

# THE GLQO WATERSHED JOURNAL



*The Gull Lake Watershed includes Gull Lake, Little Long Lake, Grassy Lake, Little Gull Lake, Miller Lake, Bullhead Lake, Duck Lake, Backus Lake, Dake Lake, Elliston Lake, Mud Lake, Wintergreen Lake, and Prairieville Creek.*

## MASS DIE-OFF OF ZEBRA MUSSELS

*By Jeff White,*

*Michigan State University Department of Fisheries and Wildlife*

*"The mass die-off of zebra mussels in Gull Lake is attributed to elevated water temperatures."*

Anyone who has waded through the shallow waters of Gull Lake during the past four summers has almost certainly noticed the sparse numbers of live zebra mussels attached to rocks, docks, and other surfaces. Although the zebra mussel population has been slowly rebounding over the past year, the fragments of empty shells still visible on the lake bottom tell the tale of the unprecedented, near-complete die-off of zebra mussels that occurred in early August, 2010. Reports from numerous other inland lakes across the Lower Peninsula of Michigan were very consistent with observations from Gull Lake: in 84% of reporting lakes, zebra mussel populations appeared to decline markedly between 2010 and 2012.

A scientific paper submitted for review by Jeffrey White and Drs. Stephen Hamilton and Orlando Sarnelle (researchers at MSU) attributes these declines to the elevated temperatures experienced across Michigan during the summers of 2010-2012. Gull Lake reached 84 °F in 2010 near the time of the die-off. During the following two summers (2011-2012), water temperatures were even warmer (up to 88 °F), and mussels remained rare in the shallow waters. In some years prior to 2010, water temperatures in Gull Lake actually reached or exceeded the maximum temperature observed in 2010, but the warming did not last as long, and die-offs of the mussels were not observed. All the while, mussels in deeper, cooler waters where the temperature never exceeded 77 °F survived.

## WINTER 2015

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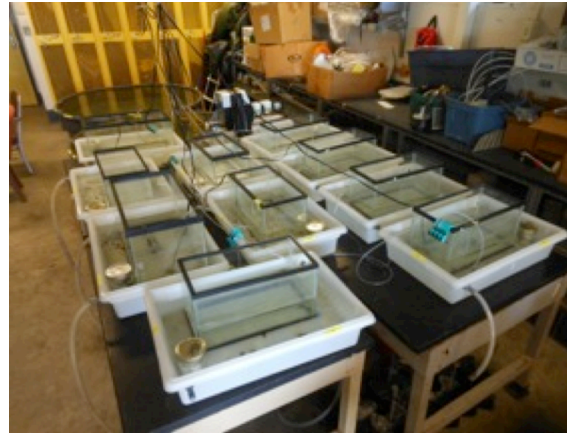
*The Gull Lake Quality Organization is an All-Volunteer Organization. Our mission is to address concerns and provide education regarding the use of natural resources of the Gull Lake Watershed.*



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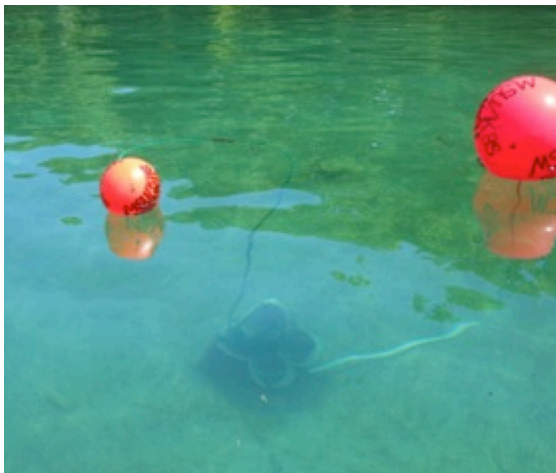
## MASS DIE-OFF OF ZEBRA MUSSELS (continued)

Mussel numbers in the shallow waters did not increase until 2013, with the return of milder summer temperatures. Though water temperatures were not necessarily warm enough to be acutely lethal, temperatures were sufficiently warm for prolonged periods to cause high mortality of zebra mussels in studies conducted in Gull Lake, in which mussels were stocked into cages across a depth-temperature gradient and monitored. During warm summers (e.g., 2012), mortality was high in the shallowest cages where water temperatures were warmest, whereas caged mussels at deeper, cooler depths largely survived as they did in the open lake. Mortality was much lower and similar at all depths during cooler summers (e.g., 2014). A laboratory experiment conducted in 2014 at the Kellogg Biological Station, in which water temperature was artificially elevated to similar levels and accumulated exposure times as in Gull Lake during the 2010 die-off, caused levels of mortality comparable to recent warm years in Gull Lake. Control mussels held at lower temperatures experienced limited mortality during the experiment.



