THE MICHIGAN
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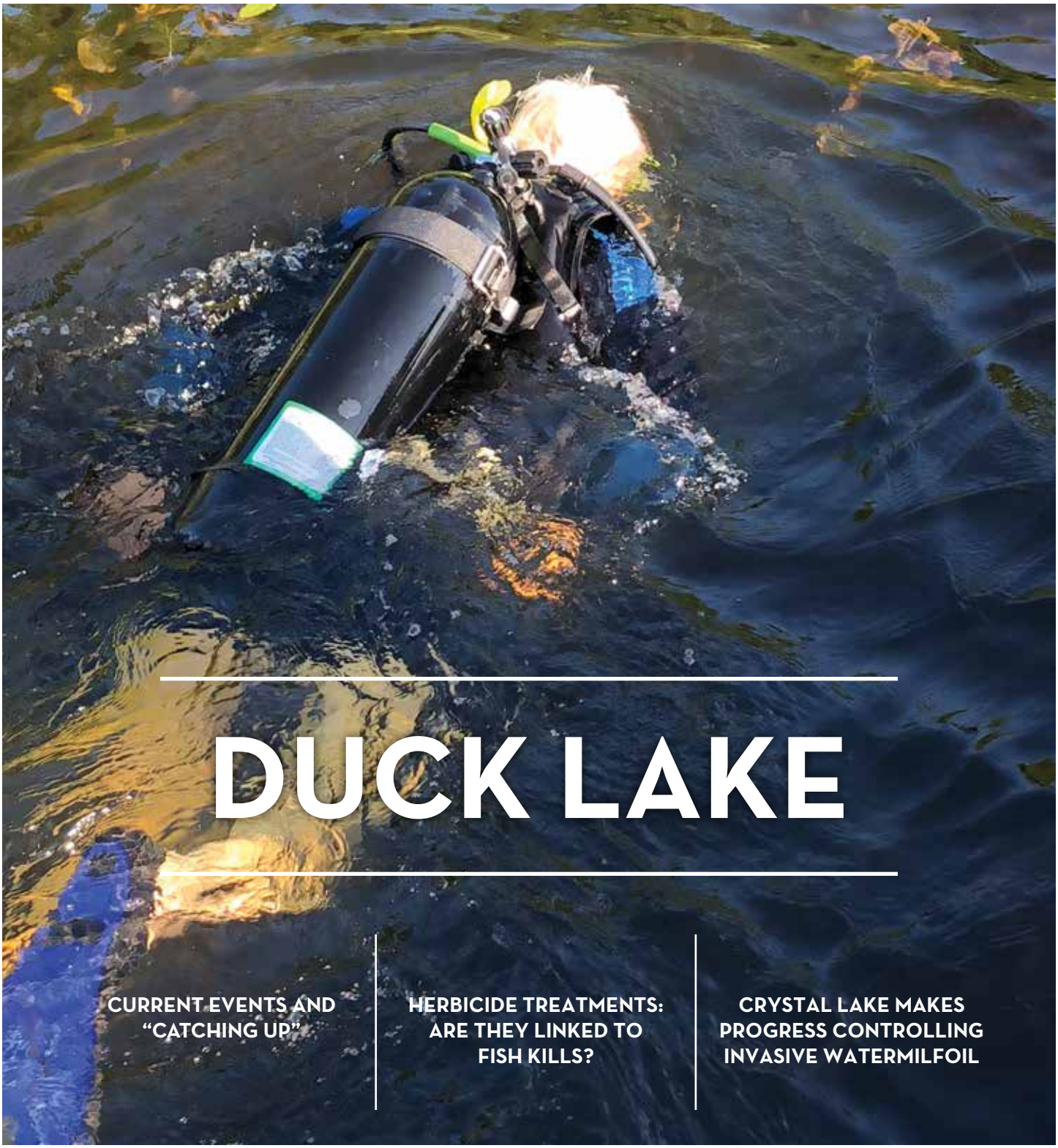
SPRING 2023 | VOLUME 59 | NUMBER 2



DUCK LAKE

CURRENT EVENTS AND "CATCHING UP"

HERBICIDE TREATMENTS: ARE THEY LINKED TO FISH KILLS?

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THE MICHIGAN RIPARIAN
mi-riparian.org

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DIRECTOR'S NOTES

As I sit writing this message on a rainy winter day, thoughts of spring and the coming of warm days by the water are keeping me going. Since *The Michigan Riparian* magazine is a quarterly publication, I am given the opportunity to think about new lake and stream articles all year long. And as a publication of the Michigan Lakes and Streams Association, I am tasked with making sure this magazine brings you the most important, relevant, and timely information available in each issue. This would not be possible without the work of talented contributors from all across the state and from all manner of organizations, departments, and backgrounds. People do these amazing things and then also devote the time to write about it for you in the pages of this magazine. I am incredibly grateful to all our contributors and for the ideas sparked from your newsletters, from your meetings, and from your local initiatives. If there is one thing I look forward to the most while I put this magazine together, it is hearing from you about an interesting new program happening on your lake or grant funding for an exciting watershed improvement project.

The truth is that this magazine is made possible by your stories and is inspired by the incredible work going on around us to keep our inland waterways clean and healthy. I invite you to tell your story in these pages. Send me the successful project your lake completed that will lower phosphorus loading, send me the volunteer recruitment plan that has worked to bring people together in your association, send me the boating etiquette initiative that really helped people to use the water harmoniously, and send me the story of a success I wouldn't have thought possible if you didn't tell me about it. If you enjoy this magazine, I invite you to be a part of it. Become part of a Michigan riparian history that goes back to the first issue published in 1965. Together we can continue inspiring each other to preserve and protect Michigan's lakes and streams for generations to come.

> **"I invite you to tell your story in these pages."**

I hope to hear from you soon!
Enjoy your water,

Melissa DeSimone

MELISSA DESIMONE | MLSA EXECUTIVE DIRECTOR

MLSA is a 501(c)3 nonprofit, statewide organization dedicated to the preservation, protection, and wise management of Michigan's vast treasure of inland lakes and streams.

CURRENT EVENTS AND "CATCHING UP"

THIS ISSUE'S ATTORNEY WRITES COLUMN WILL CONCENTRATE ON CURRENT AND IMPORTANT WATERFRONT ISSUES AND EVENTS.

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SHORT-TERM RENTALS

Communities throughout Michigan have struggled with the increasing number of short-term rentals (STRs), especially involving waterfront properties. Happily, the legislation introduced in the last Michigan legislative session to essentially take away all local control and regulation by Michigan townships, cities, and villages regarding STRs died without passage. It is unclear whether special interest groups will introduce new preemption legislation in the current Legislature. Accordingly, for now, Michigan municipalities are still free to regulate and even ban new STRs.

STR regulations involve significant challenges for Michigan municipalities. There probably is no "one size fits all" solution. Most municipal zoning ordinances are unclear regarding whether STRs are allowed, and if so, within which zoning districts or areas of the municipality. Local municipal zoning ordinances should expressly indicate whether STRs are allowed, and if so, in which zoning districts and under which conditions. Some municipalities ban STRs altogether (except perhaps within the commercial zoning districts). Other municipalities choose to allow widespread STRs with little or no regulation. Still other municipalities extensively regulate STRs (including specifying which zoning districts allow STRs, requiring periodic licensing, placing a cap on the total number of STRs allowed in the municipality or limiting the number of STRs on a particular lake or within a given neighborhood, disallowing rental of a dwelling for more than *x* weeks per year, requiring that the landowner reside within a short distance of the STR, and other regulations). Still other municipalities have "lite" STR regulations, such as requiring licenses and the installation of certain items such as smoke detectors, gas and carbon monoxide detectors, requiring sufficient parking on site, and a few other common regulations.

Municipalities are cautioned not to become too strict regarding STR regulations, as that could prompt another legislative attempt at local preemption.

