



CRYSTAL WHITECAPS

The Newsletter of the Crystal Lake & Watershed Association

Vol. 9, No. 2

Summer / Fall 2013

PRESIDENT'S LETTER

Dear CLWA Members:

It is time to take stock of our success in 2013 and consider the work ahead. Crystal Lake is a cherished part of our lives: a gathering place where friends and family reconnect to share and celebrate.

Crystal Lake & Watershed Association preserves and protects our Lake and its watershed. Take a minute or two to look through your Whitecaps and see what we have been doing to meet our goals. I also ask you for your generous support of these programs to keep Crystal Lake pure now and for generations to come.

Consider the CLWA's current priorities and how you can help:

1. Swimmer's Itch Control. Likely you or someone in your family is affected. CLWA is one of the few lake associations anywhere working to break the Swimmer's Itch cycle through proven pest controls and research on personal repellent

products. CLWA has an aggressive plan to address Swimmer's Itch in 2014: our progress depends on your financial commitment.

2. Lake Level Management. Crystal Lake has a prescribed lake level based on a 1980 legal settlement. Local government has struggled to meet this target, to the detriment of lakeshore property owners and overall water quality. CLWA can provide the management knowledge and equipment required to make seasonal erosion and water quality damage caused by it a thing of the past. Your funding will now complete the circle.

3. Watershed Management Planning. Beyond the immediate problems of today, we need to plan for the long-term protection of the Lake. CLWA has a lead role in the development of a regional Watershed Management Plan. With this plan in place, we will be uniquely positioned

to acquire state and federal funding for priority water quality protection projects to keep Crystal pure.

4. Invasive Species Control. The new CLWA Boat Wash Station along with our invasive species prevention and education programs are in full swing. These programs are important and require adequate funding to continue uninterrupted. Your active support will help to protect our Crystal waters.

All around the Lake, in the present and for the future, we are making a significant difference. Please help your CLWA carry out these important efforts to keep Crystal Lake pure by sending your financial contribution (in the envelope provided inside) today.

Please continue to support the solution, and invest in the protection of our Crystal Lake. 🚩

- Joel Buzzell,
CLWA President

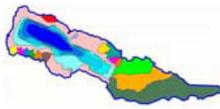
THE CRYSTAL LAKE & WATERSHED ASSOCIATION

"The purpose of the CLWA is to protect and promote the natural qualities of the watershed of Crystal Lake, Benzie County, Michigan. The goal of the CLWA is to preserve for future generations the beauty and recreational resources of Crystal Lake and its Watershed. To these ends, the CLWA will engage in water-quality monitoring, educational programs, promotion of harmonious land development, and promotion of the safe use of Crystal Lake. It will conduct other such activities as needed to advocate and ensure the continued aesthetic beauty and environmental integrity of the Lake and its Watershed."

The CLWA (a 501(c)(3) nonprofit organization) supports a comprehensive program of activities affecting students, riparian owners, residents, and visitors in the Crystal Lake Watershed, Benzie Co., MI. Please contact the CLWA if you would you like to participate on a Committee!

Membership in the Crystal Lake & Watershed Association includes: Crystal Whitecaps, The CLWA Newsletter; the webpage at www.CLWA.us, the CLWA Membership Directory; progress reports on Crystal Lake Watershed activities and issues; and an active voice in the protection of the Crystal Lake Watershed. Individual memberships are \$35 per year and \$70 per couple. Gifts to the 2020 Vision Fund are for stewardship projects, scientific studies, and educational programs; and those to the Endowment Fund are for future needs. Please contact the CLWA with your concerns and comments.

"Protecting the integrity of Crystal Lake, Benzie County, Michigan, now and for the future."



MDNR BOAT ACCESS SITE & CLWA BOAT WASH STATION

The CLWA boat wash station at the MDNR Boating Access Site completed its first year of operation washing boats and educating boaters on how essential this asset is to keeping Crystal Lake pure. We have been given a great opportunity by the generous donations of many CLWA members to have a serious impact on keeping invasive species out of Crystal Lake. Now spread the word that boat washing is a required routine that keeps invasive species out!

