense clumps several inches in diameter. Prairie blue-eyed grass can be used as a small accent plant in a spring wildflower garden. Because it's one of the first spring bloomers, it will attract many pollinators. No edible or medicinal uses for this species are documented. It can help stabilize soils on dry to mesic slopes.

Developed by Greg Hoch, Minnesota Department of Natural Resources prairie habitat supervisor.

Family: Iris (Iridaceae)

DESCRIPTION: One of the earlies forbs to bloom on the prairie, prairie blue-eyed grass' flowers, ranging from pure white to light blue, open in mid-May. This short species grows in low, wet areas and on the driest hilltops. While primarily a prairie plant, it can tolerate woodland edges.

SIMILAR SPECIES:

Two closely related species are found in Minnesota. Mountain blue-eyed grass, S. montanum, has blue to deep violet petals. Sepals' tips are usually notched. Flowering stems are flattened and finely toothed with distinct wings on the edges; they twist as they extend up to the flowers to about the same height

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as the leaves. Needle-pointed blue-eyed grass, S. mucronatum, has blue to violet petals. Its sepals are usually rounded at the tips. Its wingless flowering stems are slender, wiry and

ID: Usually about 8 inches tall, this perennial produces pale blue to white flowers with six petals. Flowers grow a half-inch to 1 inch wide, arranged in small clusters near the top of the stem. Winged, unbranched, smooth-edged stems look similar to iris leaves, growing about one-eighth inch wide and as tall as the leaves. Sepals are mostly rounded at the tip. The fruits, small round capsules, are ready to harvest when they redden on top. On the prairie, it's always a treat to find buried in last year's thatch.

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Minnesota Effort to Slow Aquatic Invasive Species is Working

Most boaters are taking action to slow the spread of aquatic invasive species, and only 8% of Minnesota lakes are infested.

Every year more lakes are infested with zebra mussels, starry stonewort, spiny water fleas, Eurasian water milfoil and more. Asian carp are moving up the Mississippi River system, and snakehead fish — that breathe out of water and can move on land — aren't far away.

Aquatic invasive species, or AIS, have saturated some of our most popular waters, like Mille Lacs, Winnibigoshish, Lake of the Woods and the St. Louis River estuary. It seems just about every lake and river now has some sort of invader. And it seems inevitable that even the lakes that don't have them will get them soon. Only that's not the case at all.

In Minnesota, only 8% of all lakes have a verified aquatic invasive species. And officials say the math shows that efforts to slow the spread of AIS are in fact working. "Stop Aquatic Hitchhikers" and "clean, drain, dry and dispose" have become ingrained on many Northlanders' boating checklists, like life jackets, minnows and sunscreen.

"What we've learned is that it's not inevitable that every lake is going to get them. That's not what's happening," said Doug Jensen, the Duluth-based aquatic invasive species expert for Minnesota Sea Grant, who helped develop public outreach campaigns for AIS over the past 20 years. "And the numbers show that the spread is much, much slower than if we had done nothing at all." Zebra mussels have now been confirmed in 214 lakes and wetlands in the state and are considered likely in 194 other water bodies connected to those lakes. Still, that's only 408 out of 11,842 Minnesota lakes, or 3.5%.

Jensen says the fact that so few Minnesota lakes are infested 30 years after zebra mussels and Eurasian water milfoil came into the state is "remarkable," especially noting we have 866,000 registered boats (not including those from out of state) some 1.4 million anglers and more than 3,600 public boat landings that all serve as possible vectors to spread invasives. Throw in duck hunters, wakeboarders, scuba divers, dock installers and others who move between lakes and the potential of spread seems insurmountable.

But what Minnesotans have been doing, in most cases at a pretty good rate, is follow two decades of constant reminders to inspect, clean and drain their boats every time they take a boat out of a lake or river. We are reminded of the constant battle by messages on billboards, in the media and social media, on floating key chains, can-coolers, by state conservation officers and by AIS inspectors at boat landings.

Inspections show progress

In 2019, trained AIS boat inspectors for the DNR, counties, lake associations and other groups inspected more than 511,000 boats at landings across the state, by far the most ever. They found more than 96% of boaters were taking



Dean Nordstrom is patiently waiting for the baby eagle to move a bit so he can putt on Balmoral #17. action to drain their boats to prevent moving AIS and 97% were removing weeds. That's up from 71% compliance as recently as 2014. People are, for the most part, pulling weeds off their trailer, pulling their drain plugs out, emptying their livewells and disposing their leftover bait in the trash can at the landing when they leave.