SOLAR FARMS AND WIND-GENERATING TOWERS

Over the past few years, new solar farms and large wind generating towers are likely among the top five most controversial zoning topics in rural and semi-rural townships throughout Michigan. To the extent that your local zoning ordinance does not regulate solar farms and large wind-generating towers (or the regulations are outdated), such regulations should be updated, and preferably soon. In general, new solar farms have not been as controversial as very tall wind-generating towers, or "wind farms." In the past, Michigan solar farms have tended to be rather small–10 acres, 20 acres, or usually under 80 acres in size. However, more recently, solar energy companies have been proposing new, larger solar farms of up to 2,000 acres in size (and potentially even larger). In some townships, a new proposed solar farm could take up 10 percent (or potentially more) of the land area in that given township.

NEW OR EXPANDED CANALS OR CHANNELS

For the past 30 or 40 years, rarely were new canals or channels proposed for inland lakes in Michigan. In most cases, state regulatory agencies would not approve those projects. Unfortunately, however, there have been a significant number of new canals or channel proposals by private property owners recently on inland lakes throughout Michigan. Typically, those projects involve creating a new canal or channel (or expanding existing ones) for a cottage or homeowner to have large "boat wells" or for a direct new channel from a large new boathouse upland to the lake. Due to budget cuts and other matters, state agencies have not been consistently blocking such environmentally degrading and problematic canal and channel projects as in the past.

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Accordingly, it is even more important than ever for local municipalities to either ban or regulate new or expanded canals or channels on Michigan inland lakes. Therefore, lake associations and riparians should check their local municipal ordinances to see if new or updated canal or channel regulations are needed.

BOATHOUSES AND SIMILAR STRUCTURES

Most municipal zoning and other ordinances for communities with inland lakes (and even the Great Lakes) do not mention or expressly regulate boathouses or the equivalent. Some municipal officials believe that existing mandatory structure setbacks from lakes (for instance, 50 feet) are sufficient. However, the better practice is for a local municipal zoning ordinance (or other regulation) to either ban new boathouses (or the equivalent) or adopt specific setback and other regulations for those structures. In general, most municipalities (but not all) do not desire to have significant boathouses along the waterfront for a variety of aesthetic, environmental, planning, and other reasons.

CHECKING THE LOCAL ZONING ORDINANCE AND IMPORTANT ZONING ISSUES

Periodically, lake associations and riparians should review all of the zoning regulations of the local municipality to ensure that the lakefront is protected. It is likely a good idea to do that every five years or so. Riparians should look for good anti-funneling/anti-keyhole regulations, regulations regarding canals and channels, lake building setbacks, boathouse regulations, dock regulations, minimum waterfront frontage requirements for new lots, marina regulations, and other regulations and requirements that will govern and protect the waterfront. If a major development, marina, or other use is proposed which might negatively impact the lake involved and adequate zoning regulations are not in effect, it may be too late to enact or change the zoning requirements.

Some of the other matters that riparians should be concerned about (and whether the local municipality has adequate zoning ordinances or other regulatory ordinance provisions regarding the same) involve medical marijuana retail stores (and potentially other marijuana facilities), large outdoor gatherings, outdoor concerts, noise, and general nuisance or blight. Riparians may also want to consider urging their local municipality to adopt a police power ordinance that would regulate and govern large lake events such as bass tournaments, organized festivals, and the ability of local boat sales companies and marinas to allow customers to test out new boats on a lake.

ADEQUATE INSURANCE

Having adequate liability insurance is important not only for riparians, but for local municipalities and lake associations as well. Riparians should periodically check their own homeowners insurance for cottages, houses, and cabins on lakes or rivers, as well as making sure that their boat and watercraft insurance is adequate. The liability potential for lake or river properties tends to be greater than for non-waterfront parcels or lots. Furthermore, make sure that your insurance agent(s) knows about any docks, boat hoists, boathouses, and the like. Local municipalities should not only have good liability, employee, and other insurance, but zoning insurance as well that will kick in should a developer have a lake project denied and sue the municipality.

Due to the huge increase in construction costs over the past few years, the owner of every lake or river cottage, cabin, or house should check with their insurance agent(s) to make sure that their homeowners insurance policy will cover their structures for full replacement value. Unfortunately, when construction costs go up, the premiums for replacement value insurance rise as well.

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CURRENT EVENTS AND "CATCHING UP"

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LAKE AND PROPERTY OWNERS ASSOCIATIONS

Officers of lake and property owners associations should periodically review several matters. First, every association should make sure that they have adequate liability and other needed insurance. Second, the association's bylaws and other corporate documents should be periodically reviewed and updated. Quite often, those documents become outdated and potentially even problematic as conditions and circumstances change over time. If the association is incorporated, it will have to file a report with the State of Michigan every two years or be dissolved. Finally, every association should make itself known to the local municipality, including keeping the municipality apprised of the current names, addresses, and emails of the association's officers.

MISCELLANEOUS DOCKS AND RELATED MATTERS

Some municipalities have dock, swim raft, and boat hoist regulations, while others do not. In Michigan, on inland lakes, permanent docks (or docks left in the water year round) are not allowed unless a permanent dock permit has been obtained from the State of Michigan. Docks cannot be used by more than one family/property owner or commercially unless a marina permit has been issued by the state. Swim rafts and long docks cannot unreasonably interfere with navigability or boat traffic, or the State of Michigan (through the Michigan Department of Natural Resources) can require that the dock or swim raft be shortened or removed. A riparian's dock must be located only within the bottomlands owned by that riparian or it is a trespass.

WAKE/WAVE BOATS

Despite increasing complaints to state officials about adverse impacts of wave/wake boats, no new legislation has been adopted. Probably the most interesting development was the controversial draft report issued by the Michigan DNR on September 14, 2022. A copy of that report can be reviewed at the website of the Michigan Lakes & Streams Association, Inc. at mymlsa.org/mdnr-releases-special-report-on-wake-boats/.

LOCAL GOVERNMENT INFLUENCE

Experience shows time and time again that it is helpful and important for riparians to run for or be appointed to the local government legislative body, planning commission, zoning board of appeals, or other municipal bodies for the city, village, or township where a specific lake is located. Few institutions can protect a lake more than the local municipality.

INTERFERING WITH THE PUBLIC TRUST AREA IN THE GREAT LAKES

During the high water emergency from approximately 2018 through 2021 (inclusive), both the Michigan Department of the Environment, Great Lakes, and Energy (EGLE) and the United States Army Corps of Engineers (Army Corps) issued emergency or interim permits allowing riparian property owners on the Great Lakes adjacent to Michigan (particularly as to Lake Michigan) to install seawalls, riprap (i.e. boulders), groins, and other erosion-control devices along the shore to protect endangered property and buildings. Unfortunately, now that the water level has gone down significantly, many of the beaches along the Great Lakes (and in particular, along Lake Michigan) are strewn with boulders, large bags filled with sand, and similar erosion-control items which interfere with the ability of members of the public to walk within the public trust area. As the readers of this magazine know, for the Great Lakes adjoining Michigan, the public is allowed to walk (without trespassing) on the area of any Great Lake between the ordinary high-water mark and the water. Of course, during the high-water years, that area was virtually nonexistent as the lake waters were generally all the way up to the ordinary high-water mark or even further inland. Now that the water is down, interference with the public's right to use the public trust area and walk therein is likely a violation of *Glass v Goeckel,* 473 Mich 667 (2005). Seawalls, riprap, and similar erosion-control devices that are either covered by a bank or dune, or are located right up against the bank or dune, are generally not a problem. However, on many stretches of beach, there is now a boulder or obstruction obstacle field of sorts within the public trust walking area. And, unfortunately, it now appears that the emergency government erosion control permits did not contain a provision indicating that such obstructions would have to be removed by the riparian landowner who installed them when the water levels subside. What can be done about the problem? There are three possible solutions. First, members of the public can complain to both the Army Corps and EGLE about the situation and ask that the obstructions be removed. Second, it is possible that the local municipality can enact ordinance provisions requiring removal of the offending obstructions. Finally, it is likely that some members of the public (or public interest groups) will file lawsuits to force the removal of such obstructions by the landowners who had them installed. There could also be potential damages liability to the landowner if a member of the public is hurt by tripping over or being injured when traversing improper obstructions in the public trust area.