The CLWA boat wash is free per agreement with the MDNR. CLWA is our source for ensuring clean boats enter Crystal Lake. Washing boats and trailers before entering Crystal Lake is mandated by local ordinance adopted in all surrounding townships and the Village of Beulah. Ordinances all include hefty fines - **\$500** for non-compliance.

Invasive species in Crystal Lake can raise havoc with our sport fish populations, our swim areas and our sailing activities. Only through respectful stewardship do we protect our waters and fisheries from harm.



Cam Mitchell showing boaters how to keep it clean.

The Crystal Lake Yacht Club enthusiastically jumped in this summer as they hosted an invitational E Scow race, with boats coming in

from many regional lakes. A portable boat washing station was set up at the Yacht Club by the E fleet. All visiting boats were washed before entering Crystal. The CLWA's agenda includes two major invitational races

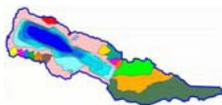
in the coming two years and plans are underway to make sure that equipment and manpower are in place to make a clean entry of all visiting boats into the waters we work to protect. Many thanks to the CLWA for their leadership in this essential invasive species prevention effort.

Boat washing is one way we can keep Crystal pure. Your support of this effort through participation and funding is certainly crucial to our ongoing success. Thank you to all who have contributed

to and participated in this effort. We are in the lead as Michigan lakes go. Volunteers to wash boats next season – please call the CLWA and sign up!



CLWA at the 4th of July parades supported by the Shreiner Family in Frankfort and the Edwards Family in Beulah.



SWIMMER'S ITCH

The CLWA continues to make progress in the control of Swimmer's Itch. The incidence of reported cases was slightly down in the 2013 season as compared to our data from 2012. We have a three pronged approach to our control of this unwanted pest:

1. *Moving mergansers off the lake prior to breeding season. We are building a broad group of people from around the lake who will use pyrotechnics to scare the birds off our waters starting at ice-out next spring (other regional lakes have been using this technique for years). Join us, please call the CLWA for details. The hunting of mergansers on Crystal Lake is also encouraged during the fall duck hunting season with a total take this year estimated at 25 birds, down significantly from well over 150 eight years ago.*
2. *Scarification (light raking) of the lake bottom in several major swim*

areas. This effort disturbs the Swimmer's Itch carrying snails and causes them to release the parasite into the water (where it perishes within 24 hours). Following the initial 24 hour period, the incidence of Swimmer's Itch emanating from the scarified swim area is decreased for about 2 weeks. The Michigan Department of Environmental Quality has granted the CLWA permission to carry out this activity at beaches that wish to be involved in the program.

3. *Research to test and develop personal protective creams and lotions (barriers) to determine scientifically what really works. Under the guidance of Mr. Al Flory, the CLWA performed a double blind study in 2012 of "Swimmer's Itch Guard". The labeling (non-FDA) of this ointment claimed 100% protection from Swimmer's Itch. Although the cream did provide an improvement when compared to our*

control SPF 30 sun lotion, 100% protection was not observed in our study. To read the details of this work please visit our website (www.clwa.us) for a copy of the report. We plan to carry out a similar study of multiple protective products in 2014 – looking for concrete answers to control the Swimmer's Itch problem. The product costs and statistical analysis exceed \$12,000.

We encourage all who want to get Swimmer's Itch under control to contribute funding now so that we can prepare for the 2014 season. Also, call us to enlist as a volunteer participant in our 2014 products study.

With your support, we will continue our Swimmer's Itch control programs and find relief from this irritating and pervasive pest.

LAKE LEVEL MANAGEMENT

In the Spring of 2013 the Crystal Lake Outlet was reminiscent of the "raging canal" of Archibald Jones! Snow melt, heavy rains and a sand dam built up behind the outlet dam created an outpouring greater than any in living memory. The level of the Lake exceeded a level not recorded in fifty years. The level in the discharge pool was only slightly lower than the Lake.*

This should not be allowed to happen again.