*Laboratory experiment testing the effects of prolonged exposure to elevated temperatures on zebra mussels, conducted during the summer of 2014 at the Kellogg Biological Station on Gull Lake.*

It remains to be seen whether the recent changes in mussel density observed across Michigan inland



*A set of cages containing zebra mussels sits on the bottom of Gull Lake offshore of the Kellogg Biological Station in about 7 feet of water, as part of the mussel mortality study conducted in 2014.*

lakes, including Gull Lake, will be temporary or are indicative of a new “balance.” Often zebra mussel densities stabilize at lower levels following initially explosive growth upon first establishment, or fluctuate to varying degrees. Regardless, it is important to continue to be vigilant and avoid spreading zebra mussels to new locations, as mussels continue to turn up in new lakes every year. Most introductions to lakes probably occur when people inadvertently transport the microscopic larvae of zebra mussels on contaminated equipment or in lake water. The invisible larvae can exist in very high numbers in the water, even if adult mussels seem to be rare. Always allow boats, trailers, and other equipment to dry thoroughly before bringing them to another lake. Never dump water from one lake into another, including the contents of bait containers, live wells, and bilges.

## GLQO 2015 Priorities Focus on Aquatic Invasive Species

By Susan Houseman, President  
Gull Lake Quality Organization

Most lake “weeds” are beneficial. They provide habitat for fish and help keep our lakes healthy. But, when some (mostly non-native) plants are introduced into a lake, they can crowd out the beneficial native weeds, harm fisheries, and interfere with boating, swimming, fishing and other recreational activities.

Such aquatic invasive species (AIS) pose the greatest immediate threat to lakes in Michigan and will be the top priority for the Gull Lake Quality Organization in 2015. For the last several years, GLQO volunteers have been on the look-out for new invasive species in our lakes. The discovery of starry stonewort—a highly aggressive algae—in Gull Lake at the end of the summer gives new urgency to our efforts to prevent, detect, and combat AIS.

### Mapping and Monitoring

To understand what, if any, steps should be taken in response to starry stonewort, we first need to understand the magnitude of the problem. Like other aquatic vegetation, starry stonewort is dormant during the winter. Over the summer, GLQO plans to sponsor a comprehensive survey of the vegetation in Gull Lake. This will tell us where starry stonewort infestations are and whether there are outbreaks of other invasive plants. Such a complete mapping will provide critical information to the experts who will advise us on the best course of action to mitigate the spread and adverse impacts of starry stonewort. As in past years, GLQO will continue to monitor Little Long Lake for invasive plants, but so far none of the major problem weeds has been detected in Little Long.

***GLQO--Monitoring Gull Lake Since 2005!***

*Review the water quality data on [GLQO.net](http://GLQO.net). Click on the “Cooperative Lakes Monitoring Program (see the Gull Lake results)” to download the powerpoint presentation.*

### ***Watch for more information:***

GLQO has invited Scott Brown, Executive Director of Michigan Lakes and Streams Association, to discuss the impact of starry stonewort. The date and time will be posted on GLQO.net and in our spring newsletter.

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*Continued on page 4*

## GLQO 2015 Priorities (continued)

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### Networking with our Neighbors

We have a lot to learn from the experiences of other lakes in our area. GLQO, in collaboration with the Four Townships Water Resources Council, contacted other area lake associations in the fall to share experiences and best practices for dealing with aquatic invasive species.

We learned that not only do all of the lakes contacted have serious problems with invasive weeds, but Gull Lake and Little Long Lake are unusual in that they do not already treat for lake weeds. Pine Lake, Wall Lake and Upper Crooked Lake chemically treat for invasive plants such as Eurasian watermilfoil. Sherman Lake residents have found that chemical treatments alone are ineffective in controlling invasive plants and are now experimenting with an aeration system along with selected herbicide treatments. Collectively, residents at these four lakes spend in excess of \$100,000 annually in an effort to control problem weeds.

We will meet representatives from area lake associations in 2015 to learn more about what aquatic invasive species they have discovered in their lakes, what they have done to monitor and control them, and what works and doesn't work.

### Outreach and Education

People are primarily to blame for the spread of aquatic invasive species. Plant fragments, seeds, or tiny zebra mussels and larvae can easily "hitch" a ride around a lake or from one lake to another on boat propellers, boots and waders, anchors, and the like.

GLQO will continue to reach out to riparians and boat launch users about simple steps they can take to prevent the spread of aquatic invasive species. These include thoroughly cleaning boats when moved from one lake to another and cleaning weeds off of anchors as soon as they are pulled up.