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Simply obtaining a government permit does not necessarily excuse a harmful or dangerous practice or situation.

BECOME INVOLVED

In addition to involvement in local government, both individual riparians and lake and river associations should join the Michigan Lakes & Streams Association, Inc. (MLSA). In addition to being the largest group in Michigan that protects waterfront property owners' interests, MLSA has a great annual convention in the spring, a very informative website (mymlsa.org), sponsors many educational and social events, has many lake resources available, and is generally a well-respected and influential organization.

GOOD RESOURCES

In addition to MLSA's website being a good resource for riparian information, our firm's website (www.bloomsluggett.com) contains almost all of the articles that I have ever authored in *The Michigan Riparian* magazine, as well as many other water law, municipal, and environmental resources. This magazine's website (mymlsa.org/riparian/) is also a wealth of information.

REPRINTING
ARTICLES FROM THE MAGAZINE

Frequently, lake associations, the press, educational institutions, and others request permission to reprint an article from *The Michigan Riparian* magazine in a newsletter, newspaper, or other publication. In general, *The Michigan Riparian* magazine is relatively liberal in granting permission for such reprints. However, no such reprint can be done without the express prior written permission of the magazine.

If you or your organization wishes to reprint an article from *The Michigan Riparian* magazine, please contact us at (989) 831-5100 or info@mymlsa.org. If approved, we will notify you by email or letter. When permission is granted, the following language must appear just before or after the reprint:

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62ND ANNUAL CONFERENCE

CRYSTAL MOUNTAIN RESORT

FRIDAY, MAY 5 AND SATURDAY, MAY 6, 2023

VISIT: MYMLSA.ORG/MLSA-EVENTS/ANNUAL-CONFERENCE-2023/

KEYNOTE SPEAKERS:

TED RULSEH

LAKE STEWARDSHIP: DOING WHAT IT TAKES AUTHOR OF RIPPLE EFFECTS, PRESIDENT OF ONEIDA COUNTY (WI) LAKES AND RIVERS ASSOCIATION, EDUCATION COORDINATOR FOR FRIENDS OF BIRCH LAKE, AND ALSO KNOWN AS "THE LAKE GUY"

SENATOR SEAN MCCANN

DISTRICT 19, CHAIR OF SENATE COMMITTEE FOR ENERGY AND ENVIRONMENT AND VICE CHAIR OF SENATE APPROPRIATIONS COMMITTEE

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ADDITIONAL EXHIBITORS

BENZIE CONSERVATION DISTRICT
MSU CENTER FOR LAKES AND STREAMS
MNSP SHORELAND STEWARDS PROGRAM
MI DNR FOREST TO FAUCET PROGRAM
MICHIGAN DEPARTMENT OF EGLE
NALMS: SEC. 314 CLEAN LAKES PROGRAM
POINT BLUE

WHY ZONING MATTERS: EXPLORING INNOVATIVE WATERFRONT ZONING IN EVANGELINE TOWNSHIP

MARY REILLY, AICP | MICHIGAN STATE UNIVERSITY EXTENSION EDUCATOR
ROD CORTRIGHT | CHAIRMAN, EVANGELINE TOWNSHIP PLANNING COMMISSION

Local zoning influences the type of development that can occur around a lake, as well as long-term outcomes related to water quality and habitat. Despite these very significant impacts, the arcane language of a zoning ordinance causes most to avoid the subject altogether. Zoning often takes center stage when there is conflict—such as a neighbor building a new house that seems too close, too big, or too tall. The challenges posed by ever-larger homes on small lots, increased run-off, the potential for short-term rentals, and other challenges are inherently planning and zoning challenges, and they deserve local attention.

Tony Groves authored an article in the previous issue of *The Michigan Riparian* entitled "How Local Planning and Zoning Can Impact Your Lake". He explained that as a "home rule" state, Michigan's local units of government make most planning and zoning decisions that dictate the type, location, and density of future development.

This article provides an overview of planning and zoning for lakefront communities, common lakefront zoning issues, and the story of Rod Cortright, Planning Commission Chair from Evangeline Township. The township is well known for their innovative shoreline zoning ordinance on Lake Charlevoix/Walloon Lake. In an interview, Rod shares his story about what can go right with zoning and how he managed to inspire area communities to amend their plans and ordinances toward more consistent zoning and enforcement methods to protect area lakes.

THE PLAN COMES FIRST

The Michigan Zoning Enabling Act requires that zoning be based on a plan (MCL 125.3203). The law states that "the zoning ordinance shall be based upon a plan designed to promote the public health, safety, and general welfare, to encourage the use of lands in accordance with the character and adaptability, to limit improper use of land, to conserve natural resources and energy…"

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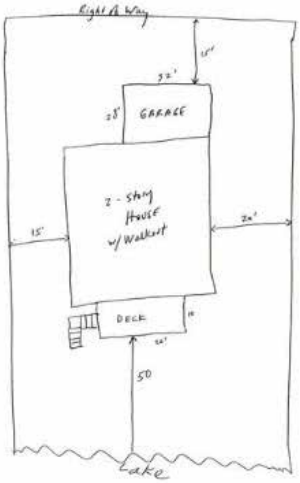

TYPICAL HANDDRAWN SITE PLAN SUBMITTED WITH ZONING PERMIT APPLICATION

A MORE DETAILED SITE PLAN SHOWING LANDSCAPE, TREES, AND TOPOGRAPHY

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As the basis for zoning, the master plan (or comprehensive plan) should communicate the public interest behind a zoning regulation. While there may be other plans that address lakes, like a lake plan or watershed plan, it is the master plan that underpins local zoning regulation.

The planning process is unique to each community. The minimum requirements for planning are outlined in the Michigan Planning Zoning Enabling Act (Act 33 of 2008). As a master plan must be designed to conserve natural resources, it could potentially include several key land-use policies for lakes and rivers such as:

- **RECOMMENDED LOT SIZE**—This is based on an analysis of soil types, the presence of water/wastewater infrastructure, the existing built environment, and development trends.
- **SETBACKS FROM WATER AND SHORELINE PROTECTION STRATEGIES**—Setbacks may be guided by water quality analysis, soil types, a research-based study of the water or shoreline habitat, and/or a stated need to protect fragile ecosystems or species within or near the lake.
- **HOW LARGE A BUILDING/HOME CAN BE IN RELATION TO THE LOT**—A water quality study may point to the need to mitigate stormwater runoff caused by buildings or paved surfaces—often called impervious surface. Expert studies, combined with community input, might result in a policy recommendation to limit impervious surface based on the size of the parcel, such as in the Evangeline Township example.

THE PLANNING AND ZONING CONNECTION

A key distinction between planning and zoning is that a *plan* is a set of policies, goals, and objectives. *Zoning* is the law, and the *zoning ordinance* is an enforceable document. The goal of zoning is to create the community's desired future over time as described in the plan. At its best, zoning accommodates development while mitigating impacts, and it sends a clear message on desired forms and expectations to those looking to build in the community. At its worst, zoning can (unintentionally) support development that degrades water quality, increases conflict, and exposes property owners and the local unit of government to higher legal risk.

Planning can set lofty goals, but in the end zoning provisions must be realistic and enforced by well-trained staff with adequate resources. A community should only adopt regulations they are willing to enforce. Additionally, effective zoning administrators and appointed boards (Planning Commission and Zoning Board of Appeals) need a budget for ongoing training and proper legal support to administer zoning.

In my experience as a land-use educator for MSU Extension, lakefront property owners call when the house next door is under construction and they are concerned about the following:

- the height and/or proximity of the new house in relation to their house
- the new home does not meet the required setback distance from their property line (permit issued in error)
- stormwater runoff or environmental impacts

In many cases, the zoning ordinance allowed the new house to be constructed just as it is. On paper, the house met the zoning requirements because the requirements were minimal. In most communities all that is required for a zoning permit application is a hand-drawn site plan showing setbacks from all property lines and water, dimensions, number of stories, and the height of building. Many zoning ordinances do not require a detailed drawing for a house (like they do for commercial development or a building permit) that would show fill/grade modifications, final building elevations, eaves (drip edge), tree removal, or accessory features such as sidewalks, HVAC units, sheds, fences, etc. Yet on some lakes, a more detailed site plan seems appropriate given the potential for poor outcomes.