Compliance was still decent, but fell off noticeably, at DNR random checkpoints set up without notice along highways popular for trailered boat traffic. At these roadside checkpoints compliance rates dropped to 81 percent on average in 2019 and were as low as 69% at one checkpoint along U.S. Highway 53 north of Duluth. Out of 84 trailered boats inspected that day, 11 owners were issued AIS citations (up to \$250 each) and 15 were issued AIS warnings.

Still, the 81% compliance rate at roadside inspections is up from just 63% as recently as 2012, another sign that more boaters are getting the message and taking it more seriously. "The trend is getting better. People are listening. People are taking action," said Kelly Pennington, AIS prevention coordinator for the Minnesota DNR. "Most people are following AIS regulations, and that wasn't always the case before."

Not only does that prevent the spread of known invaders, Pennington noted, but every time someone removes a weed from their trailer or drains their livewell it means reduced risk of a new, as yet unknown invader being spread.

"People have bought us time. Most Minnesota lakes still are not infested with AIS," said Nick Phelps, director of the Minnesota Aquatic Invasive Species Research Center at the University of Minnesota. "The modeling shows us that it's working. Far fewer lakes are impacted because people have taken action." The effort hasn't been cheap. Last year the state spent \$9.7 million on AIS education, control and enforcement efforts, not including university research. Much of that comes for the state's general tax fund, with some from federal grants and the rest from the \$10.60 AIS surcharge on all state boat licenses. The DNR spends some of that money.

The rest is passed on to counties that dole out millions of dollars each year to lake associations and other groups



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for AIS projects across the state. (It's not yet clear how inspectors might be deployed this summer during COVID-19 restrictions.)

Jeff Forester, executive director of the Minnesota Lakes and Rivers Coalition, the statewide umbrella group advocating for lake associations across the state, said it's great that more Minnesotans are taking AIS seriously. But he argues that too many holes still exist for AIS to slip through. It's clear the battle is not over: Some 54 new water bodies were declared infested with zebra mussels in 2019 and 18 more reported Eurasian water milfoil invasions.

Forester advocates for mandatory inspections for all watercraft and waterrelated equipment entering the state, and he wants more and tougher penalties for people who violate AIS rules at boat landings or on the road. Minnesota's future as the Land of 10,000 usable lakes, he said, is still at risk.

"If we have 31% violation rates on some roadside checks, we're missing a big chunk of people with both the (education) message and the inspection. These (boats) are getting in and out of the lakes at marinas or lodges or other private landings where we don't have inspectors," Forester said.

Forester says some boaters still aren't taking AIS seriously or don't think it's worth the effort. "We have 300,000 cabins and lake homes across the state but we have 6,000 members," he said. "We need more people to develop a Minnesota lake ethic... to be as passionate about protecting the lakes as they are about using them."

He also worries that, as more lakes become infested with a single invader, people will let their guard down, wrongly believing that there's no point in protecting a lake that's infested. "What people need to know is that, while having one of these things is bad, having two or three of them can be exponentially worse. We don't know which new (invader) is going to break it," Forester said. "Look at Mille Lacs. Maybe it could make it with just spiny waterfleas or just zebra mussels. But combine the two and I don't think we'll ever see it come back the way it was for walleye fishing."

Source: www.inforum.com/sports/ outdoors (exerpts)



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Beth Madson, Realtor ottertailbeth@gmail.com 320-808-6492

Lakeshore News — The Voice of Otter Tail Lakes Property Owners Association



legislation, and problems/solutions, and by addressing individual members' concerns when possible or referring them on to a source for answers. Additionally, because of our concern and belief regarding not only a well-informed membership but a well-informed public, stacks of The Lakeshore News are placed in businesses in the surrounding communities.

