



# Crystal Whitecaps

The Newsletter of the Crystal Lake & Watershed Association  
Vol. 5, No. 1, FALL / WINTER 2008

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## A Letter from CLWA's President

Dear Members,

On a recent November morning, I sat at the public beach in Beulah, enjoying a newspaper and a mug of coffee from the Phoenix Café.

The news of the world on this particular day was depressing. Fortunately, the view out on Crystal Lake was more positive.

Fishermen stood along the shore, occasionally casting and retrieving, but mostly waiting for a strike. Migrating swans rested in quiet water near the summer campground. Morning mist hung low over the water. The South Shore remained in shadow, while the low autumn sun illuminated the sleeping forest above the North Shore. The West End, eight miles away, floated like a mirage in the mist.

There is, of course, nothing unusual about a beautiful morning on Crystal Lake. We all have our stories.

What struck me on this day was the extent to which I depend on the lake as a sort of counterweight to the burdens of the world.

I was reminded how important it is for all of us to keep working to preserve the good things that exist right before our eyes, even as we struggle with the crises of the wider world.

As president of your Crystal Lake & Watershed Association, I'll admit that sometimes I grow impatient with day-to-day frustrations: budgets; planning; fund-raising; swimmer's itch; meetings, legal issues; more meetings...

But a view of the lake reminds me why so many of us volunteer for this work: Because this is the place where clean water, clear skies, family and friends come together to make better lives for all of us.

As the nation's economy teeters on the brink, our slice of Benzie County tranquility can only become more important to all of us.

As you read through this Fall/Winter edition of Crystal Whitecaps, you'll come across the names of many who offered their time and talent in 2008 to support our community and preserve the quality of our water.

We need to continue that work in 2009 and beyond. I ask for your help.

Enclosed in the newsletter, you'll find an envelope for your tax-deductible contribution and/or membership dues.

And, equally important, you'll find a call for volunteers.

Together, we can ensure that Crystal Lake will remain a place of refuge, even when we're all faced with hard times.

Ed Hoogterp,  
*President*

## AQUATIC PLANT MAPPING

In 2008, the **CLWA** mapped aquatic plant locations to confirm where plants were found in a similar survey in 1996. The exceptional water clarity of Crystal Lake allows light to penetrate more deeply than in other lakes. Most plant beds are found at depths of 10 to 40 feet where they are predominantly Chara or muskgrass.

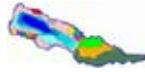
Aquatic plants (macrophytes) are natural and essential parts of a lake, where they hold shoreline sediments, reduce erosion, and stabilize the bottom. They also provide habitat for fish and forage for waterfowl. Plants can increase in coverage and density if excessive nutrients (phosphorus and nitrogen) enter a lake by tributaries, stormwater runoff, and atmospheric deposition.

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*Chara (muskgrass) with Zebra mussels attached*

## AQUATIC PLANT MAPPING



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Aquatic plants may be present in several forms:

- **Emergent:** rooted to bottom with stems or leaves that rise well above the water surface.
- **Floating-leaved:** roots on the bottom and leaves that rest on, or slightly above, the surface.
- **Submergent:** all or most leaves and stems below water; rooted to the bottom or free-floating.
- **Free-floating:** found on the lake surface, with root systems not connected to the bottom.

It is important to know what plant species are present in a lake and where they are located. Maps showing plant locations and relative abundances aid in the management of water quality. A pontoon boat was used in the current study. Plants were sampled in the shallow areas (less than 10 feet) at selected locations around the shoreline. Summaries of the 1996 and 2008 studies are found at [www.clwa.us/water\\_quality.htm#Biomonitoring](http://www.clwa.us/water_quality.htm#Biomonitoring).

Aquatic plants are rarely a problem in oligotrophic lakes, such as Crystal Lake. Some occasional reeds and other rooted plants are found on beaches along the shoreline. Emergent plants are also found along roadside ditches. Most of the 21-mile shoreline is relatively free of submerged aquatic plants with occasional patches. Localized beds of submergent plants are found along the east shore and a line of floating leaf plants is found along the southeastern shore.

