



The GLQO Watershed Journal

The mission of the Gull Lake Quality Organization is to address concerns and provide education regarding the use of natural resources of the Gull Lake Watershed.

Volume 2, Issue 4

glqo.net

Sept.—Dec. 2008

Upcoming Events

October, 2008

15th - Board Meeting, 6:30 p.m.
Check website for location

28th - KBS Dessert with Discussion
Topic: "Animal Agriculture and the Environment - Finding the Balance"
Dr. Wendy Powers, Dir MSU
Environmental Stewardship for Animal
Agriculture...

**(Co-sponsored by GLQO & Four
Townships Water Resource Council)**

November, 2008

19th - Board Meeting, 6:30 p.m.
Check website for location

January, 2009

7th - Board Meeting, 6:30 p.m.
Check website for location

February, 2009

18th - Board Meeting, 6:30 p.m.
Check website for location

April, 2009

1st - Board Meeting, 6:30 p.m.
Check website for location

May, 2009

13th - Board Meeting, 6:30 p.m.
Check website for location

June, 2009

24th - Board Meeting, 6:30 p.m.
Check website for location

July, 2009

22nd - Annual & Board Meeting,
7:00 p.m., check website for location

In This Issue

Gull Lake Quality Organization: 2008 and Beyond -- Excerpts from the President's Report at the July 2008 Annual Meeting

GLQO Committee Structure and Responsibilities – An outline of the GLQO board committees and their responsibilities.

Risks to Human Health Associated with ... Animal Wastes -- An abridged version of an article written by Dr. Joan Rose and Rachael Katonak.

New, Expanded CAFOs Coming to Richland – This map of the current manure and animal waste application sites in the four township area is reprinted from the last issue of The GLQO Watershed Journal.

Animal Agriculture In Our Community -- The perspectives of area residents, farmers, CAFO owners, educators, regulatory agents and business owners regarding animal agriculture are examined.

2008 Gull Lake Clarity Testing Almost Completed – An overview of the Gull Lake secchi disk readings for 2008.

Historians Corner -- Facts from our Historian that you can use to be a social magnet at your next get-together.

GLQO HAS BEEN BLESSED WITH GOOD PEOPLE

We have been blessed to have had Susan Bowers, Terry Carpenter and Tom Noall serve as members of our Board of Directors. Although their terms of service have ended, we will continue to benefit from their contributions. Thanks Susan, Terry and Tom!!

GLQO WELCOMES FOUR NEW BOARD MEMBERS

Please join with us in welcoming our new Board Members: Robert VanPeenan, Bastiaan DeJong, Martina Johnson and Eric Reid. We look forward to the value that these new members will bring to the Board. Thank you to Bo, Bas, Martina and Eric for agreeing to commit your time and energy to shaping and achieving the goals and objectives of the GLQO.

The following paragraphs were excerpted from the President's Report at the annual meeting of the Gull Lake Quality Organization conducted on July 23, 2008, at the Richland Community Center. The "Past Year in Review" identifies many of the accomplishments of the GLQO Board Members during the past year. The "Goals for the Coming Year" outline the high level aspirations of the Board Members for the coming year.