We accept online payments for: • Annual Membership • Worm Spraying • Foundation Donations



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Young Walleye Are Smaller In MN Lakes With Zebra Mussels, Spiny Waterflea

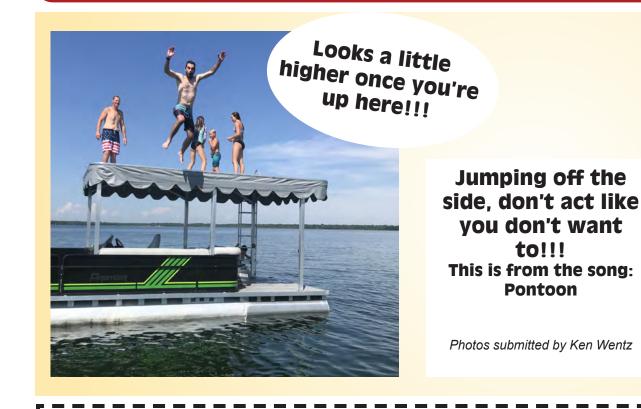
A new University of Minnesota study has found that, when lakes were infested with two common aquatic invasive species - zebra mussels and spiny waterflea - young walleye didn't grow as large as quickly, as they did before the invaders arrived. The Aquatic Invasive Species Research Center study focused on nine large Minnesota lakes that are destinations for walleye anglers: Lake of the Woods, Rainy, Kabetogama, Vermillion, Red, Cass, Winnibigoshish, Leech and Mille Lacs. Lead researcher Gretchen Hansen, an assistant professor at the university, analyzed data the Minnesota Department of Natural Resources has been collecting from fish in those lakes for 35 years. Hansen found that walleye in lakes

infested with zebra mussels or spiny waterflea were 12 to 14 percent smaller after their first summer than before the lakes were infested. That equates to about half an inch to three-quarters of an inch for a 5- or 6-inch walleye, she said. Hansen said that might not seem like much, but the size of a fish after its first summer can affect its chances of survival later. "The next step of our research is to really tackle that question is: Do these changes in early life growth translate into impacts that people might see in walleye that they fish for?" she asked. Hundreds of Minnesota lakes are infested with zebra mussels or spiny waterflea, two invasive creatures that have a significant impact on lake ecosystems. Researchers

know that both species reduce a lake's zooplankton, an important food source for young walleye.

But Hansen said researchers weren't sure how those impacts translate up the food chain to larger species. So, they focused on walleye and yellow perch, which eat zooplankton during the first year of their lives. The lakes in the study were chosen based on their importance as walleye fisheries, accounting for about a third of Minnesota's annual harvest of the fish. Two of the lakes are infested with zebra mussels, four with spiny waterflea and one — Mille Lacs — with both. Two of the lakes, Leech and Red, were uninfested at the time of the study, but have since been confirmed to have zebra mussels. The study did not find a consistent trend of smaller young yellow perch in infested lakes, Hansen said. That was somewhat surprising, she said, because they rely on zooplankton even more heavily than walleye. Researchers can't know for sure that a loss of zooplankton is what's affecting young walleye growth. Hansen said there could be other impacts such as increasing water clarity, which walleye don't like. Hansen said she plans to continue her research, including how the results translate to smaller and mediumsized lakes and older walleye.

The study was published this week in the journal Biological Invasions. *Source: MAISRC*



LUTHERAN

Battle Lake Campus:

218-862-4903

Bethel Lutheran Church

112 West Main St., Battle Lake

Website: bethellutheran.church

Sunday School 9:15 am

Worship: 10:30 am

First Lutheran - ELCA

Bradley Skogen, Pastor

Church-218-864-5686

Worship: 10:00 am

Martha Halls, Pastor

Worship 9:00 am

Church-218-826-6919

blfirstlutheran org

505 W. Holdt St., Battle Lake

Rob Nelson, Visitation Pastor

Coffee Fellowship: 9:00 am

Communion 1st & 3rd Sundays

Sverdrup Lutheran Church

PO Box 70 209 Southern Ave. E., Underwood

Meets at Lakes Area Community Center

(no Sunday School during summer months)

F

BAPTIST

Basswood Baptist Church B.G.C. 38188 340th St., Richville, MN 56576

- Bert Holmquist, Pastor—218-495-3800
- Church—218-495-3771

- Sunday School 9:30 am, refreshments following
- Worship Service 10:45 am
- Bible Study, Youth Group & Kids Club Wednesday 7:00 pm
- Ladies' Bible Study 3rd Thursday Men's Prayer Breakfast - 1st Saturday 7:00 am
- Potluck Dinner 2nd Sunday
- First Baptist (ABC) Battle Lake "The Little Brown Church on the Hill"
- Lynn Hansen, Pastor—651-485-7378
- , www.firstbaptistbattlelake.org
- Sunday Worship 9:30 am
- Fellowship & refreshments 10:30 am