The Benzie County Drain Commissioner is charged with managing the lake's levels on a very small budget. We can solve this water quality and property protection problem. The CLWA has spent the summer studying the current management protocols and has developed a system to close the circle and provide effective support for the management of Crystal Lake's water levels.

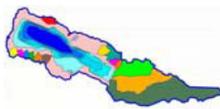
Along with more consistent and reliable measurements throughout the winter months, we are sourcing staff gauges that are easy to read to be placed at locations around the lake for more persistent monitoring. We are working with TIA Software to provide an electronic lake level monitoring system that takes measurements several times per day and makes

the reads available online for all to see. This data logging and information development allows for better correlation between level readings and outlet drain control so that the lake level can be more accurately managed to meet the prescribed 1980 settlement seasonal levels.

The cost of shoreline remediation is expensive, many of you know this too well. We have the knowledge and the tools lined up to make lake levels predictable and entirely workable. We now need funding to put this knowledge and the necessary tools into play. Please help us make this happen now with your generous contribution to the CLWA. After this spring's erosion we are now intimately familiar with the effects of inaction. Come together and promote the leadership, the financing and the tools that only the CLWA is poised to provide.

**Crystal Lake is regulated at two levels: Summer (May 1 - Oct 31) 600.25 feet, for recreation; Winter (Nov 1 - Apr 30) 599.75 feet, to reduce shoreline erosion.*





COLD CREEK

If you have not had the opportunity to cruise by the newly completed Beulah Public Beach, remember to do so soon. Also stop by the local Beulah businesses for some excellent refreshments and shopping. One key accomplishment in the beachfront improvements has been to reduce sediment runoff from Village streets into the Crystal Lake. Several small settling ponds constructed from large boulders are designed to collect the runoff and filter it through the existing sands. Previously, storm drains from the streets ran directly into the lake. The large Sediment settling pond on Cold Creek continues to collect sediment upstream from Beulah.

The Village of Beulah began pumping its wastewater to lagoons located far away from Crystal Lake in 1970. The Cold Creek Sediment Basin, an RC&D project by the Soil Conservation Service in cooperation with the Village of Beulah and Benzonia Township, was built in 1975 to trap sediment from Cold Creek, the major tributary to Crystal Lake.

The Village of Beulah is committed to keep Crystal pure and the CLWA continues to do what is necessary to provide active support to Beulah's outstanding efforts.

WATERSHED MANAGEMENT PLANNING

The CLWA is a significant partner and contractor working toward completion of the Betsie River/Crystal Lake Watershed Management Plan. The CLWA and its sub-contractors used the summer months to accumulate and sort through existing data – discovering what has been done to identify opportunities and threats to our watersheds and to determine the appropriate next steps.

You may have seen a crew or two of boaters taking pictures and making notes as our surveyors mapped the shoreline of Crystal Lake. An inventory of shoreline conditions is necessary to determine what sorts of improvements can be made to preserve and protect our water quality. Careful attention is being given to areas of significant and persistent erosion along with known water quality issues (E-coli, invasives such as Eurasian water milfoil, phragmites, and other known undesirables) to help us set our priorities for near-term remediation and protection.

You may also be the lucky recipient of a Watershed Management Planning Survey due out soon. It is important to enlist the insights and opinions of watershed property owners regarding what is good,

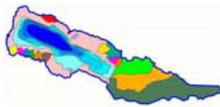
not so good, important and noteworthy. If you receive such a survey in the mail, please take a few minutes to consider the questions and respond. Your input is important to make sure this Plan is one that serves our watershed well.