The Past Year in Review

- o Reviewed and modified the GLQO Bylaws to be in sync with the new GLQO mission statement which incorporates the entire Gull Lake Watershed
- o Continued to modify and improve website which is intended to be a ready source of news and information affecting landowners in the Gull Lake Watershed
- o Continued to improve the informational content of the GLQO Newsletter and renamed it the "The GLQO Watershed Journal"
- o Expanded the GLQO membership ranks to include riparians and non-riparians
- o Continued to clean up our member mailing list
- o Continued and expanded the Gull Lake water testing program – 4th year of testing and developing historical data on phosphorus and nitrogen content in the lake water
- o Expanded our water testing program to include E-coli testing on Gull Lake and elsewhere within the Gull Lake Watershed, including Prairieville Creek
- o Reviewed the Cooperative Lakes Monitoring Program (CLMP) established within the Michigan Clean Waters Corps (MICORPS), which is a network of volunteer monitoring programs in Michigan. CLMP supports monitoring components for Secchi disk transparency, total phosphorus, chlorophyll A, dissolved oxygen/temperature and aquatic plants. The data collected is combined with data across the state, which establishes baseline information and helps to isolate water quality trends. This will guide our water quality monitoring scope and techniques.
- o Initiated a study of township ordinances related to water quality using a consultant, LSL. The consultant is assisting us as we meet and work with township officials to "harmonize" the conflicting and inconsistent ordinances in the two counties and four townships included within the Gull Lake Watershed – Kalamazoo and Barry Counties and Ross, Richland, Barry and Prairieville Townships
- o Monitored legislation being proposed in the Michigan House of Representatives to allow "back-lotters" to put a dock into a lake at road end access points up to 250 feet long with boat lifts
- o Continued to support and participate in several land conservation initiatives at the Board level – but we also had individual Board Members support land conservancy at a personal level
- o Based on the results of the ROKS program work conducted last year, we are developing a riparian self-assessment tool for determining the eco-friendliness of lawn maintenance activities. The material will explain "lakescaping" and provide a guide for designing and implementing an attractive and wild life enhancing "buffer zone".
- o Developed an increased awareness of the significant threat to our water quality caused by invasive species of plants, animals and organisms, including the following: purple loosestrife, Eurasian water milfoil, and hydrilla; zebra mussels, round goby, rusty crayfish and Asian carp; and whirling disease (parasite).
- o In a meeting jointly sponsored by the GLQO and the FTWRC, we met with a variety of local farmers, environmentalists, consultants, business people, riparians, educators, and interested local residents to discuss the expansion in animal agriculture and its potential impact on the environment and the community specifically Concentrated Animal Feeding Operations (CAFOs). CAFOs are currently unregulated and the potential impact on the Gull Lake Watershed could be significant if not monitored and managed properly. This community improvement minded group may have the potential to create a viable model of collaboration for the rest of the state to emulate. See "Animal Agriculture in Our Community" article in this issue of the newsletter.

Gull Lake Quality Organization 2008 And Beyond

By: *Brian Winne—GLQO President*

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- o Working together with the FTWRC, we supported with time and money the successful effort to acquire a 319 state grant for purchasing conservation easements specifically along Prairieville Creek. We are continuing to work together as part of the formal Prairieville Creek Site Conservation Planning Team to provide guidance on maintaining and restoring water quality, water quantity and wildlife habitat along Prairieville Creek corridor.
- o Continued to strengthen our relationships and communications with environmentally like-minded organizations, such as the Four Townships Water Resources Council (FTWRC), the Gull Lake Association, and the Southwest Michigan Land Conservancy (SWMLC).
- o Participated in sponsoring with the Gull Lake Marine a very well attended all day boater safety training class. Certificates were provided to those that completed the course.
- o Supported the Sheriff's Marine Patrol on Gull Lake.
- o Organized and will be co-sponsoring a Desert with Discussion session at the KBS Biological Station in October. The speaker will be Dr. Wendy Powers. Dr. Powers is Director of Environmental Stewardship for Animal Agriculture with MSU Departments of Animal Science and Bio-systems Engineering. She will be talking on the science and issues related to concentrated animal feeding operations (CAFOs).

Goals for the Coming Year:

- o "Walk the Talk" when comes to improving environmental quality and preserving the Gull Lake Watershed for future generations
- o Improve communications with GLQO members and with property owners within the Gull Lake Watershed with an emphasis on education, awareness and collaboration
- o Improve planning and coordination across the governmental entities and jurisdictions using the results of our work with the LSL consultants
- o Continue to enhance and expand our water quality testing program throughout the watershed, ensure adherence with proper measurement techniques and methods, and integrate our baseline data with similar data across the state results of our work with the LSL consultants results of our work with the LSL consultants
- o Continue to develop our two primary communication mechanisms: (1) The Gull Lake Watershed Journal and (2) the GLQO website.
- o Explore technologies, operational methods, land usage and monitoring techniques that can enable the continued evolution of animal agriculture in an environmentally sound manner and that can produce benefits for all community stakeholders.
- o Develop practices for reducing the harmful impact of invasive species.
- o Assess the impact of increased residential development and access on the lakes and streams in the Gull Lake Watershed and determine steps to manage and mitigate the negative impact of overcrowding.
- o Inventory the variety of species of flora and fauna in the Gull Lake Watershed.