In Michigan, local communities have the discretion to plan and zone to meet their own local needs. This is a powerful tool. Communities can determine the right amount of regulation and how that regulation will further the public interest. Is a more detailed site plan, a more detailed ordinance, or new regulation needed to accomplish the goal? Consider the following example situations and potential solutions.

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WHY ZONING MATTERS

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➔**EXCESSIVE FILL ON A SMALL LOT FOR A WALKOUT BASEMENT/TALL HOUSE.** Changing the grade of the property by adding dirt or fill around or under the foundation to increase the natural grade is particularly sensitive on lakefront properties. This is an even greater issue on lakes where houses are relatively close together, such as 15 feet or less from the property line. Increasing the grade with excessive fill to add a walkout basement level exacerbates height and/or scale concerns and increases the potential for stormwater runoff on adjacent property. If this is a familiar sight in your community, take a careful look at the definitions in the zoning ordinance for height, story, and basement and consider how they could be adjusted to allow for limited grade modifications that maintain a more natural grade with neighboring property. If these terms are vague or poorly defined, people will take advantage and sometimes bring in excessive amounts of fill giving rise to what looks like a three or three-and-a-half story house.

➔**HOMES/BUILDINGS ARE APPROVED THAT DO NOT MEET ZONING REQUIREMENTS.** Zoning permits issued in error to applications that don't meet zoning requirements create legal risk for the community. Proper staff training and education are critical for all zoning administrators*. Errors sometimes occur when there are staff changes and another person with inadequate training fills the role. If a community is doing zoning, they need properly trained zoning staff with access to a municipal attorney or professional planner. A well-trained zoning administrator can still make mistakes, but they are more likely to spot a mistake, understand the risk, and take swift action to reduce potential harm (i.e. call the attorney).

➔**"THEY CUT DOWN EVERY TREE! IS THAT ALLOWED?"** Some Michigan communities have tree preservation ordinances, but most do not. Well-meaning property owners that live in a community with a tree preservation ordinance are sometimes aghast to learn that their second-home community doesn't regulate tree cutting. Many communities simply do not have the resources and staff (or the political will) to adopt a tree preservation ordinance. Some communities do, however, require the planting of a shoreline vegetative buffer or the protection of an existing shoreline buffer. Evangeline Township in Charlevoix is a planning and zoning leader when it comes to shoreline buffer zones. Buffers slow stormwater before entering the lake, stabilize soils to prevent erosion, filter runoff to prevent pollution, and provide habitat to shoreline-dependent wildlife.

Buffers generally range in depth from 25 to 50 feet and run the width of the property, allowing a reasonably maintained area for a walkway to the water and a sitting area. A shoreline buffer requirement necessitates clear and compelling language in the master plan, an inventory of existing natural shoreline, political and community support, a zoning amendment, and continued training and budgetary support. Shoreline buffers benefit from lake advocates participating in the master plan process, zoning amendments, and implementation. Supportive voices at public meetings can provide needed political support to elected boards and planning commissions that may face criticism for what some perceive as excessive regulation.

➔**THAT HOUSE IS TOO CLOSE TO THE LAKE.** Communities have specific setbacks from the edge of the water and define a specific setback to the water's edge or ordinary high water mark. Many communities have larger setbacks from the water's edge than they do from the side yard or front yard (typically the road side). Waterfront setbacks vary among communities, ranging from about 30' to 100'. When pondering an increased setback from the water, first take an inventory of average setbacks, then consider two points: 1) will the average depth of the lots around the lake allow for homes to be placed farther back from the water and 2) will existing homes be significantly in front of new houses such that their view of the lake will be substantially degraded, or it will seem pretty unfair? To avoid a sudden shift in setback distance, some communities determine setback for a new house by finding the average setback of the two adjacent homes. Setback averaging allows for homes to be gradually moved back from the lake over time.

➔**PERMITS WERE NOT OBTAINED OR OWNER/BUILDER ERROR IN PERMITTING.** When constructing a new house, a maze of permits will be required from a combination of city/village or township, county, regional, and/or state entities. By law, a building permit should only be issued after all other applicable permits are obtained (zoning, soil erosion/sedimentation, public health department for well and septic, municipal water-sewer, EGLE, etc.) On small lakefront lots, the location of well and septic systems can be a critical determinant to siting a new building/home. In addition to topography and soil types, public health agents also account for the distance to the neighbor's well and septic systems. Soil erosion and sedimentation control permits (SESC) are also required for property within 500-feet of a water body. To help owners and builders be good stewards, communities should provide a checklist of all required permits, including the granting agency and contact information. A skilled front desk person or zoning administrator can check all required permits for the given kind of development to help the builder/owner get on a path to compliance.

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If this article piqued your interest in planning or zoning and how it affects your lakefront community, consider serving on the local planning commission. Your voice, along with lake advocates, could help to advance waterfront and watershed protection where you live. Local zoning certainly matters to our inland lakes and rivers, and the effects of good zoning and those incremental changes become evident over the course of a generation.

**MSU Extension offers three certificate courses that may be of interest: Citizen Planner, Zoning Administrator Certificate, and Introduction to Lakes. Learn more about MSU Extension programming at canr.msu.edu/outreach.*

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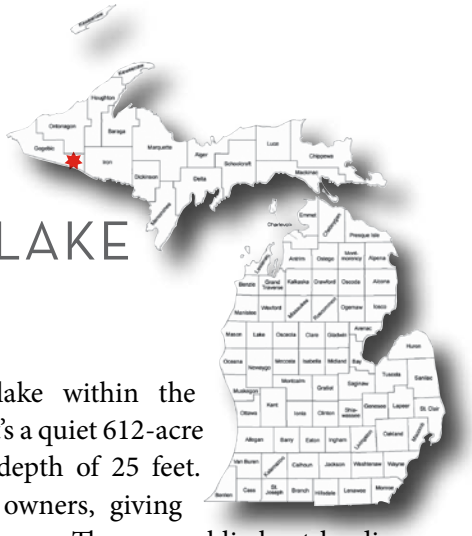
DUCK LAKE

FIGHTING FOR THE FUTURE OF A U.P. LAKE

CORINNE DUERKOP | DUCK LAKE RIPARIANS' ASSOCIATION



Walk into any gift shop near Michigan lake towns and you're likely to find a cute sign touting the proverb "If you're lucky enough to live by water, you're lucky enough". Michigan contains more than 11,000 lakes and ponds, and a person in Michigan is never more than six miles from a natural water source. Those cute signs sell because people in Michigan identify with the message; we love our lakes! Every homeowner expects home and yard maintenance, but the good fortune of living on water brings an additional responsibility for the stewardship of the water on the property. In an ideal world, this obligation is shared by all homeowners on a lake.

In the last 75 years or so, fresh waters in the United States have been greatly impacted by Eurasian watermilfoil (EWM), the invasive plant that has matted and clogged so many lakes and ponds. The tiny town of Watersmeet in Michigan's Upper Peninsula has not been immune. Watersmeet has an official population of 1,336, a number that doubles in the summer when cabin-owners and visitors flock to the area. Watersmeet Township, with an amazing 302 lakes and 241 miles of trout streams, is situated within the 1.5 million acre Ottawa National Forest. The area is a huge draw for outdoor enthusiasts, as well as a popular retirement destination.

Duck Lake is one lake within the Watersmeet Township. It's a quiet 612-acre lake with a maximum depth of 25 feet. There are 95 property owners, giving everyone a little elbow room. The one public boat landing is owned by the Michigan Department of Natural Resources and there are no resorts or businesses on the lake. Duck Lake's battle with EWM began in 2005, when the invasive species was first identified there.