Along with taking a lead role in building this plan, the CLWA president is also the chair of the Watershed Management Plan Steering Committee. Current Stakeholders include: the Michigan Department of Environmental Quality, the Northwest Michigan Council of Governments, Friends of Betsie Bay, the Grand Traverse Regional Land Conservancy, the Grand Traverse Band of Ottawa and Chippewa Indians, the Green Lake/Betsie River Association, the Benzie Conservation District, the Conservation Resource Alliance, the Benzie/Leelanau



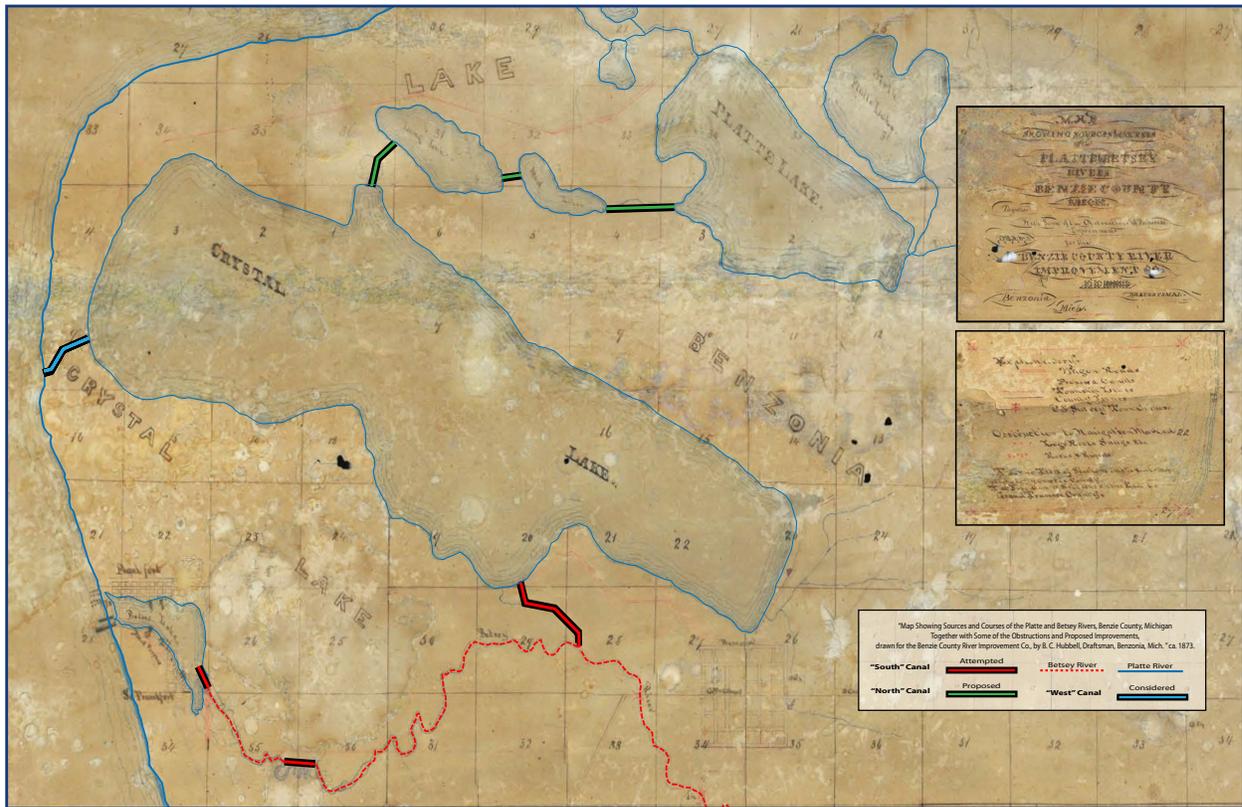
District Health Department, the Benzie Co. Drain Commission, the Benzie Co. Board of Commissioners, Benzonia, local townships, and the Sleeping Bear Dunes National Lakeshore.

This effort provides the basis for funding from State and Federal sources for many of our crucial water quality protection efforts in the near and medium term. It is important that we work together to detail the essential components of this plan on time and in budget. Please contribute to this effort to keep our waters clean.