The Gull Lake Quality Organization is composed of six standing committees. The purpose of these Board Committees is to assist in focusing the attention and the activities of the Board in line with the organization's overall mission, goals and objectives. The following identifies each of the standing board committees and outlines each committee's responsibilities:

- o **Water Quality:**
 - o monitor water quality in terms of content and clarity, including invasive species of plants, animals and organisms
 - o develop and execute water testing procedures, analyze the results and prepare action plans to mitigate potential risks
 - o isolate water quality issues at the possible sources, including ground or spring water, natural surface water inflows, storm drains, road ends, riparian shorelines and public access points
- o **Law Enforcement:**
 - o manage direct and indirect cash and non-cash contributions in support of law enforcement activities on Gull Lake
 - o obtain and track law enforcement activity data and maintain historical records
 - o promote safe use of the waterways in the Gull Lake Watershed and support specific water safety training
- o **Governmental Liaison:**
 - o understand the jurisdictional boundaries within the Gull Lake Watershed and develop relationships with key officials
 - o review, analyze and compare township and county ordinances impacting the Gull Lake Watershed and develop plans and processes for integrating the key ordinances
 - o maintain familiarity with proposed and pending Michigan and federal legislation impacting the Gull Lake Watershed and prepare action plans for mitigating any negative impact on the Gull Lake Watershed
- o **Fisheries:**
 - o monitor and maintain records regarding the native species of fish and animal life in and around Gull Lake
 - o develop and propose plans for maintaining a stable sport fishing environment
 - o maintain communications and relationships with key members of the Michigan DEQ and DNR
- o **Development/ Access:**
 - o monitor land usage within the Gull Lake Watershed and assess the potential impact of land use activities on water quality and property values
 - o maintain records necessary to manage public access points to Gull Lake (including road ends) for the benefit and safety of the riparian and non-riparian landowners within the Gull Lake Watershed
 - o identify and promote land conservancy within the Gull Lake Watershed
- o **Communications/ Public Relations:**
 - o develop and maintain communications with all property owners within the Gull Lake Watershed, including the preparation and distribution of the quarterly GLQO newsletter, "The GLQO Watershed Journal".
 - o develop and maintain the GLQO website highlighting the potential threats to the Gull Lake Watershed and the threat mitigating activities being taken by the GLQO and other organizations
 - o expand the general membership of the organization
 - o prepare material(s) designed to educate and improve landowners' awareness of the Gull Lake Watershed and of each riparian and non-riparian landowners' role in preserving it for future generations
 - o support community training and education activities maintain accurate records of GLQO Board Member meetings and activities
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**EXCERPTS TAKEN FROM A BRIEF—
“RISKS TO HUMAN HEALTH ASSOCIATED WITH WATER AND FOOD CONTAMINATED WITH
ANIMAL WASTES”**

BY: *Dr. Joan Rose*, Homer Nowlin Chair in Water Research & *Rachel Katonak*

MSU Department of Fisheries and Wildlife, August 16, 2005

(Check our website glqo.net, for a more complete version of Dr Rose's article)

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(Visit the GLQO website glqo.net for the unabridged version of this article)

Animal fecal wastes/ manure may contain pathogenic microorganisms that once applied to land can run off into water, contaminate soil/or crops and spread disease to humans. In the spring of 2004, the US Court of Appeals for the Second Circuit ruled that the US Environmental Protection Agency must establish a standard for “pathogen reduction” for Confined Animal Feeding Operations (CAFOs) and that the process of establishing that standard must provide adequate opportunity for public participation...

Bacteria, parasites and animal viruses will follow the same pathways as nutrients from manure, contaminating potentially both ground and surface waters... Risk reduction strategies are used for microorganisms/pathogens to govern the application of human biosolids to land; thus, while approaches are available to monitor, assess and reduce risks, these approaches have not been applied to animal fecal wastes applied to land (Federal Register, 1993).

Waterborne disease in humans is primarily associated with pathogens that originate from animal and human fecal wastes, transmitted to humans via contamination of drinking water and recreational water (Dewailly et al. 1986; Fewtrell et al. 1992). There have been a number of studies that have shown illness occurs even with boating and canoeing and general contact. Food borne disease also occurs often due to the fecal contamination of vegetables and fruits...

An outbreak of E.coli 0157H7 in Walkerton, Ontario, occurred due to the contamination of ground water via manure as well as inappropriate chlorination. This outbreak led to 6 deaths and chronic disease problems in this community and many of the children may need kidney transplants in the future (Krewski et al., 2002).

Cryptosporidium a pathogenic protozoan parasite has also been associated with disease spread from animals to humans. Fecal coliform bacteria and other pathogens are one of the top causes of impairment to water quality in the US and it is estimated that manure is a large source of this impairment (EPA, 2002)

...