Nine concerned residents formed a milfoil committee to find a way forward. Longtime resident, Joe LoMastro, chaired that committee and continues to do so today. "It was difficult and time-consuming in the beginning," he said. "We were basically on our own. There were very few resources to advise us and none to fund us." Some committee members visited a lake with a EWM infestation so severe, the devastation was apparent to the naked eye. It was a sobering sight. A meeting was held for all property owners to inform and educate them about the EWM problem. Without intervention, it was explained, the way all residents use the lake for fishing and recreation would be severely impacted and property values would be negatively affected. All property owners were asked to donate a dollar

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per foot of frontage to help address and fund a solution to the problem. The first application of herbicide was done by a licensed applicator in late 2005. Duck Lake's fight against EWM had officially begun.

A larger coalition of township lakes was formed which eventually became the ISCCW (Invasive Species Control Coalition of Watersmeet). The original goal of this group was to help protect all lakes and waterways in the township, and it has become a tremendous asset for the area.

The next summer (2006), the milfoil committee divided Duck Lake into 16 sections, and each section was assigned a volunteer who agreed to monitor their area for EWM. These 16 residents became the "milfoil watchers". They agreed to spend a couple of hours once or twice a month to look for EWM and were trained to distinguish it from northern milfoil, which is native to Duck Lake. Each team was equipped with tools for the job. They soon learned that sunny, calm days were the best days to do their observations. They used their own fishing boats (and still do) to zigzag through the water, covering every foot of their section out to 12 feet. Where EWM was detected, watchers placed a buoy. They would then send a group email to all the milfoil watchers to report where they had looked, how long they had looked, and what they found. All data was recorded by one property owner.

In the beginning, the watchers' hardest task was distinguishing the beneficial northern milfoil from EWM, but after 18 years on the job most watchers no longer have trouble identifying EWM. "Once a milfoil watcher, always a milfoil watcher," says Kathy Floriano, who has been heavily involved in the project from the beginning. "When we're on the water, our eyes are always scanning for EWM. A pontoon ride is never just a ride; a happy hour cruise isn't just for fun. We're always on alert for EWM when we're on the lake."

At the end of 2006, volunteers discovered they could pull EWM plants by hand, and that was a major game-changer. The milfoil committee paid for a volunteer to be trained as a scuba diver and hand-pulling became the preferred method of removing the offensive plants. In the early years, a regular fishing boat carried the diver from one spot to another. The diving equipment (BCD vest, air tank, weight belt, mask, and flippers) made it extremely difficult for him to safely get in and out of the boat. Sometimes it was more prudent to drag him to shallow water so he could remove his gear, climb back in the boat, and motor to another EWM spot,

then put on all the diving gear again and repeat the process. This was awkward to say the least and very time consuming.

Kathy Floriano remembers thinking, "I didn't foresee spending my retirement like this. We were constantly involved with the fight against milfoil." Retirees—especially those living in a water wonderland—often figure they've paid their dues by volunteering in professional and community organizations when they were younger and working. The focus in retirement is generally towards relaxation without the responsibilities of former times. But enough people on

> **"The key to Duck Lake's successful journey has always been teamwork."**

the lake rose to the occasion and in 2009, the lake's formerly inactive association regrouped and formed a new lake association (Duck Lake Riparians) to fight the common enemy EWM.

A second major game-changer came in 2010, when a generous resident noted how difficult it was for the diver to

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DUCK LAKE

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work out of a fishing boat. "It was painful to watch!" he said. So he purchased, modified, and donated an old pontoon boat that was christened The Milfoiler. Another resident donated a heavy-duty dive ladder and others chipped in to purchase a motor. With more room to operate on a flat surface, and on a larger boat, more people became involved, and—as with any project where many hands make light work—people had fun and derived satisfaction from being part of the project. They also became more educated about EWM. When the Milfoiler was unable to survive a second winter in storage, the benefactor said, "No problem!" and provided a replacement: a bigger and better pontoon boat he again modified for the diving crew. This generous "can-do" thinking became contagious as more people found ways to help.

In 2020, resident John Larsen volunteered to share the task of diving for EWM, and he saw a way to streamline the process. Over that winter, he devised a chairlift to move the diver up and down from the Mifoiler. Using old garage-door tracks and rollers, pulleys, and angle iron from a bed frame, he welded everything together. He worked with his fellow diver, Jim Floriano, and the two tweaked the invention several times with the end result being a chairlift that can be raised and lowered with a battery-operated winch and a remote control. This addition to the Milfoiler completely changed the diving process.

A typical diving expedition begins on a sunny day with little wind, usually in the morning. The ideal crew includes a driver for the Milfoiler, a diver, and two crew members to net the EWM and watch for fragments.

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The Milfoiler moves to a buoyed spot which is then marked with GPS. The crew tries to get a visual of the plant and surveys the surrounding area to look for any additional plants. They lower the diver and position the boat downwind to watch for any fragments. The diver pulls the EWM in that location. If he feels it's a clean pull, he removes the buoy. If there's any concern that some plants may have been missed, he leaves the buoy in place to be rechecked on a future dive. This keeps the number of buoys on the lake to a minimum, which is important. In the early years, it was discovered that jet skiers were using the buoys (and there were a lot on the lake in the beginning) as a slalom course, which could fragment the EWM and exacerbate the spread of the invasive species.

History of Herbicide Treatments in Duck Lake

Year	Acres Treated
2005	1.5
2006	4.5
2007	9.7
2008	4.9
2009	4.9
2010	9.5
2011	4.1
2012	4
2013	none
2014	9.5
2015	none
2016	none
2017	4.9
2018	none
2019	none
2020	none
2021	none
2022	none

Each year at the end of the milfoil season (usually September), the milfoil committee meets to decide whether an herbicide treatment the following spring is warranted or not. While no one ever gets excited about putting herbicides in a lake, at times it's necessary and there are few alternatives for dealing with invasive species. Herbicides have come to be viewed as chemotherapy for the lake. The decision is based on data collected during the summer. If treatment is deemed to be necessary, spot treatments are done as needed by a licensed applicator and usually involve smaller areas, less than half an acre in size. With proficiency in locating EWM along with the refining of the diving process, Duck Lake has been able to turn the tables on herbicide treatments, only treating twice in the last ten years.

Also at the end of each summer, a letter is sent to all property owners to summarize the season, documenting the hours spent looking for EWM, the number of dives and hours involved, the current status of the battle with EWM, the financial situation, and whether an herbicide treatment is recommended for the next year.

"The key to Duck Lake's successful journey has always been teamwork," said John Larsen. "We couldn't have accomplished any of this without our team of dedicated milfoil watchers. They are our first line of defense." Duck Lake's second line of defense is the diving team following up with the removal of EWM once it's been located. They're the ones who don the cumbersome gear and jump into sometimes very cold water when they'd rather be sitting on their dock with a drink in hand, watching the loons and ducks go by.

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DUCK LAKE

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Duck Lake's battle with EWM has been a story of cooperation, determination, initiative, education, and ingenuity sprinkled with generous donations of time, energy, and money. It's been 18 years of ups and downs, and trial and error. The property owners have worked together (not always an easy task) for a common cause, and have managed to protect this valuable resource they share and love and call home. Their cause continues. They can be proud—very proud—of what they've done for Duck Lake and for the generations to follow.

AN INVITATION FROM THE DUCK LAKE RIPARIANS ASSOCIATION

If you find your lake in a similar situation dealing with EWM, you're welcome to contact us. We've taken many small groups from other lakes on the Milfoiler to learn how to look for EWM and to observe our diving process. When the group has been large, we've put them on other pontoons to come along. No two lakes are exactly alike, but we're happy to share what we've learned in the past 18 years as we continue to battle Eurasian watermilfoil on the lake we love so much. Contact us at ducklakeriparians.org.

NOTES FROM THE ISCCW PRESIDENT DENISE FAUNTLEROY

ISCCW THEN AND NOW

In 2005, Watersmeet Township received a grant from the National Fish & Wildlife Foundation, which was to be used for education, lake surveys, and control efforts related to aquatic nuisance species. A steering committee was formed to administer the funds. Employees were hired to monitor boat landings and distribute pamphlets to educate the public. In addition, several lake associations were granted much-needed matching funds to help defray the costs of herbicide treatments. In 2007, that committee was reorganized into an independent 501(c)(3) not-for-profit organization called the Invasive Species Control Coalition of Watersmeet (ISCCW), also called "Watersmeet lakeguards". The new organization enabled township residents to expand their efforts and utilize more resources.