MICHIGAN HISTORICAL MARKER (CRYSTAL LAKE OUTLET)

Application for an Historical Marker at the Outlet Dam of Crystal Lake, Benzie County, MI, was approved by the Michigan Historical Commission. This new marker will commemorate the **"Tragedy"/"Comedy"** of Crystal Lake, an epochal event in our local heritage.*



"Map Showing Sources & Courses of the Platte & Betsey Rivers, Benzie County, Together with Some of the Obstructions and Proposed Improvements, drawn for the Benzie County River Improvement Co., by Buel C. Hubbell, Draftsman, Benzonia, Mich., ca. 1873.

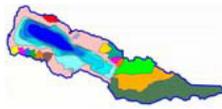
*The **"Tragedy"/"Comedy"** is a well-known story of the lowering of Crystal Lake in Benzie County, MI. The Benzie County River Improvement Company (BCRIC) was formed in 1873 by its President, Archibald Jones, "the man who (allegedly) pulled the plug at Crystal Lake". He worked on the Erie Canal as a young man, and was experienced in carriage building, fruit growing, lumbering, and horse dealing. As a "bootstrap engineer", he attempted a **"South Canal"** from Lake Michigan up Betsey River to Crystal Lake, and proposed a **"North Canal"** from Platte Lake to Crystal Lake. His plan also included: (1) purchasing lands on Crystal Lake to secure and improve water-lots in places suitable for business, (2) opening a passage for boats between Betsey River and Crystal Lake by straightening the outlet channel from the lake to the river, (3) removing obstructions in the way of navigating Betsey River, and (4) building a steamboat to transport timber to the sawmills and cordwood to the iron foundry at Frankfort, and finished goods and settlers to Benzonia. A **"West Canal"** through the future CSA was considered prior to 1873 but surveyed independent of the BCRIC.

On August 23, 1873, the famous whitecaps of 'Cap Lake' washed out a temporary dam at the Crystal Lake Outlet before the canal to the Betsey River could be completed. The level of the Lake was lowered by 20 ft, creating 21 miles of sandy beach that is now a prime recreational area including 1,100 cottages and the county seat of Beulah. This epochal event with its unintended consequences has evolved from perceived "failure" of an "ill-conceived" project by apparent scapegoat, to an unqualified "success" by a visionary celebrated as a local hero!

Three existing markers tell part of the story, which will be more fully elaborated in the new marker. A two-sided bronze plaque will be placed at the site where the Betsie Valley Trail crosses Mollineaux Road near the Outlet. Dedication will coincide with the 4th Archibald Jones Day in late August 2014.

Stacy L. Daniels, longstanding CLWA Board Member, has extended a challenge to CLWA members and the public to finance this marker. He will match all contributions totaling up to \$2,000. Please donate to this significant project by calling the CLWA today!

Contributors of \$25 or more will receive a free copy (\$5 value) of the handsome newly-edited map, which includes a summary of the story, descriptions of the three canals, and provenance of the original map now on display at the Benzie Area Historical Museum in Benzonia.



CRYSTAL LAKE "WALKABOUT"

The Crystal Lake "Walkabout" was held on Tuesday, October 22, 2013, for 180 students from the 7th grade classes of Benzie Central and Frankfort-Elberta Schools. The enthusiastic participants encountered a crisp fall morning with partially sunny skies and multiple rainbows to visit four Interpretive Sites to learn about the many facets of the Crystal Lake Watershed*.

The Crystal Lake "Walkabout" is a continuing educational program to teach students, property owners, and visitors about the Crystal Lake Watershed using a "hands-on" approach of observational monitoring and environmental exploring*. The program focuses on hydrology and also addresses water quality, invasive species, ecology, geology, land use and zoning, wells and septic tanks, green belts, sustainable development, watershed management, and local history.

Participants "walk about" a selection of Interpretive Sites each representing different facets of the Crystal Lake Watershed, where they interact with

environmental professionals from the co-sponsoring organizations. The "Walkabout" has been expanded to consider fourteen different Interpretive Sites. The Sites visited in Fall 2013 included: Crystal Lake at the Outlet; the MDNR Boating Access Site, the Betsie Valley Trail, and the U.S. Coast Guard – Station Frankfort.