BATTLE LAKE ALLIANCE

401 W. Gilbertson St., Battle Lake Derek Mansker, Pastor • Church—218-864-5539 Sunday Worship Service 10:00 am Fellowship & refreshments after service Find us on the web at battlelake.org

CATHOLIC

Father LeRoy Schik, Pastor Mass Times—218-864-5619 www.ollsj.org St. James Catholic - Maine Township Sunday Mass 8:30am, May 1 - Sept. 30 Saint Edwards - Henning Saturday Mass 4pm, May 1 - Sept. 30 Our Lady of the Lake - Battle Lake Saturday Mass 6pm, Memorial Day-Labor Day Sunday Mass 10:30 am



Tingvold Lutheran Church

6 miles north of Underwood, Co. 1 & Co. 35 Martha Halls, Pastor Church—218-826-6487 September 1-May 31: Service 11:00 am Fellowship 10:00 am June 1-August 31: Service 10:30 am Fellowship 9:30am

Zion Lutheran - ELCA

- 36051 Co. Hwy. 74, Amor Hwy. 1 & 74, 10 miles north of Battle Lake James Gronbeck, Pastor • Church—218-495-2563 Email: zionamoroffice@prtel.com Website: www.zionamor.org Summer Services May 12-September 15 Worship 8:15 am & 10:00 am Communion 1st & 3rd Sundays 8:15 am - Traditional Service Weekly 10:00 am - Informal Service 1st & 4th Sundays (Piano) Contemporary Service; 2nd & 3rd Sundays (Praise Team)
- Bible Study Tuesday 10:00 am, Evening Bible Study -Contact church office for date and time



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METHODIST

Ottertail United Methodist Church 104 Shores Drive, Ottertail Ricardo Alcoser, Pastor Church—218-367-2270 Worship 8:45 am Coffee Fellowship following Worship

Richville United Methodist Church

130 SW 1st Ave., Richville Ricardo Alcoser, Pastor Church—218-346-5656 Worship 10:30 am Coffee Fellowship following Worship 2nd & 4th Sunday

PRESBYTERIAN

Maine Presbyterian 30761 Co. Hwy. 45, Maine Township 2 miles north of Phelps Mill Ed Morgan, Reverend Website: mainepresbyterianchurch.org Church—218-495-2539 Summer - Worship 9:30 am (Thru August) Coffee Following Worship Service Winter - Worship 10:00 am

Upcoming Training Events

The MWPCP has cancelled all scheduled classes up to this point. The program will attempt to reschedule all cancelled classes when and if COVID restrictions are loosened and/or lifted to allow in-person training. MWPCP classes scheduled for September are still on, and the decision to go forward or cancel will be made in

August. Registrants for all canceled classes who paid fees will receive credit toward future training, including any re-scheduled classes.

Sep 14-18 - Basic Minnesota Wetland Regulation & Delineation, Brainerd

Sep 18 - MWPCP Professional and In-training Certification Exam, Brainerd

Sep 23 - Minnesota Wetland Regulation & Delineation - Classroom, Bemidji

Sep 24 - Minnesota Wetland Regulation & Delineation - Field, Bemidji

BWSR Training

October

Oct 27-29 - 2020 BWSR Academy, BWSR

Technical Training & Certification Program Events

August

Aug 24 - Fertilization in a Soil Health System

Aug 31 - Nutrient Management Module 5: Nitrogen

Related Partner Training Opportunities

September

Sept 9 - Shoreline & Watershed Practices Tour 2020, MECA Sept 10 - Better Buffers: From Dirt to Butterflies, MECA, St. Joseph

October

Oct 20-21 - Minnesota Water Resources Conference, U of MN, online

December

Dec 6-8 - MASWCD Annual Convention and Trade Show, MASWCD, Bloomington/Minneapolis South

Dec 8 - Construction Dewatering Workshop, MECA, Minneapolis

Learn on Your Own

We've also put together a searchable library of recorded modules, webinars, videos and other resources to help our staff and partners find professional development information on a variety of topics. You can visit BWSR's Online Learning page to find web-based technical training resources sorted by category.