(See Table 1 on the GLQO website glqo.net for examples of where manure has been implicated as the source of pathogens)

There are numerous bacteria and protozoan pathogens, which can be found in animal wastes that affect human health and the health of other animals. Surveys have shown that between 10 to 50% of the animals at any one time are excreting one or more pathogen ...

Pathogens found in livestock manures can survive in the soil for months or years after spreading or excretion onto land (Nicholson et al., 2004)...

Studies in Michigan found Cryptosporidium in 11 surface water sites near CAFO farms which may have been the source of the oocysts... Giardia was detected at 8 of the surface water sites. Viable and infectious oocysts were also detected. High levels of E.coli bacteria were reported as well (Rose, JB, Water Quality and Health Laboratory, Michigan State University, E. Lansing MI)

**EXCERPTS TAKEN FROM A BRIEF—
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The use of antibiotics to improve animal health and productivity has been increasing since the 1970's (McDermott et al., 2002) ... The non-therapeutic use of antibiotics for animals has been reported in approximately 70% of large swine feedlot operations and 25% in small feedlot operations (APHIS website). More than 70% of large cattle feedlot use antibiotics in at least 58% of their heads. An astonishing 88% of large dairy operations administered antibiotics to up to 40% of their cows during lactation periods.

Correspondingly, both veterinary and human antibiotics are being detected in waters throughout the US (Kolpin et al., 2002) and evidence of spread of antibiotic resistance (AR) is also emerging. Approximately 50% of the streams were contaminated with a range of antibiotics and Erythromycin-H2O. Our research team at MSU has found new classes of tetracycline resistance in tetracycline-treated manure soils ...

A risk assessment science based method is needed to examine the risks and to address control in an appropriate manner. The human health risks and infectious disease risks from animal wastes are clear and have been documented. Other issues are pending, such as antibiotic resistance. The animal population as is the human population is growing and so is the amount of wastes that need to be disposed of. Land-application should be done safely in a manner that will protect public health.

We now know that:

- Zoonotic infections are those that move from animals to humans and are now playing a central role in emerging infectious disease in humans (from *Cryptosporidium* to *E.coli* to Ebola to Bird Flu).
- Many emerging zoonotic diseases are transmitted by indirect contact—foods, water, environmental contamination, vectors, etc. and are not reliant on direct contact between human and animal hosts for transmission.
- Tonnage of animal waste has been estimated and controlled based on nitrogen in animal excreta yet little effort has been made to address the microbial and zoonotic infectious disease potential due to loading of manure onto land.

We should use quantitative microbial risk assessment to address the future needs for “safe” application of manure to land to avoid disease spread...