Most of the nearshore plants found in the recent study were native species: wild celery (*Vallisneria*), elodea, horsetail (*equisetum*), coontail, several species of pondweed (*Potamogeton spp.*), and muskgrass or stonewort (*Chara*) (\*), which are common to most lakes in NW lower Michigan.

(\*) *Chara* looks much like a higher plant that would have flowers and seeds. It is actually a multi-cellular macro-alga with no true leaves. It has a strong garlicky odor - hence its alternate name of muskgrass. Growing in the hard waters of Crystal Lake, encrustations of calcium carbonate scale form on the surfaces of *Chara* giving it a rough gritty texture. It is rarely a nuisance.

In addition, both northern watermilfoil (a native species) and Eurasian watermilfoil (an exotic species) were identified. The infestation of Eurasian watermilfoil was localized in rather dense patches near the boat launch at Beulah, but chemical treatment or physical removal would be difficult or prohibitive because the Lake is so large. Conclusions: (1) Plants found in earlier surveys are present, (2) Local distributions have changed only slightly, (3) Eurasian Watermilfoil is not a widespread immediate threat, and (4) A followup study is recommended.

This study was done by Summer Interns, Emily Baker and Molly Walton, with assistance by **CLWA** Members Elizabeth Hill, Jim Laarman, Ron Renner, and Stacy Daniels, and oversight by Dr. Jo Latimore, Outreach Specialist in the Department of Fisheries and Wildlife at MSU, as part of the Cooperative Lakes Monitoring Program (CLMP) of Michigan Lake & Stream Associations (ML&SA). A presentation at the 2008 MiCorps Conference can be found online at [www.clwa.us/PDF/CLWA\\_CLMP\\_2008X.pdf](http://www.clwa.us/PDF/CLWA_CLMP_2008X.pdf).

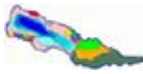
## SHORELINE STEWARDSHIP

The **CLWA** considers runoff of sediment and nutrients a threat to our Lake. Discharge from poorly maintained septic systems, runoff from lawns and impervious surfaces, erosion of nutrient-rich soils, and carryover from lawns and gardens can enter the Lake. Protective "buffer zones" are encouraged along the lakeshore to slow runoff of surface water, and to capture nutrients and sediments. In 2008, the Shoreline Stewardship Committee recognized the Rose Baker family for their preservation and augmentation of the natural habitat with a diversity of native species without fertilizing, watering, or mowing.

The Benzonia Township Board of Trustees recently adopted a resolution encouraging residents and businesses to help protect water quality by reducing use of fertilizers with phosphorus. The Board noted "runoff from phosphorus fertilizer from township lawns enters the stormwater runoff system and eventually makes its way to the lakes downstream." The township recommends that homeowners plant trees to reduce surface runoff, and also cut back on lawn watering and fertilizing. Lakefront property owners can also help by planting deep-rooted native plants near their shoreline, and keeping lawn grass and other fertilizer-hungry foliage well back from the water's edge.

Reducing phosphorus runoff has been a long-time goal of **CLWA**. Excess phosphorus in surface waters leads to algal blooms, which in turn can lead to oxygen depletion and fish kills. Most Michigan soils have sufficient natural "P" to supply healthy lawns and gardens. Local garden centers sell phosphorus-free fertilizers that provide sufficient amounts of the other nutrients ("N" & "K"). Three numbers on the bag refer to Nitrogen - Phosphorus - Potassium (N-P-K, expressed as % by weight). Benzie Co. established one of the first ordinances in the U.S. requiring inspection and upgrading of all onsite septic systems prior to sale that is enforced by the Benzie-Leelanau Health Department.

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## **SHORELINE STEWARDSHIP**

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In a very recent article, researchers at the University of Kansas concluded that algae blooms in surface waters across the U.S. cause at least \$4 billion damage annually due to reduced lakefront property values, degraded fisheries and other recreational activities, and loss of biological diversity. This study is the first time a price tag has been placed on the damage caused nationally by nutrient pollution in surface waters. It is significant locally because algal blooms have plagued several West Michigan lakes in recent years, including Muskegon Lake, Mona Lake, Bear Lake, and Spring Lake.