Program Contacts

Barbara Radke Training Coordinator (507) 844-0442 barbara.radke@state.mn.us

Jon Sellnow Technical Training & Certification Program Coordinator (218) 340-3521

jon.sellnow@state.mn.us



Golf Carts

Golf carts are required to have a permit and insurance to operate on city streets in Ottertail and to cross over any state highway. Anyone that operators a golf cart MUST BE 16 and HAVE A VALID DRIVERS LICENSE to drive on these roads.

Permits are available at City Hall for a cost of \$20 per year. Please remember to use these carts safely. Golf carts are a motorized vehicle and are not allowed on the multi-use bike/walking trail.



Over 5 inches of rain on Friday, August 14...in Less than 12 hours on **Blanche Lake**

Photos submitted by Ken Wentz







Page 12 August 2020 Lakeshore News - The Voice of Otter Tail Lakes Property Owners Association



Endocrine Disruptors in Lakes are Becoming an Emerging Concern

of Minnesota's waters have found a variety of unregulated chemicals -such as pharmaceuticals, fragrances, fire retardants, detergents and insecticides -- which are widespread in the state's lakes and rivers.

His reason: to study an egg yolk protein found in the perchs' livers, called vitellogenin, which may provide evidence of endocrine disruption in the state's aquatic species.

Over the past few years, studies of Minnesota's waters have found a variety of unregulated chemicals -such as pharmaceuticals, fragrances, retardants, detergents and fire insecticides -- which are widespread in the state's lakes and rivers. Some of these contaminants are called endocrine active chemicals, which can mimic the effects of hormones in humans and wildlife.

These EACs may not exhibit acute toxicity at the levels normally found in the environment, but instead, negatively affect the normal functioning, growth, and reproduction of an organism at very low concentrations, a report from the Minnesota Pollution Control Agency said. Their presence in Minnesota waters, as well as their potential negative effects on aquatic hermaphroditic and have both male

Over the past few years, studies species, is a growing environmental concern that has continued to show up on Isaacson's radar over the years.

"What they do is they disrupt the normal cell signaling pathways," Isaacson said. "They can affect development, so what your baby turns out to look like. They can affect reproduction, so whether or not you can have a child. They can affect your neurology, so how your brain works."

In the case of Isaacson's perch -- and other species of fish -- higher concentrations of vitellogenin are typically found in females because it is a necessary component in egg production; yet for male fish, vitellogenin concentrations are usually low.

However, when male fish are exposed to EACs, they can start to develop female attributes, such as increased vitellogenin concentrations. In more extreme instances, male fish have also been found to produce eggs in their testes -- a condition termed intersex. The exact cause of this isn't fully known, but it has been linked to certain known endocrine disruptors, such as the plasticizer bisphenol A (BPA) and the herbicide atrazine.

Some species of fish are naturally

and female sex organs; but, when fish are unnaturally intersex, it can cause reproductive problems within a species. Typically, the most apparent cases of endocrine disruption among aquatic species are found in bodies of water that are near cities with large populations of people, Isaacson said. Yet even in northern Minnesota, society's chemical footprint is farreaching.

Local impacts

Although he admitted that data is limited (the perch study hasn't been conducted for enough years), Isaacson and his class have found evidence to support that endocrine disruption may be taking place in nearby Lake Bemidji.

"One thing that we've noticed -we don't have a lot of data -- but one thing that's starting to emerge is that the male fish in Lake Bemidji have higher vitellogenin levels, relative to females, than in other lakes in the area." Isaacson said.

Another part of Isaacson's perch study looks at how vitellogenin concentrations may increase in male fish that are found downstream of human wastewater inputs.

"For Bemidji, it's just what we flush down the drain," Isaacson said. According to the Minnesota Pollution Control Agency, sources of these particular chemicals to surface water include municipal wastewater discharges, septic systems, runoff from animal agriculture, storm water and even rain and snow. Isaacson said wastewater treatment plants are not designed to remove EACs; they are designed to remove nutrients, such as nitrogen and phosphorus.

Once wastewater is treated, it is released back into local waterways where it's used again for any number of purposes, such as supplying drinking water, irrigating crops and sustaining aquatic life, a report from the U.S. Environmental Protection Agency said.