*Starry stonewort (left), a relative newcomer to Michigan, was first discovered in an inland lake in 2006 and has now been confirmed in hundreds of lakes in our state, including Gull. Eurasian watermilfoil (right), which has been in our state for several decades, is a major problem for many lakes in our area. GLQO has confirmed isolated spots of Eurasian watermilfoil in Gull Lake.*



***Help us spread  
the word about  
AIS and help stop  
the spread of  
these aquatic  
invaders!***



## GLQO Board Notes and Updates

There are five standing committees represented on the Gull Lake Quality Organization. They are the Communications Committee, Water Quality Committee, Membership Committee, Boating Safety Committee and the Fisheries Committee. Look for updates from one (or more) of our committees in each newsletter or at [www.glqo.net](http://www.glqo.net).

### ***Boating Safety Update:***

The Boating Safety Committee received the following report from the Kalamazoo County Sheriff's Marine Patrol. The marine patrol is responsible for overseeing the lakes in Kalamazoo County, including 20 major lakes. Gull Lake is the largest of these lakes.

This past year, the Marine Patrol investigated 38 complaints on Gull Lake from May 26<sup>th</sup> until October 1<sup>st</sup>. Overall, there were 838 total contacts and compliance inspections. The total amount of patrol time was 635 hours. Below is a summary of their oversight.

Boater Assists and Support (100)

Registration/Numbering Warnings (68)  
Registration/Numbering Citations (4)

Verbal Warnings for not Wearing Personal Flotation Devices (40)  
Not Wearing of Personal Flotation Devices Citations (1)

Verbal Warnings for Violation of Navigation Rules (3)  
Violation of Navigation Rules Citations (0)

Verbal Warnings for Careless/Reckless Operation (162)  
Careless/Reckless Boating Citations (13)

Drunk Boating Arrests (4)  
Complaint (criminal and non criminal) Investigation Hours (72.5)

It is noteworthy to report that there are many requests by residents and Ross Township for extra patrols (both on the lake and the land of property owners) during the Pirate's Day and Mardi Gras festivities. These festivities are an area of increasing concern for boater safety and landowners who must deal with trespassers, illegal drinking, and destruction of property.

The Sheriff and Marine Division thank the GLQO for their continued interest and support for making Gull Lake a safe and enjoyable lake on which to recreate.

Respectfully,  
Sgt. James DeLaBarre  
Kalamazoo Co. Sheriff's Office, Marine Division

### **Earn Your Boating Safety Certificate!**

The Kalamazoo County Marine Patrol will offer Boating Safety Classes this spring. Check the Kalamazoo County Sheriff's or Michigan DNR's websites for more details.

## GLQO Board Notes and Updates (continued)

### ***Membership Committee Update:***

The Membership Committee's efforts are focused on streamlining the membership process and dues structure for GLQO. Their recommendation was to organize an annual membership drive at the beginning of each year. Residents in the Gull Lake Watershed will receive information about the mission and work of the Gull Lake Quality Organization, along with an invitation to join.

Membership dues are the primary and most reliable source of revenue for the GLQO. The Gull Lake Quality Organization protects, monitors and provides education and community outreach on the Gull Lake Watershed. It addresses issues that concern all of us and encourages responsible stewardship of southwest Michigan's most valuable resource. Your membership dues ensure that we continue our annual testing and monitoring of water quality. Your dues also allow GLQO to address concerns related to aquatic invasive species, like starry stonewort.

Name: \_\_\_\_\_

***(Please indicate how you wish your name to appear in the GLQO Membership List.)***

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_ E-Mail: \_\_\_\_\_

#### *Individual/Family Membership*

\_\_\_ Regular (\$35) \$ \_\_\_\_\_

\_\_\_ Supporting (\$50 to \$249) \$ \_\_\_\_\_

\_\_\_ Sponsor (\$250 & Over) \$ \_\_\_\_\_

#### *Corporate Membership*

\_\_\_ Silver (\$100) \$ \_\_\_\_\_

\_\_\_ Gold (\$200 to \$499) \$ \_\_\_\_\_

\_\_\_ Platinum (\$500 & Over) \$ \_\_\_\_\_

- ☐ I wish to receive the GLQO newsletter via email (to the email noted above)
- ☐ I wish to have my membership level kept confidential
- ☐ I do not wish to have my name published on the GLQO website or in GLQO publications
- ☐ Please direct my dues to: (please specify) \_\_\_\_\_

Mail to: GLQO, PO Box 34, Hickory Corners, MI 49060

***Thank you to the members of the Gull Lake Quality Organization who have signed up so far for 2015! Your support helps to preserve the beauty of the Gull Lake Watershed!***