## **COLD CREEK AND CRYSTAL LAKE WATERSHED PROTECTION IMPROVEMENT**

In any Watershed, there can be too much or too little “water shed”. Interest has been piqued to develop an integrated plan to improve the Crystal Lake Watershed. Multiple issues described in the feature talk at the 2008 Annual Meeting included: Cold Creek drainage, lake level control, shoreline erosion, and sediment (and nutrient) runoff. Recent events “precipitating” this interest include: (i) flooding of portions of the North Branch of Cold Creek during winter thaws, (ii) unusually low Lake water levels, and (iii) erosion of steeply wooded slopes and shorelines. Since everything is connected to everything else, all components must be considered: surface water runoff from steep unprotected slopes (accentuated by paving or attenuated by buffer zones), direct flow from tributaries, and out the Outlet, evaporation, and groundwater flow from the hills and out to Pt. Betsie. Some actions included a resurvey of the level of the Outlet Dam (Spring 2008) and the dredging of the Cold Creek Sediment Basin (Fall 2008). The Crystal Lake Watershed Overlay District (CLWOD) places restrictions on developments of steep slopes and sets standards for erosion control and vegetative management. The Benzie County Planning Commission recognizes that protective overlay districts help preserve intrinsic values of inland waters but that individual watersheds had distinct differences.

## **WATER QUALITY MONITORING**

Crystal Lake is one of Michigan’s cleanest lakes and we’re determined to keep it that way! The **CLWA** (and predecessors) have monitored deepwaters, shoreline waters, and tributaries directly in the Lake (in situ) for various chemical and physical parameters for many years. Most parameters have changed very little or improved from established baseline levels. For updates, refer to [www.clwa.us/water\\_quality.htm](http://www.clwa.us/water_quality.htm). We use a Hydrolab® H20 multiprobe (pic on back page) to measure temperature, dissolved oxygen, pH, conductivity, redox potential, and turbidity. Analyses for nutrient phosphorus and nitrogen, and for chlorophyll a (an indicator of algae growth) are also made in laboratories on collected water samples. The **CLWA** also participates in the Cooperative Lakes Monitoring Program (CLMP) jointly cosponsored by MDEQ and the Michigan Lake & Stream Associations (ML&SA). The Aquatic Plant Mapping study was part of this program.

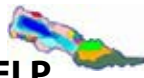
The level of Crystal Lake has returned to normal! In late November of 2007, the Lake reached its lowest level in 37 years as a result of low snowmelt and rain in the spring resulting in less water going into the Lake. Less ice cover in the winter and warmer temperatures in the summer may have also contributed to more loss by evaporation. (See previous articles at [www.clwa.us/newsletters.htm](http://www.clwa.us/newsletters.htm))

Since 1980, a two-tiered control of water level at the Outlet Dam has been in effect: (1) a summer level of 600.25 ft (May 1 - Oct. 31), and (2) a winter level of 599.75 ft (Nov. 1 - Apr. 30). This allows higher water for recreation in the summer, and lower water to limit shoreline erosion in the winter. Over the past 37 years, annual cycles of rise and fall have averaged about (+/-) 0.5 ft for most years.

As a result of ample winter precipitation last winter and spring, the level of Crystal Lake rebounded from its 37-year low of over 12” below winter level to about 7” above summer level. Conditions have reversed from having too little water to float boats to having so much water that some docks were floating! By late July, the level was near the summer level, but continued to fall because of lack on rain. As of October 30, 2008, the level was at 599.25 ft, right at the winter level. We hope that the coming fall and winter precipitation will continue to replenish any further losses. (As of this writing, the Watershed has already experienced several major snow storms.)

The **CLWA** also contracted with Corey Hughes, PS, to re-establish four important survey benchmarks at the Outlet Dam, the Beulah Boat Launch, and the inlet and outlet of the Sediment Basin. These marks will be used to assess future lake water management. A current meter, recently donated to the **CLWA** by Fred Tanis, will be used to monitor water flows in Cold Creek and Outlet Creek.