When asked what noticeable effects EACs in wastewater can have on fish populations, Isaacson cited a study conducted by the U.S. Geological Survey and University of Colorado scientists in Boulder Creek, Colo.

The study found that the population of fish downstream of the wastewater discharge from a sewage treatment plant was dominated by females, and 18-22% of fish exhibited intersex.

However, Isaacson noted that more research is needed to determine an effective way of removing EACs from wastewater at treatment plants in the US

The Bemidji Wastewater Treatment Facility currently utilizes ultraviolet disinfection during the ice free season, and Isaacson said he is interested in conducting a study looking at how this process could potentially remove EACs from wastewater.

'There have been studies showing that they do break down in the presence of UV light," Isaacson said. "So we want to look at the concentration of these endocrine active compounds when disinfection is taking place and when disinfection is not taking place to see if there's a difference."

Isaacson also noted that human exposure to endocrine disrupting chemicals is often a daily occurrence. They can be found in our food and water, household items and that "new car smell." And while these chemicals have been linked to health problems such as infertility and different types of cancer, "it's too soon to say whether feminized fish are indicative of health effects for humans too," an article by National Geographic said.

Still, Isaacson insisted that it's necessary to be mindful of everyday products and consider their ramifications on both human health and that of the earth.

"One takeaway is just to be conscious of what you're consuming. Do you really need to consume whatever product it is?" Isaacson said. "The products that you use in your daily life don't just affect you, they also affect the environment."

STOP AOUATIC

HITCHHİKERS

Source: OTC COLA July 2020 Newsletter

OTTER TAIL

CLEAN, DRAIN, D to stop aquatic hitchhikers

Aquatic Invasive Species THREATEN our natural resources. PROTECT our waters for future generations. REMOVE the drain plug for travel, DISPOSE of unwanted bait in the trash.

ottertailcountymn.us/department/aquatic-invasive-species

Lakeshore Owners Loving Their Lakes to Death to Live the Perfect #Lakelife.

By Darren Newville, District Manager EOT SWCD

I get it, we want our lake homes or cabins large enough to accommodate all our family and friends. We want to have patios and decks that allow us to enjoy an unobstructed view of the lake. We want perfect, golf course like, manicured lawns with sandy beaches that allow the kids or grandkids access to the lake for swimming. We want the lake in front of our lots to be weed free so the kids can swim without anything touching their feet or legs. We want a perfectly clear lake free of any aquatic invasive species, and we need to have a garage or shed conveniently placed and large enough to store all the toys we use on the water. We want the lake to be abundant with desirable fish so that we can catch one on almost every cast. We want to live the perfect #LakeLife experience. Sounds great, but is it great for the lake?

I remember a trip to Lake Okoboji, one of Iowa's great lakes, about 20 years ago. I lived in Southern Minnesota at that time. The wife, kids, and I were invited by some family friends to spend a Saturday afternoon on Lake Okoboji at their family cabin. Yes, I know, who lives in Minnesota and goes to Iowa to spend time on the lake? We went and had a great time. After a few hours of swimming from the boat and just hanging out, we did the slow tour just putting around the lake looking at the various homes and landscaped shoreline properties. That's when I got the question, "What do you think a shoreline property should look like? Do you like the nicely manicured lawn that is mowed right to the water's edge or do you like the more natural shoreline?"

Over the years I have often thought about that question I got some 20 years ago and try to relate that to how I would want a shoreline property to look if I owned one. Working in the soil and water conservation world for nearly 30 years and talking with a lot of lakeshore owners about different conservation issues, I would ask a different question. The question I would like every shoreline property owner to ask is "What can/should I do to mitigate the negative impacts from the development of my property to help protect or improve the water quality and the fish and wildlife habitat of the lake that my property is on?

There is a lot think about in that question. First, it acknowledges that by developing near the lake we are having a negative impact on the water quality and habitat of the lake. Second, it assumes that having good water quality is important to us, and finally it suggests that as property owners we can and should be doing something to mitigate the negative impacts we have created.

We are fortunate here in Otter Tail County. With only a few exceptions our lakes currently meet the water quality standards that have been set by the State for the type of lakes we have. However, that can change very quickly. There have been a lot of studies over the years on what affects the water quality of our lakes. All the studies agree that once the watershed of a lake has about 10% of its watershed developed, we start to see a dramatic decline in the water quality of that lake. When 25% of the watershed is developed the water quality of that lake will likely not meet water quality standards and be considered impaired.