Today the ISCCW operates five boat washing rigs from early May to mid-October, employs an education director, and receives funding from many sources including Watersmeet Township, the United States Forest Service, the Lac Vieux Desert Band of Lake Superior Chippewa Indians, and generous private citizens and businesses who value the outreach and work done by the ISCCW. For more information, go to isccw.org.

ISCCW AND DUCK LAKE WORKING TOGETHER

The Duck Lake Riparian Association has set the gold standard for rapid response to EWM. They have made long-term commitments to educating membership, monitoring Duck Lake, marking new locations of EWM, and quickly reporting to their all-volunteer dive team for response in real time. This has allowed Duck Lake to keep removal of EWM as herbicide-free as possible throughout the last ten years. ISCCW has financially supported Duck Lake when the occasional herbicide treatment was necessary. They have consistently and tirelessly supported the objectives of ISCCW and have been willing to share their knowledge with other lake associations. We couldn't ask for a better group to partner with!

CRYSTAL LAKE MAKES PROGRESS CONTROLLING INVASIVE WATERMILFOIL

JIM HAMP | CLWA WATER QUALITY COMMITTEE

FROM THE NEWSLETTER OF THE CRYSTAL LAKE & WATERSHED ASSOCIATION

SIGN POSTED DURING EWM TREATMENT

The Crystal Lake & Watershed Association's (CLWA) multi-year project to control the invasive aquatic plant Eurasian watermilfoil ("EWM," Myriophyllum spicatum) reached a successful hiatus during the summer of 2022. After three drone-assisted herbicide treatments and several visual inspections, the density appears to have diminished by 85% to 90%. Due to these positive results, an additional treatment planned for July 2022 was canceled. This is consistent with CLWA's goal of using only the absolute minimal treatment. Any interventions in future years will be subject to continued monitoring and evaluation.

CLWA contracted with Clear Water Lake Management, a licensed pest management professional, to apply the recommended chemical product (mainly 2,4-D) that attacks only the invasive EWM and not any native plants present. Zero Gravity Aerial provided drone supervision of the treatment that ensured accurate placement and avoided excessive use of the product. Drone oversight has revolutionized chemical control by providing highly accurate visual images of the plant mass to guide the applicator.

In 2021 the CLWA team carried out two treatments on approximately seven acres of EWM infestation, including very heavy growth at the east end of the lake. By late summer, dying plants showed that there had been a good response. An underwater inspection of regrowth in mid-June 2022 showed that the extent (footprint) of the plant had decreased to five acres and that the density (biomass) was now very sparse. That is a footprint reduction of almost 30% and a biomass reduction of 90%. These results reflect a high rate of success.

EURASIAN WATERMILFOIL CONTROL AT CRYSTAL LAKE EAST END

On the other hand, a few small new colonies of EWM had appeared since 2021. These are, tellingly, in the area of a road-end launch site, which is heavily used by boaters but has no provision for hitchhiking invasives to be removed by boat washing.

Clear Water Lake Management and Zero Gravity Aerial carried out a third treatment on June 29, 2022. Inspection a month later indicated that the response was positive enough and control of the EWM was sufficient enough that an additional treatment planned for the end of July was not necessary. CLWA will conduct a complete lake survey in July 2023 and evaluate steps for the future.

Eurasian watermilfoil is present in virtually every county in Michigan and efforts to control it have become the main budgetary item for state and private lake organizations. Over $24 million is spent annually in Michigan for chemical control of aquatic invasive species (AIS), most of it for EWM. These products are extensively tested, have a proven long-term record, and are cost effective. CLWA has examined other available treatment options, but none so far appear to be suitable for conditions on Crystal Lake.

Fortunately, Crystal Lake's EWM was caught at an early stage and is relatively limited in comparison to many other lakes. EWM is also—so far—the only invasive aquatic plant identified in Crystal Lake. This is significant, as many lakes in the state host other harmful plants as well. But we should not become complacent. Increasing boat traffic and climate change favor invasives over native species. Starry stonewort, which has been documented in nearby Portage Lake, is the biggest current threat to Crystal Lake, but others are no doubt working their way toward our community.

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LAUNCHING OVERSIGHT DRONE

TREATMENT BOAT VIEWING IMAGE FROM DRONE

Once a lake has an invasive plant or animal (such as zebra mussels) they are present forever and the goal becomes control not elimination. Prevention with sound boating education and thorough boat cleaning prior to launching can prevent introduction in the first place.

CLWA believes Crystal's infestation of EWM is coming under control. We will continue to monitor it closely and to evaluate other control techniques that may be useful in the future. We know this is a challenge for the long term, and are grateful for the ongoing support of our members and friends.

Editor's Note: We hope you will plan to join us for the 62nd Annual MLSA Conference at Crystal Mountain. If you are interested in the work of the Crystal Lake and Watershed Association, you can visit their boat wash station and talk with board members about their AIS prevention plan as part of the conference program this year. For more information about participating in the conference, visit mymlsa.org.

WHY ZONING MATTERS

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INTERVIEW WITH ROD CORTRIGHT, PLANNING COMMISSION CHAIR, EVANGELINE TOWNSHIP, MI

I grew up on a farm between Jackson and Battle Creek, thus my background in agriculture. In 1973, I graduated from Michigan State University with a crop and soil science degree. The first seven years of my professional career were spent with the USDA Soil Conservation Service doing natural resources management.

For the next 25 years, I was the MSU Extension Director in Charlevoix County. In this role, I undertook educational programming in agriculture, natural resources management, and public policy. In the early 1980s, I became involved with shoreline planning around Lake Charlevoix. There are eleven jurisdictions around the lake, each with its own land-use plan and zoning ordinance, with none of them lining up well with their neighbors. This was the first effort to try to develop more coordinated land-use regulations around the lake.

In 1987, I was asked to fill a vacancy on the Evangeline Township Planning Commission. This was, and still is, a great learning experience. While I was aware of zoning and land-use planning, this was the first time I was directly involved in it. With a background in natural resources management, I was quickly dismayed by how inadequate our zoning ordinance was in managing and protecting natural resources. Our township land-use plan at the time was about seven pages long and discussed protecting natural resources and water quality. It had great language and important ideals but little detail in the zoning ordinance. I wondered how we could really protect the land and water when we had such limited regulations.

I went to other communities throughout the area, looked at their ordinance language, and found they all contained similar language. As a member of MSU Extension I had access to regulations from all over the country, and I found the same situation in most places. It took me a while, but I finally concluded that most community zoning regulations could not possibly achieve the vision called for in their land-use plans.

This realization started me on a new path. Another advantage of being employed by MSU Extension is that you are encouraged to develop new areas of expertise. I spent a few years studying land-use techniques to help a community achieve its land-use goals, looking at such things as open-space zoning and new urbanism. As a result, I became one of the original authors of the MSU Extension Citizen Planner Course, authoring the section on innovative planning and zoning techniques.

At the local level, I started working with the townships in Charlevoix County on the planning and zoning issues they were facing. All the townships in Charlevoix County have their own individual land-use plans and zoning ordinances. I developed an expertise in using Geographic Information Systems to provide planning information, and I provided most of these communities with their first maps outlining critical natural features such as prime and unique farmlands and forestlands.

A big concern for townships in the county was access to competent legal knowledge on land use. I helped coordinate an effort in which most of the townships in the county pooled their resources to engage a single law firm with expertise in municipal law. As a result, all participating townships now have uniform enforcement procedures in their respective zoning ordinances.

In Evangeline Township, we updated the zoning ordinance in the early 1990s, adding greenbelt requirements along the waterfront. Over the years, even though those provisions were in the ordinance, they were not uniformly enforced, and there were no greenbelt requirements on previously cleared land. In 2008 we adopted a completely new ordinance. We looked closely at the waterfront on Lake Charlevoix and Walloon Lake. Under the new ordinance, rather than one waterfront district, we now have five, all tailored to fit the differing existing layout patterns and geography.