Conclusions

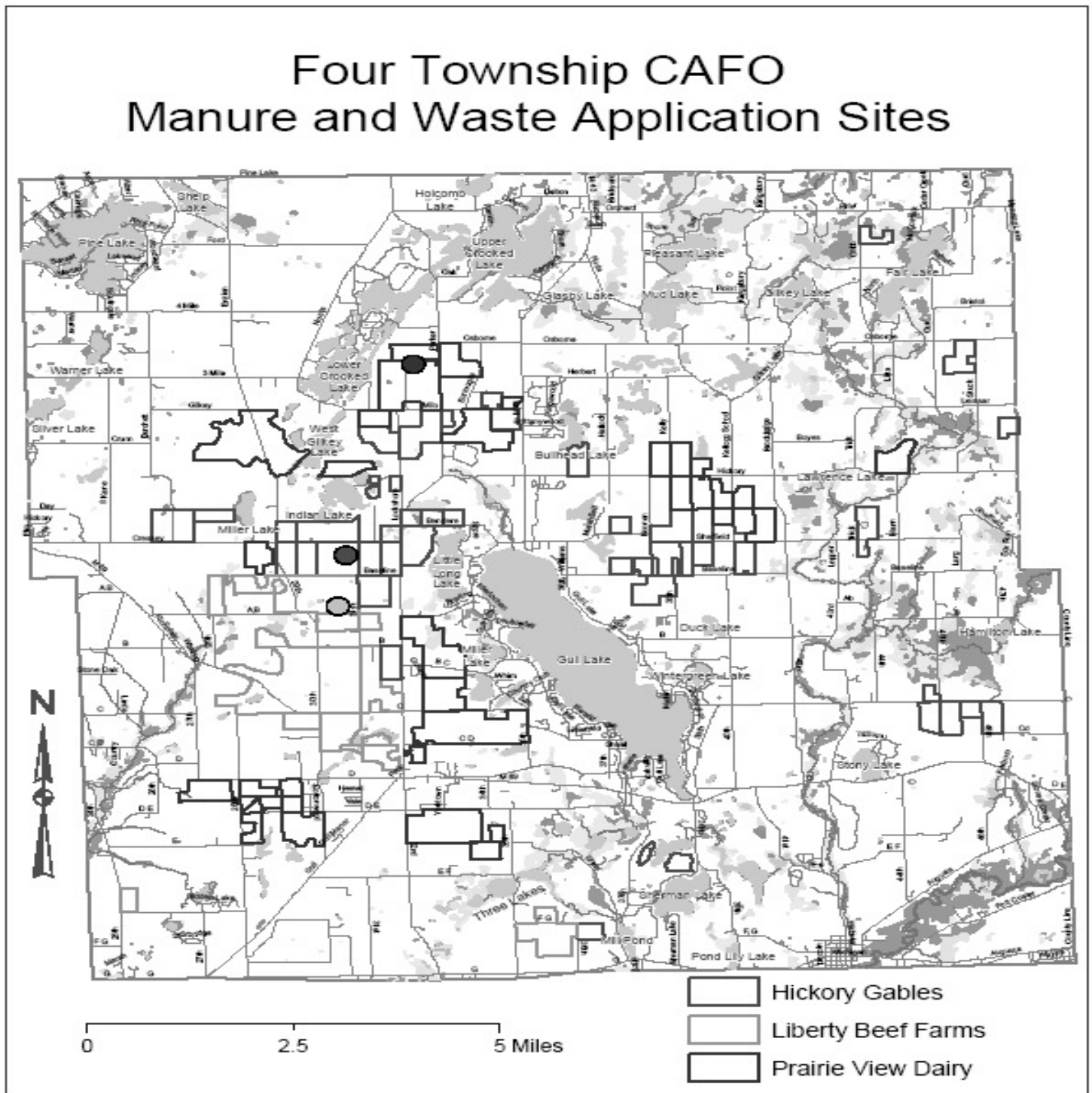
- Animal manures contain pathogens that can and have been shown to spread disease to humans. Spread of animal manure on land without assessment and oversight presents a risk to public health.
- Occurrence, survival, and reduction of pathogens in manures by appropriate controls should be addressed.
- The Risk Framework can be used to estimate the necessary pathogen reduction goals necessary to protect public health.
- Emerging risks, such as antibiotic resistance, should be taken into account.

(Visit the GLQO website glqo.net for the unabridged version of this article and a complete list of the references associated with this article.)

New, Expanded CAFOs Coming to Richland

By: Anne Couture, President Couture Environmental Strategies
Russell Hall, Student Gull Lake High School

The map presented below was prepared by Anne Couture with the assistance of Russell Hall and was originally published in the last issue of the GLQO Watershed Journal as part of article discussing the emergence of Concentrated Animal Feeding Operations within the Gull Lake Watershed. The map shows the farm properties within the Gull Lake four township area where animal wastes from our three existing CAFOs are being spread. This map has been reprinted in this issue to highlight the presence of CAFOs in the Gull Lake Watershed.



(Visit the GLQO website glqo.net for the entire article or see the last issue of the GLQO Watershed Journal)

Animal Agriculture in Our Community

By: *Brian Winne—GLQO President*

On July 8, 2008, a meeting was held at the Richland Community Center. It was jointly sponsored by the Gull Lake Quality Organization (GLQO) and by the Four Townships Water Resource Council (FTWRC). It was attended by Board Members from both organizations as well as by several interested and concerned residents, business people, government officials and educators from the area. The purpose of the meeting was to provide a respectful and thoughtful venue to discuss animal agriculture in our community. The area included within the Gull Lake Watershed has always been fertile ground for agricultural development. In recent times, however, the expansion of Concentrated Animal Feeding Operations (CAFOs) in the area has concerned many of the residents. These concerns arise primary from the combination of a weak, under-staffed and confused regulatory structure and the significant potential for improper management of the animal waste (manure) generated through the sheer volume of these operations. Improper manure management practices whether related to a CAFO or to a smaller, more traditional farming operation could result in a significant negative impact on air and water quality in the area and possible health and quality of life risks to the residents.