We have over 1,000 lakes in Otter Tail County, all of them are uniquely different. Although, they are the same in the sense that with only a few exceptions most have been ringed with lake homes and cabins. A lot of these lakes are now starting to see the second and third tier of land around them be developed with more homes, large garages, and huge storage sheds. In most cases the natural vegetation has removed, and manicured lawns have been created so that the people who love their lake can enjoy a wonderful lake view and gain access to the water. With just about every lot being pushed to the limit of having 25% of the lot covered with impervious surfaces. Are we loving our lakes to death to live the lake life?

Aldo Leopold said "We abuse land because we see it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." How do you see your property? Is it a commodity that belongs to you, or do you view it as part of the watershed community to which it belongs?

As you are living the #Lake Life this summer, sitting on your deck, patio, or dock enjoying a beautiful sunset, or just putting around the lake on your boat or pontoon, I'd like you to ask yourself a question? What can you do on your property to show some love and respect for the ecological community that your property is a part of to help make sure the lake you love is there and in good health for future generations?

Source: OTC COLA June 2020 Newsletter

Alcohol is involved in about 30 percent of fatal boat accidents in Minnesota. Drunk boating is drunk driving designate a sober ride on the water and on the road.

Source: MN DNR





Lakeshore Specialists • Rural Properties

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| Tom O'Brien, Agent | 218-849-7831 |
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| David Wieser, Agent | 218-205-1970 |
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| Phyllis Tysver, Agent | 218-308-3775 |
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217 Hwy. 78 N. • Ottertail, MN

"One Watershed, One Plan"

May 21, 2020

Philosophy applied to Otter Tail County's 8 districts

In 2017 Otter Tail County and area counties adopted the philosophy of "One Watershed, One Plan." Three years later, this philosophy is working well.

This plan is intended to utilize the existing structures of county government, soil and water conservation districts and watershed districts while increasing collaboration across county lines.

The challenge comes from the fact that four major watersheds and four minor watersheds are situated in Otter Tail County, a county that's larger than the state of Rhode Island.

A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir or any point along a stream channel. The word watershed is sometimes used interchangeably with drainage basin or catchment.

County commissioners feel fortunate to have expertise from Brad Mergens and Darren Newville. Mergens is manager for the West Otter Tail Soil and Water Conservation District (SWCD) office based in Fergus Falls. Newville is manager for the East Otter Tail SWCD office based in Perham.

In 2015 Mergens and Newville were named Outstanding SWCD District Employees of the Year by the Minnesota Board of Water and Soil Resources (BWSR).

Common goals addressed

The goal of the county board, Mergens, Newville, BWSR and area counties is to prevent erosion, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife and protect public lands. County commissioners have in place an action plan while dealing with the eight watersheds in Otter Tail County.

"It's one thing to be educated about watersheds, but it's another thing to know what we should be looking for," says County Board Chairman Lee Rogness of Fergus Falls.

Commissioner John Lindquist of Dalton is familiar with the Pomme de Terre watershed in southern Otter Tail County, after attending several meetings. The Pomme de Terre River begins in Otter Tail County, bordered by wooded hills and grassy meadows.

This watershed includes the counties of Otter Tail, Douglas (Alexandria), Grant (Elbow Lake), Big Stone (Ortonville), Stevens (Morris) and Swift (Benson).

Source: Area News Author: Tom Hintgen

Otter Tail Lakes



Battle Lake, MN www.daveerwinconstruction.com

ATTENTION

If you're riding a PWC, remember: you must travel at slow/no-wake speed within 150 feet of shore or docks and be off the water an hour before sunset.





| Property Owners | | | | | | | |
|--|--|--|--|--|--|--|--|
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Minnesota's Native Mussels: still In Peril, But Signs of Hope

Minnesota's river health are in crisis.

Twenty-eight of Minnesota's roughly 50 native mussel species are considered endangered, threatened or of special concern. Because of mussels' key role in the aquatic ecosystem, their decline puts the state's rivers and streams at risk of poorer water quality.