Dedicated teachers and administrators of Benzie County schools support The "Walkabout" and provide their inquisitive students as participants. Special thanks to the Fall 2013 Site Interpreters: Ed Hoogterp, Hugh Walton, Crystal Lake & Watershed Association; Mike Jones, Benzie Conservation District; Katie Grzesiak, Northwest Michigan Invasive Species Network; Doug Gibson, Benzie Central Schools; and the crew of USCG – Station Frankfort. Dr. Stacy L. Daniels of the CLWA has been the Coordinator of the "Walkabout" since its inception; 2013 was the 21st year of the "Walkabout"! Since 1993, this successful program has been presented on occasion to ~ 5,000 students, residents, and visitors to the Crystal Lake Watershed.

"Walkabout" Interpretive Manual is available on-line at www.clwa.us/educ_comm.htm#EDUCATION.

"Walkabout" T-shirts, Crystal Lake Watershed maps, and Interpretive Manuals are available for purchase from the CLWA, (231) 882-4001, PO Box 89, Beulah, MI 49617.

www.clwa.us/watershedware.htm

**The Crystal Lake Watershed contains a myriad of diverse, hydrologically intertwined ecologies and unique environmental niches: active sand dunes, forested heights, wetlands, tributaries, and a large deep inland lake connected to Lake Michigan. It encompasses Crystal Lake, an immense body of pristine water of exceptional clarity, with a mixed sandy and rocky nearshore, a sandy shoreline, a deep marl bottom, and a high-ridged vista. It is our responsibility to respect, maintain, and preserve the integrity of our Watershed for the generations that follow us. This Interpretive Manual for the Crystal Lake "Walkabout" is hereby dedicated toward that goal. It is hoped that it provides both interpretation and guidance for responsible stewardship by students, visitors, and property owners.*

REGIONAL LAKE ISSUES

Updates on three issues were provided at a regional conference sponsored by Leelanau Clean Water and Michigan Lake and Stream Association Region 9. Septic systems - how they are misunderstood and often neglected - were discussed by Tom Fountain, Benzie-Leelanau District Health Dept., and a panel of three septic company representatives "Septics" consist of a large tank, in which bacteria decompose most organic compounds and solids settle out for later pumping and disposal, and a drainfield in which water is filtered through sand and evaporated into the air. Benzie Co. has less runoff, cleaner rivers, sandier soils and stricter sanitary codes than other parts of MI. Since 1980 all properties with septic systems must be inspected and approved prior to sale.

Recommendations regarding septic systems:

- Excessive water use reduces effectiveness.
- Bleaches and drain cleaners can kill desired bacteria.
- Antibacterial soaps may retard the

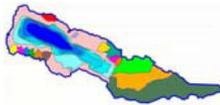
biological action.

- Discarded medications may remain untreated and affect our ecosystems.
- Flushing of nondegradable plastics is strongly discouraged.
- Garbage disposals add solids requiring more frequent pumping.
- Tree roots can clog drainfields.
- Maintenance is left to the homeowner, and is often "out of sight, out of mind".
- Regular pumping prolongs life and delays costly expense of replacement.

Cladophora, a green alga with long hair-like filaments, is an indicator of nutrient loading in lakes. Rob Karner discussed the Big Glen Lake Survey for *Cladophora*, which has showed definite declines with better identification and remediation of faulty riparian landscapes. In inland lakes *Cladophora* is not usually a serious nuisance and is commonly found in shallow areas where it grows on rocks, logs and seawalls. Growth is associated, however, with nutrients (nitrogen and

phosphorus) from natural and human activity - excessive fertilizer, failed septic systems, farm runoff, and soil erosion. Invasion of Zebra and Quagga mussels in the Great Lakes has increased water transparency, leading to deeper penetration of sunlight and the formation of large mats that wash onto shorelines. Decomposition of dead algae can promote growth of anaerobic bacteria, like *Clostridium botulinum*, which can lead to death of shorebirds. www.mtu.edu/research/archives/magazine/2012/stories/return-slime/