The mission statements of the two sponsoring organizations are as follows:

- o GLQO – to address concerns and provide education regarding the use of natural resources of the Gull Lake Watershed
- o FTWRC – to assist in the development and implementation of land use strategies that retain the rural environment currently enjoyed by township residents, protecting lakes streams, drinking water, agriculture and open space.

With these in mind, the GLQO and the FTWRC decided to conduct this joint meeting to examine the perspectives of the stakeholders in the area defined as the Gull Lake Watershed. The objectives of the meeting were set as follows:

- o To present perspectives and concerns of key community stakeholders
- o To share goals and aspirations
- o To share information
- o To determine areas of “common ground” and potential collaboration ... and potential discord
- o To propose next steps for continued community growth and development and the preservation of natural resources and quality of life

It was an open forum and the viewpoints of residents, farmers, CAFO owners, business people, regulatory agents, environmentalists and educators were all voiced. It was a start to improved communication and understanding.

Overall, the outcome of the meeting was perceived as positive and the people attending the meeting seemed to agree that keeping this group together perhaps as a formal “coalition” would be a good thing to do. All acknowledged that there is still much confusion and misunderstanding that must be addressed. It was also acknowledged that the CAFO permitting and monitoring processes have significant flaws, that the greatest threat to the health and well being of area residents may in fact come from unregulated (traditional) farming operations, that record keeping on all farms could probably be improved, that current air and water quality testing procedures are inadequate and inconsistently applied, and that technology based alternatives for manure management beyond spreading, such as digesters and composting, must be researched and assessed.

The “coalition” decided to meet again in six months ... if not sooner. There is much that needs to be done, and it will take a coordinated effort from the entire Gull Lake Watershed community to do it. Hopefully, this community improvement minded group will be able to create a viable model of collaboration for the rest of the state to emulate.

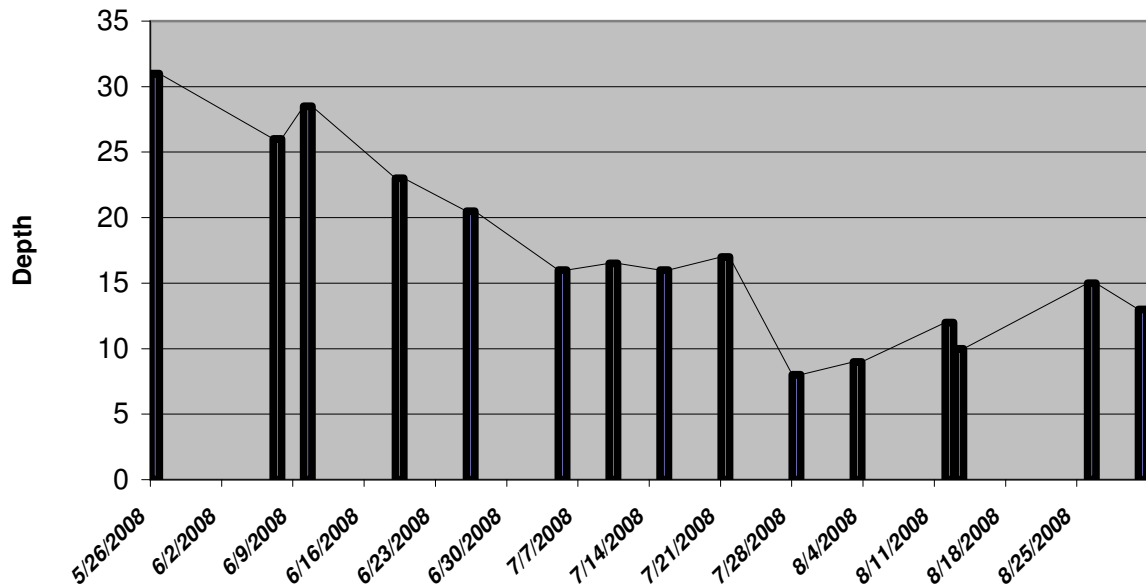
2008 Lake Clarity Testing Almost Completed

By: *Mike Gallagher—GLQO Water Quality Committee Head*

Did you notice that the lake was clearer in the spring than it is now? That happens every year and this year was no exception. Past GLQO board member Jerry Rapp kept his eye on the water all summer. He conducted regular Secchi Disk monitoring and his results are shown below. The biggest influencer of lake water clarity is algae and as it grows the clarity of the lake gets less and less. We also saw reductions in clarity after the heavy rain we had at the beginning of July. Did you know the water in the lake turns over as its temperature warms up? When that happened this summer we also saw a normal reduction in clarity.