**Individual Members**

Michael and Louann Ambro  
Bud and Judy Baldwin  
Dick Boris  
Robert Britigan  
Cleve Brown  
Nick and Jane Bruns  
Thomas Buell  
Gary Cirulli  
James Clark  
Wanda Clawson  
Edwin Cohen  
Jim Collier and Stuart Verseman  
Jerry and Sharon Cross  
Philip Dawson  
Pamela Dewey  
Tom and Carol English  
John and Lorelee Fisher

Mike and Kathy Gallagher  
John and Sharon Garside  
Joni Green  
The Halley Family  
Pete and Jo Hawk  
James and Patricia Heilenbach  
Susan Houseman and Curtis Hall  
Bruce Hutchinson  
John and Judith Jereck  
John Kelly  
John and Martha Kuch  
Paul and Kathleen Kuchenbuch  
Richard and Ruth Laninga  
Charles and Phyllis Lavene  
John and Joanne Lawrence  
Patricia Lawrence  
Christopher Light  
Noah Livingston  
Judy Maier  
Vicki and Mike Marcinek

Elizabeth G. McCarty  
Ed and Nancy McCarty  
Margaret McKenzie Trust  
Joyce and Bill Melvin  
Robert Millard  
Gary Mittelbach and Katherine Gross  
Toni Mueller  
Kim and Valerie Nuyen  
TJ and Charlene O'Neill  
Craig Osborn  
Preston and Barbara Parish  
David and Julia Powell  
Jeff Price  
Allison Pruitt  
Brian and Jackie Rice  
Tim and Erica Richardson  
William and Nancy Richardson  
Robert and Mary Lou Ringemann  
William Ryan  
Brad and Rene Saar

Tom and Judy Schau  
Richard and Johanna Shields  
Linda Shierlaw  
June and Charles Spelman  
Harry and Tineka Stolt  
William and Carolyn Ticknor  
Gail Turner  
Dan and Carol Vogt  
Mary and Henry Von Schreiner  
Don and Louise Walbridge  
Jack and Jane Wallner  
Dana Walters  
Bruce Williams  
Drew Worgess  
Marilyn Zheutlin

**Corporate Members**

Gull Lake Ministries  
Banner Beachfront Equipment  
Design for the Mind

Every effort is being made to report members' names as you have requested.  
Some members have requested to remain anonymous. If you see an error, please e-mail [info@glqo.net](mailto:info@glqo.net).

## ***The Gull Lake Watershed...Appreciating our Natural Resources***



The Gull Lake Watershed is a winter wonderland! We thank all of our supporters who help us to protect, monitor, manage and ENJOY our lakes!



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## The Gull Lake Quality Organization

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P.O. Box 34 / Hickory Corners, Michigan / 49060  
Website: [glqo.net](http://glqo.net)  
Contact: [info@glqo.net](mailto:info@glqo.net)



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### Upcoming Events

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***Wednesday, February 11<sup>th</sup> at 9:00 a.m.***  
***Birds and Coffee***  
***Kellogg Bird Sanctuary***

***Monday, March 2<sup>nd</sup> at 7:00 p.m.***  
***Four Township Water Resources***  
***Council Board Meeting***  
***W.K. Kellogg Biological Station***

***Monday, March 9<sup>th</sup> at 4:30 p.m.***  
***Kalamazoo River Watershed Council***  
***Board Meeting***  
***1415 Harrison, Kalamazoo, MI***

***Tuesday, March 10<sup>th</sup> at 7:00 p.m.***  
***GLQO Board Meeting***  
***Richland Area Community Center***

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### 2014-2015 Board of directors

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Susan Houseman **(15-2)**  
***President***

Jim Collier **(16-1)**  
***Vice-President***

Jane Bruns **(17-2)**  
***Secretary***

Chip Garside **(17-2)**  
***Treasurer***

Kathy Gallagher **(17-1)**

Mike Gallagher **(17-1)**

Vicki Gesmundo Marcinek **(17-1)**

David Halley **(16-2)**

Pete Hawk **(16-1)**

Noah Livingston **(17-1)**

Ed McCarty **(17-2)**

Gary Mittelbach **(16-2)**

Tim Richardson **(16-1)**

Drew Worgess **(15-1)**

*GLQO by-laws allow volunteers to serve as directors for two consecutive three-year terms. After each Director's name are two numbers: the **year** their current term expires, and the **number** of the current term.*

*We welcome you to volunteer for committee work (of your choice) and to participate in our board meetings.*

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***The Gull Lake Watershed includes Gull Lake, Little Long Lake, Grassy Lake, Little Gull Lake, Miller Lake, Bullhead Lake, Duck Lake, Backus Lake, Dake Lake, Elliston Lake, Mud Lake, Wintergreen Lake, and Prairieville Creek.***

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