The status of the incidence of Swimmer's Itch (SI) at Crystal Lake was summarized by Ed Hoogterp and Al Flory. SI remains a contentious issue for most inland lakes in the region. Attempts at controlling two of the vectors implicated in the transmission are directed at scarification of the lake bottom to discourage snails and the use of pyrotechnics to discourage mergansers (more "bang for the duck"). The scientific study and analysis of the effectiveness of various currently marketed personal protective topical creams continues to be evaluated.



CLWA ANNUAL MEETING

The Annual Meeting of the CLWA was held Saturday, July 20, 2013, 9:00 – 11:00 AM at the Congregational Summer Assembly, 2128 Pilgrim Highway. A review of critical CLWA priorities and a business meeting was followed by elections of officers and Board members:

New Vice President: James Hamp (2013-2015).

New Treasurer: David Appleford (2013-2015).

New Board members: Ted Fisher, Ronald Green, Jack Maurer (2013-2016).

Board members Re-elected: Hugh Walton (2008-2016); Stacy L. Daniels (2004-2015).

Retiring Board members: Eddie Ellsworth, Roger Perry, Phil Downs.

NEW OFFICERS

The CLWA would like to welcome Dr. James Hamp as our new Vice President. Jim and his wife, Leslie, are past honorees of the Crystal Circle Award for their contributions in time and talents.

The CLWA would also like to welcome David Appleford as our new Treasurer. David is a lifelong summer resident of Crystal Lake and the son of former CLWA President Robert Appleford. David is employed with Robert W. Baird & Co. as a Financial Planner in Traverse City, where he resides with his wife Robin, and children, Luke and Lily.

WHAT A TREASURE(R)!

The CLWA conveys a well-deserved thank you to Bob Schmidt. Bob handed over his baton as the Treasurer of the CLWA this past summer. During his term of office, which began in late 2004, Bob has faithfully kept us financially solvent and budget-conscious. Bob was influential in instigating the successful merger of the former CLWF and CLA into the present CLWA. Bob's ability to bring people together and gracefully manage the many issues big and small facing our community has made a significant and long lasting contribution to preservation of the Crystal Lake we love. Thank you Bob!

CONGRATULATIONS AND CONSIDERATION

Retiring Board members: Phil Downs, Eddie Ellsworth, Roger Perry. We thank you for your commitment and for your service to Crystal Lake.

Jay S. Pettitt, Jr., a former board member of the CLWA passed away on July 9, 2013. An architect and principal of Albert Kahn Associates, Jay was a fourth generation member of his family living in Benzonia. He was a past supervisor for Benzonia Township and active in local activities.

MEMBERSHIP DEVELOPMENT

Membership involvement is the key to the success of the CLWA. Crystal Lake is a place that provides us all with many enjoyable moments. Our watershed is a place for families to gather together, participate in so many recreational activities, a place many of us call home. Each of us can help to protect the Lake and its watershed. We ask that you actively help build the CLWA in 2014; encourage your friends and neighbors to become members. Renew your membership (membership renewal 2014 will be in your post box in March!) We also encourage gift memberships to others whom you believe will benefit from programs, research, and educational opportunities offered by the CLWA. Keep Crystal Pure.





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CLWA

April 26.....Board Meeting
 May 17.....Board Meeting
 June 21.....Board Meeting
 July 12.....Board Meeting
 July 19.....Annual Meeting
 Aug 23.....Board Meeting
 Sep 20.....Board Meeting

Dates for CLWA events subject to change.

Schedules for CLWA Board Meetings to be communicated by email.



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facebook.com/theclwa

SAVE THE DATE

**CLWA
 ANNUAL BOARD
 MEETING**

Saturday
 July 19th • 9:30am
 Congregational Summer
 Assembly
 Community Building

For updated event lists visit
CLWA.us • Benzie.org • Frankfort-Elberta.com