Minnesota is part of a larger trend: Freshwater mussels are considered the most endangered group of organisms in the United States. Their numbers have declined due to habitat loss, pollution, dams and invasive species. Some native mussel species have disappeared entirely from the rivers of the Upper Midwest.

But there are signs of hope: Thanks to conservation and reintroduction efforts, some native mussels - including some federally endangered species - are making a comeback in Minnesota rivers like the Mississippi and the Cedar. And one city along the Mississippi is putting their unique skills as harbingers of the river's health to work.

'Clamming up' to signal danger

Since 2008, the city of Minneapolis has been using mussels as a sort of emergency warning system at its water treatment plant in Fridley, which draws water from the Mississippi River and distributes water to half a million customers a day.

Attached to one wall of the treatment plant is a nondescript tank, fed by a pipe that brings water directly from the river. Inside the tank are nine mussels, about the size of a child's fist, with brown-striped shells. Known as fat muckets, they're native to Minnesota and the Mississippi River. Attached to each mussel is a little sensor that measures the gap between the animal's two shells.

If everything's normal, the mussels are relaxed and happy, with their shells open to eat, said George Kraynick, the city of Minneapolis' water quality manager and laboratory supervisor.

But pollutants such as heavy metals, pesticides or hazardous chemicals from an oil spill would trigger them to stop feeding.

"If there's any type of contamination, they're sensitive to that type of toxicity," Kraynick said. "So they will actually close up.

Plant staff monitor the mussel activity on a computer graph. If they were to suddenly close, workers would test the water to find out what's happening - the mussels don't indicate the precise source of the contamination, so human sleuthing comes next - and could even shut down the plant while they investigate the problem.

The mussels in the Minneapolis water treatment plant are decidedly simple when compared to the plant's complex system of chemical reactions, filters and lab tests that treat the region's drinking water. But Kraynick said they are a great way to measure what's going on in the river.

"It's 24/7. It's using nature," he said. "It's very low tech and it's really almost

The small, hard-shelled sentinels of bulletproof, because these guys are going to know when something's in the river."

Minneapolis is the only city in the country currently using mussels as water quality monitors, but others have expressed interest.

Kraynick plans to upgrade the tank later this year because the mussels have outgrown their sensors. The new system will be able to send text alerts to staff if the mussels close up. There might even be a "clam cam," so people can see inside the tank, he said.

'Canary in the coal mine'

North America has the most diverse population of freshwater mussels in the world — more than 300 species, all unique. Their shells come in different sizes and shapes, earning them unusual nicknames like monkeyface, fawnsfoot, pistolgrip and heelsplitter.

They can live as long as 100 years, and have unique life cycles. To reproduce, they need a host fish to carry their tiny larvae, known as glochidia. Mussels' deceptive methods of attracting those hosts can seem almost otherworldly, said Bernard Sietman, a malacologist - a scientist who specializes in studying mollusks - with the Minnesota Department of Natural Resources.

Some have fleshy appendages that mimic food to entice a hungry fish. When the fish attacks, the mussel releases its glochidia into the fish's face and mouth, so they can attach to its gills. Mussels are such good indicators of what's happening in a river or stream because they're voracious filter feeders, straining out tiny particles and pollutants in the water and leaving it cleaner. Some mussels can filter as much as 10 gallons of water a day.

"We like to say they're the canary in the coal mine," said Teresa Newton, a biologist and expert on native mussels who works with the U.S. Geological Survey. "When you find healthy and diverse populations of mussels in streams, it's a good sign that the sediment and water quality is pretty good."

The reasons for the dramatic and widespread decline in mussels in the first half of the last century were probably the result of habitat destruction caused by dams built along major rivers, Newton said.

In the early 1900s, mussel hunters harvested them for buttons and pearls. But the reasons for mussels' more recent declines is less clear, and could be the result of multiple factors, including increased contaminants, sedimentation and climate change.

"Some mussel species can live 30, 40, 50, 60, 70 years," Newton said. "It may take a long time to see the effects of some of these actions

on native mussel populations."

Efforts to conserve and restore native mussel populations are underway on rivers around the U.S., with some signs of hope. "There's definitely areas in Minnesota and other places in the country, especially below large metropolitan areas, that are recovering," said Sietman. But he added, "There's a lot of work left to do." Source: Kirsti Marohn, MPR News

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Page 15



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