One of the provisions adopted in the new zoning ordinance was that a greenbelt-meeting, specific design criteria be established and maintained as a condition for new development or redevelopment of waterfront parcels. The ordinance also limits the amount of impervious surface a waterfront parcel may contain. The width and composition requirements of the greenbelt and the maximum impervious surface numbers were arrived at using the stormwater runoff prediction program developed by the USDA Natural Resources Conservation Service. The waterfront provisions are heavily illustrated in the ordinance.

The Evangeline Township ordinance also requires that the Planning Commission review and approve all site plans for waterfront development. Detailed plans are required and must have specific greenbelt planting plans. This makes it much easier for our zoning administrator to determine if the project meets ordinance requirements during construction.

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The greenbelt planting plan provides a permanent record in case enforcement actions are required later.

The Evangeline Township waterfront zoning provisions have been in place for 14 years. With the regulations and the review procedures, we have had 100% compliance with our zoning ordinance standards. Other jurisdictions around Lake Charlevoix and Walloon Lake are beginning to adopt similar provisions.

The Lake Charlevoix Visioning and Shoreline Project is an initiative by the Lake Charlevoix Association and the Tip of the Mitt Watershed Council. They are reviewing the waterfront zoning ordinance provisions of all the jurisdictions fronting Lake Charlevoix. They are using the standards outlined in Evangeline Township as the benchmark in this process.

It has been a long and evolving process to get Evangeline Township waterfront zoning provisions where they are today. We may be at an advantage in that most public officials realize that protecting natural resources is essential for preserving the quality of life in the region.

The regulatory practices for protecting water quality are clear cut. With some assistance, they can be drafted very quickly. However, getting buy-in and support from elected and appointed decision makers about the importance of conserving natural resources for the community's well-being is the first step. This step may take some time. The second step is to work with a legal firm that is well versed in municipal law. The best deterrent to threatened lawsuits is drafting unambiguous regulations with possible litigation in mind. Finally, those administering your zoning ordinance must be provided the training, tools, and support to do their job.

SETBACK FROM THE WATER?

Many zoning ordinances do not provide a precise definition of how the water line is determined. More protective ordinances specify the setback must be measured from the ordinary high water mark (OHWM) or from the ordinary water elevation. The definitions section of the zoning ordinance then provides a definition for the standard used.

Riparians should also note Michigan law can help in defining the standard to be used. MCL part 324.30101(m) provides the following: "Ordinary high-water mark means the line between upland and bottomland that persists through successive changes in water levels, below which the presence and action of the water is so common or recurrent that the character of the land is marked distinctly from the upland and is apparent in the soil itself, the configuration of the surface of the soil, and the vegetation. **On an inland lake that has a level established by law, it means the high established level.** Where water returns to its natural level as the result of the permanent removal or abandonment of a dam, it means the natural ordinary high-water mark…" (emphasis added).

Some ordinances further protect riparians by requiring a surveyor, engineer, or other competent authority to certify the site plan or plot plan drawing and measurements. Local municipality officials (usually the Zoning Administrator) have the ultimate responsibility to inspect and enforce setback requirements.

How does your zoning ordinance handle setback-from-the-water matters? You might want to check, as you might be surprised.

Paul J. Sniadecki, MLSA Board Director

HERBICIDE TREATMENTS: ARE THEY LINKED TO FISH KILLS?

BRIAN GUNDERMAN | SOUTHERN LAKE MICHIGAN UNIT MANAGER, MICHIGAN DNR FISHERIES DIVISION

Every year, biologists from the Michigan Department of Natural Resources (DNR) receive dozens of fish kill reports from anglers and lakefront property owners. Roughly 20% of these fish kills are winterkill events due to oxygen deprivation under ice cover. However, most of the remaining 80% of the fish kill reports occur during May-September. It is not unusual for people reporting fish kill events during that period to list herbicide treatments as the suspected cause. Do these claims have any credibility? If so, is there anything that lake associations can do to reduce the risk of fish kills after herbicide treatments?

Like many things in ecology, the answers to those questions are complex. In an ideal world, we would be able to definitively identify the cause of every fish kill event. However, several factors make this ideal an impossible goal. Many fish kills are not reported at all or are not reported until days or weeks after the actual mortality event. In addition, numerous varieties of microorganisms quickly multiply in fish after their death. Thus, laboratory examinations for pathogens and signs of chemical damage can only be performed on fish that were alive or very freshly dead at the time of collection. Water quality sampling is also of limited utility if the fish kill is not reported in a timely manner, as the conditions that caused the event are often of short duration.

The first part of the present analysis was to determine the number of recent fish kill reports that coincided with herbicide applications. (For the sake of brevity, I will use the general term herbicide to refer to both herbicides that target rooted plants and algaecides that target planktonic and filamentous algae.) Many fish kills on inland lakes and ponds are reported online using the DNR's Eyes in the Field form. For the present analysis, fish kills reported during May-September in 2018-2022 were cross-referenced with herbicide treatment data in the Michigan Department of Environment, Great Lakes, and Energy's (EGLE) MiEnviro Portal. Out of 102 events, only nine fish kills occurred within two weeks of a documented herbicide treatment. However,

PHOTO CREDIT: ADDIE DUTTON – MDNR
AN ACCUMULATION OF DEAD BLUEGILLS AND BLACK CRAPPIES DURING A FISH KILL ON A SOUTHWEST MICHIGAN LAKE

the situation appears to be different in the southern part of the state where active vegetation management is more common. During the same four-year period, the Southern Lake Michigan Management Unit received 34 additional fish kill reports via phone and email. The reported observation dates for 10 of these fish kill events were within 14 days of a documented herbicide treatment. Thus, this review revealed 19 events during 2018-2022 where there was potential for herbicide treatments to be directly or indirectly responsible for a fish kill.

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The factors influencing the effects of herbicide treatments on fish health can be divided into three broad categories: treatment attributes, environmental conditions, and fish ecology. Relevant treatment attributes include the type of chemical(s) used, chemical concentrations, size of treatment area, and location of the treatment relative to congregations of fish (e.g., fish spawning sites). Obviously, larger-scale treatments with higher concentrations are more likely to affect fish than small-scale treatments at lower concentrations. Copper-based products and certain endothall formulations also typically have higher toxicity to fish than other herbicides. Toxicity effects of herbicides are not limited to direct mortality and can include sub-lethal effects such as damage to olfactory receptors and lateral line neurons, respiratory impairments, and endocrine system disruption (DeQuattro and Karsov 2016; Kennedy et al. 2012; Linbo et al. 2006; Carreau and Pyle 2005; Henry and Atchison 1986). Indirectly, herbicide treatments can affect fish by temporarily forcing them to leave the treatment area and also through modification of vegetation beds and nearshore habitat. In combination, these sub-lethal effects of herbicides can render fish more vulnerable to death by predators, disease, pollution, or environmental stressors.

Environmental conditions strongly affect the stress level of fish. Temperature and dissolved oxygen concentrations are the key variables of interest. Phelps et al. (2019) analyzed 225 fish kill events in Minnesota and concluded that maximum nighttime land surface temperature was the most important factor in fish mortality. Various studies also have demonstrated that water temperatures above the optimum for a particular fish species reduce the ability to tolerate exposure to herbicides or pollutants (Nin and Rodgher 2021; Wagner et al. 2017; Vardia and Durve 1981). Dissolved oxygen levels in nutrient-rich lakes often decline during periods of hot, calm weather, whereas the metabolic rate for fish increases with increasing temperature. Thus, fish in these systems often are being pinched by both temperature and oxygen at the same time.

Spawning stress is another factor that plays a critical role in many fish mortality events. From their review of the Minnesota data, Phelps et al. (2019) noted that sunfish (such as largemouth bass, bluegill, pumpkinseed, and black crappie) were the most common species in fish kill events, and that the highest frequency of fish kills was observed in June during the spawning seasons for these species. In Michigan, we see the same pattern. Due to the

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HERBICIDE TREATMENTS: ARE THEY LINKED TO FISH KILLS?