We don't have any control over the temperature of the lake but we can have an impact on the amount of phosphorous that we feed to the algae. This fall and next spring try using a phosphorous free fertilizer on your lawn. With less phosphorous entering the lake we have less algae and the lake is clearer. Many thanks to Jerry Rapp for taking the time to keep an eye on the lake.

Gull Lake Secchi Disk Readings 2008

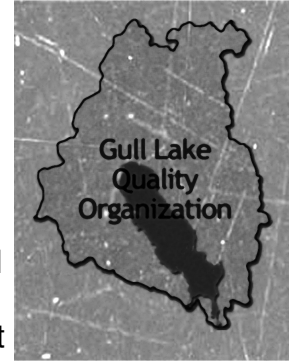


Historian's Corner

By: *Eric Reid, GLQO Historian (historian@glqo.net)*

To find out about the history of Gull Lake and the Watershed, one needn't look far. Your humble Historian was reminded of this fact this summer as I discovered several wonderful local historical resources.

1) The History Room at the Richland Community Library in Richland. Thanks to the tireless work of folks like Ed Schaadt, there is a wealth of information available to the public on the local area, including Gull Lake and significant portions of the Watershed. A recent visit to the lower level of the Library proved a real 'eye-opener', thanks to the very welcoming and patient Archivist Martha Strumpher. There is so much interesting information on the area's past, much of it not even categorized as of this writing. For example, from a wonderful book by the name of 'Richland - From Its Prairie Beginnings':



"The legend still persists that a fortune in walnut trees lies below Gull [Lake]'s waters. Old-timers say that the walnut trees grew on the peninsula flooded when Island Park was born. Stumps which were just below the water between the island and the west shore were dynamited in 1904."

"In the 1890s, large quantities of ice were cut on Gull Lake and shipped out of Yorkville on the Cincinnati, Jackson and Mackinac railroad. In March of 1890, an order was received from Cincinnati for 200 carloads of ice."

2) So much of the area's history is carried in its residents, past and present. Last Spring, the GLQO received a lovely note from Mrs. Betty Jastrey, from her winter home in Florida. She relates:

"While scuba diving several years ago my son and grandson (Don and Robert DeLong) discovered a sunken boat they thought was E.L. Hawk's 'The Crystal' in about 60 feet of water in the Bay area. Could this have been the old steamboat?"

3) Local Riparian Jack Lawrence recently shared with your Historian a copy of his 'Gulls and Buoys – A History of the Gull Lake Yacht Club 1926-1987'. We hope to get this booklet scanned into our Archives soon, and when we do, it will be available on our website, <http://www.glqo.net>. To whet the appetite, here is a small Did You Know:

"There was obviously a great deal of enthusiasm for power boat racing in those early years... By the 1930 season though motor boat racing was all over, likely terminated by an unfortunate accident in which a powerboat hit and seriously injured a swimmer."

Do **you** have some Gull Lake or Watershed history to share? If so, drop us a line at P.O. Box 34, Hickory Corners, MI 49060, or email us at historian@glqo.net.

The W.K. Kellogg Biological Station (KBS) is pleased to announce its fall 2008 **Dessert with Discussion** series. These informal and informative programs offer community members an opportunity to meet MSU scientists and learn about current issues that can affect us all. Presentations are free and include delicious desserts. Dessert with Discussion begins at 7:00 p.m. in the KBS Academic Center Auditorium.

This series is made possible through the generosity of the W.K. Kellogg Foundation and community organizations.

For more information contact KBS Community Relations office at 269-671-2263 or email at communityrelations@kbs.msu.edu. Additional KBS special events can be found on the web at www.kbs.msu.edu.

On Tuesday, October 28th, the Gull Lake Quality Organization and the Four Township Water Resources Council will co-sponsor a Dessert with Discussion event: ***Animal Agriculture and the Environment: Finding the Balance***. The guest speaker is Dr. Wendy Powers, Director of Environmental Stewardship for Animal Agriculture with MSU Department of Animal Science and Biosystems Engineering.

Dr. Wendy Powers is a professor and director of environmental stewardship for animal agriculture in the departments of Animal Science and Biosystems and Agricultural Engineering at Michigan State University. She joined MSU in November 2006 after serving on the faculty at Iowa State University for nearly 10 years.