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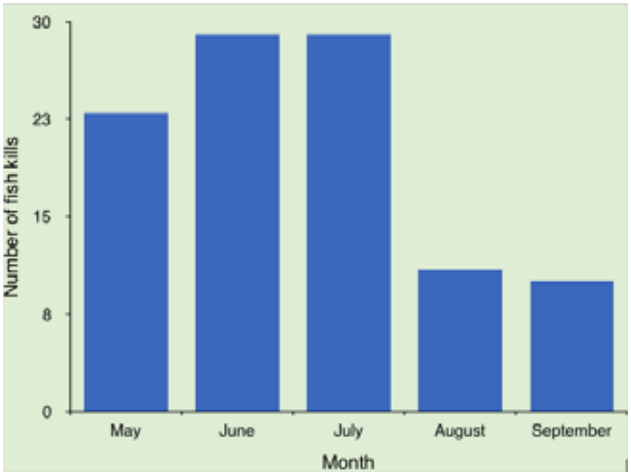
PHOTO CREDIT: MATT DIANA – MDNR
A BLUEGILL WITH EXTERNAL SYMPTOMS OF COLUMNARIS DISEASE

wide variations in climate from north to south in our state, sunfish can spawn from May through early July. These three months had the highest numbers of fish kill reports through the Eyes in the Field system.

Most fish kill events are the culmination of a series of causes. For example, the following scenario occurs every year in southern Michigan. Bluegills are stressed from spawning activity. At the same time, a period of hot weather causes water temperatures to rise rapidly. Herbicide is applied to control algae and invasive plant species. This combination of stressors depresses the immune system, and bacteria already present in the lake infect bluegills and result in an outbreak of columnaris disease.

In summary, herbicide treatments can increase the risk of a fish kill, especially when fish are already stressed from other factors. Lake associations and their contractors can minimize the risk of a fish kill by avoiding treatments during periods of hot weather.



NUMBER OF FISH KILL EVENTS REPORTED BY MONTH USING THE DNR'S EYES IN THE FIELD ONLINE FORM DURING 2018-2022.

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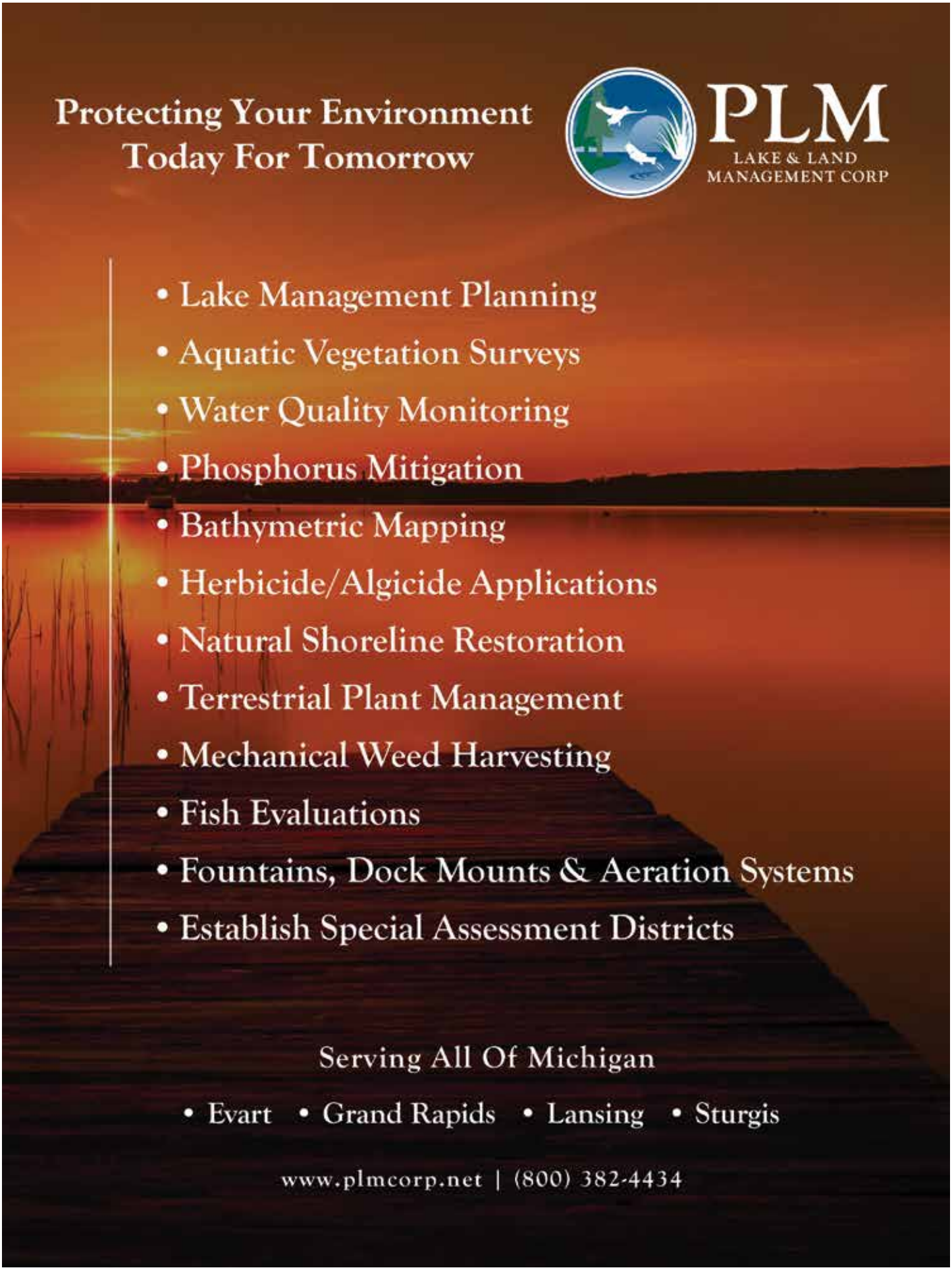
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RECYCLING MICHIGAN BOAT COVERS

LAUREN DENBY | PROJECT COORDINATOR FOR MICHIGAN RECYCLING COALITION

Michigan has one of the largest boating industries in the United States because of the Great Lakes. However, the cold Michigan winter months require boaters to protect boats with covers that are often single-use, bulky, and difficult to manage during disposal. Disposing of these covers in a landfill has a huge environmental impact, as manufacturing with virgin materials requires more natural resource consumption. Recycling can make a big difference. For every bag of material recycled through the Recycle Run program, we save 115 kWh of energy, 13.5 gallons of oil, and 20 cubic feet of landfill space!

Before the Recycle Run program, throwing out boat covers was essentially the only option for most boat owners in Michigan. The Recycle Run program has connected a network of partners to make recycling boat covers easy, accessible, and efficient for anyone in the state. The Recycle Run program has been active for over 10 years, and we continue to work hard to grow and strengthen the program every year.

Registration is currently open for the Recycle Run Program until June 1, 2023. The program sells receptacle Recycle Run bags for participants to store their boat covers in; this helps keep the plastic clean and dry prior to recycling. Marinas, lake associations, boat storage facilities, and anyone with over 15 bags worth of material are able to schedule a free, direct pick-up of their bags from their business or collection location. Participants that qualify for direct pick-up will be able to schedule their pick-up between May and August. Participants recycling smaller amounts of material can use the Michigan Recycling Coalition's website to find participating drop-off centers closest to them. Boat covers collected through the Recycle Run program are recycled into roofing and decking materials, plastic bags, and even more boat covers.

The Great Lakes are a huge source of pride and beauty in Michigan, and as boaters, it is important that we do everything we can to keep our waters beautiful and plastic-free. In 2022, we recycled 95,500 pounds of boat covers, keeping those materials out of the waste stream and giving them a productive second life.

SEASONAL ACTION ITEMS

01

SIGN UP

Registration is open for the 62nd Annual MLSA Conference at Crystal Mountain. Sign up now to attend this inspiring event!

02

ENROLL

Enroll in the Cooperative Lakes Monitoring Program and register for training at the MLSA conference if you are new to the program.

03

RECYCLE

Sign up for the Recycle Run program to keep boat plastic out of landfills.

04

GET INVOLVED

Find out more about the zoning ordinances in your area. Get involved if they do not provide enough water protection.

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