As director, Dr. Powers coordinates environmental activities related to animal agriculture in the College of Agriculture and Natural Resources. Her primary research focus is on diet modification to alter odor and gaseous emissions and manure nutrient excretion in multiple species. Her Extension work currently focuses on implementation of management practices to reduce environmental impact and addressing the concerns of rural residents by improving understanding and communication.

Dr. Powers received her bachelor's degree from Cornell University in 1989 in animal science and received her master's degree in dairy science and a doctorate in animal science from the University of Florida in 1993 and 1997 respectively.

The following is a "taste" of Dr. Power's Dessert with Discussion topic on October 28th.

How Did We get Here?

Wendy Powers

Livestock systems and rural communities in Michigan have undergone enormous changes in the past 50 years. There have been accompanying changes in the regulatory environment and social norms. The purpose of this talk is to outline some of the primary drivers behind these changes, which in turn frame discussions for future developments.

Total livestock output in Michigan has stayed the same or increased for many types of livestock, but production per animal has increased substantially.

The number of farms producing livestock has decreased as farms have become larger and more specialized. There also has been a tendency toward specialization in livestock and crop production, making many livestock farms net purchasers of feed and exporters of manure to crop farms. This has caused manure production and manure utilization to become uncoupled and raised concerns over the environmental impacts of manure storage and application.

Rural communities have changed as well. Many rural residents are not engaged in farming, and a smaller percentage of rural residents are actively engaged in agricultural professions and are knowledgeable in modern production practices. Historically, many crop farmers had some livestock and were engaged in some agricultural activity every month of the year. That is less true today. The crop farmer may be very active in his machine shop in the off season but is not raising livestock. Though many rural residents desire some of the benefits that living in a rural setting provides, such as the ability to own horses or privacy from neighbors, they also desire attributes of urban life such as paved roads, internet access, etc. In turn, the tradeoffs of living in an agricultural area, including dust, odor and snow removal, become problematic.

Gull Lake Quality Organization

2008 Final Dues Request

The mission of the Gull Lake Quality Organization is to address concerns and provide education regarding the use of natural resources of the Gull Lake Watershed.

If there is an " * " following your last name on the address label, you have already paid your 2008 dues! ***Thank you!***

Please take a moment to provide your contact information below and ...

THANKS IN ADVANCE FOR YOUR CONTINUED SUPPORT!!

(Please print all information and provide your local mailing address)

Name: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Mobile Phone: _____

E-mail Address: _____

It is not our policy to share your home address information, phone numbers or E-mail address with any other individuals or organizations. However, we do normally publish the names (only) our members on our website.

Check here if you do not wish to have your name published on the GLQO website.

Check here if you would like to receive The GLQO Watershed Journal by email.

Individual/Family Membership

___ Regular (\$25) \$ _____

___ Supporting (\$50 to \$100) \$ _____

___ Sponsor (\$125 & Over) \$ _____

Corporate Membership

___ Silver (\$50) \$ _____

___ Gold (\$100 to \$200) \$ _____

___ Platinum (\$250 & Over) \$ _____

Additional Donations:

___ General Donation \$ _____

___ Sheriff's Patrol \$ _____

Additional Donations:

___ General Donation \$ _____

___ Sheriff's Patrol \$ _____

Total \$ _____

Total \$ _____

Check here if you wish to have your donation level kept confidential.

Please mail this form and your check to: GLQO, P.O. Box 34, Hickory Corners, MI 49060

If you have comments or suggestions we would like to hear from you!!

Please visit our website: www.glqo.net

Hickory Corners, MI 49060
P.O. Box 34
GLOO

The Gull Lake Quality Organization's Board Executive Committee and Board

The Board Executive Committee:

President: Brian Winne (11-2) Secretary:

Vice President: Chris Tracy (11-2) Treasurer: Peter Knibloe (09-2)
Law Enforcement

Board Members:

Woody Boudeman (09-2) Bastiaan DeJong (11-1) Martina Johnson (11-1)

Mike Gallagher (10-1) Jay Garside (10-2) Todd Lennen (10-1)
Water Quality *Governmental Liaison* *Fisheries*

John Luchsinger (10-1) Gene McKay (10-1) Rick Newell (10-1)
Fisheries *Development/Access*

Eric Reid (11-1) Bo VanPeenan (11-1)
Communications/PublicRelations