## **TESTING THE WATERS ... WITH YOUR HELP**



The Water Quality Committee is seeking volunteers and the use of a boat (preferably with an operator) to assist our long-term water quality monitoring programs in 2009. We sample the deepwaters with our Hydrolab® multiprobe and other gear on at least a monthly during the summer.

This work creates a record of any changes in water quality. We are updating our list of potential volunteers and available craft. Pontoon boats are ideal, and other stable craft may also be used. In addition we are seeking other volunteers in assisting in water sampling (on-board training available!). **CLWA** is always seeking interested people to help with Committee work, fund-raisers, invasive species eradication, water testing, "Walkabout" education, and other tasks. If you have time/talent to contribute, please call 231/882-4001 or contact us by mail or email.

## **PUBLIC ACCESS**

### **PROPOSED BOAT LAUNCH**

**CLWA** is entering a new phase in a long-running effort to preserve wetlands and protect against potential water quality deterioration from a boat launch proposed by MDNR on Crystal Lake. MDEQ Director, Stephen Chester, acting on the prior decision of the Administrative Law Judge, issued a ruling in November, rejecting our challenge against the MDEQ permit issued for this facility. We have until mid-January to decide whether and where to file an appeal. **CLWA** President Ed Hoogterp said an appeal in Benzie County is likely, and we will continue to seek a solution that improves public boating access while protecting water quality. The MDEQ permit to MDNR to build a four-lane boat launch near M-115 and Mollineaux Road allows filling a wetland and dredging more than 1,000 cubic yards of sediment. The **CLWA** Board believes that a boat launch is necessary, but we argued through our attorney, that the permit was issued in error, and that the facility should be redesigned and reduced in size. Our position has been consistent for the past five years: we support development of a boat launch at the DNR site with suggested changes to minimize damage to the existing wetlands and to protect water quality of the Lake.

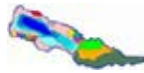
Other groups have suggested the Beulah waterfront as an alternative. We are willing to consider such an alternative, if it meets three critical tests: It must provide needed improvements for the public to launch boats; it must be protective of wetlands and water quality; and it must have village and community support. The legal challenge has been expensive and at times frustrating. A facility as this is likely to be built only once in our lifetimes, and will continue to serve the Lake community for generations to come. It is most important that we work to get it right.

### **ROAD ENDS LEGISLATION**

The Michigan House passed legislation in 2007 increasing the scope of public access from public road ends on bodies of water > 2,500 A potentially impacting ~35 large inland lakes with more than half (including Crystal and Platte Lakes) located in NW lower MI. Local townships could adopt ordinances allowing docks of up to 250 feet in length and five feet in width at each road end for seasonal overnight moorings. The **CLWA** Board submitted a resolution in opposition for reasons including: physical limits of road ends, lack of public amenities, pollution potential, restriction of state government role, effects of dredging, safety, conflicting fee provisions, and limitations on public use by private parties. [www.clwa.us/watershed\\_concerns.htm#Road\\_Ends\\_Legislation](http://www.clwa.us/watershed_concerns.htm#Road_Ends_Legislation). The bill has not come to a vote in the Senate, and is expected to die at the end of the 2008 legislative session. It may be re-introduced in 2009.

### **BENZIE CORRIDOR**

The Benzie Corridor was proposed in the 1970 legislation creating the SBDNL as an 8-mile scenic road ("parkway") from M-22 to US-31 along the high ridge overlapping the viewsheds of the Crystal and Platte Lake Watersheds. As described in the featured talk at the 2007 Annual Meeting, the Benzie Corridor was considered within four alternatives of the General Management Plan / Wilderness Study / Environmental Impact Statement (GMP/WS/EIS) recently finalized by the NPS. These included: (1) continued purchase of lands; (2) cease acquisition of lands; (3) continued purchase for development of a scenic road; or (4) continued purchase with development of a hike/bike trail. The final version of the plan, supported by **CLWA**, calls for future development of a road or hiking-biking trail, with property purchases only on a willing-seller basis. See Crystal Whitecaps 3(1), 4 (Fall/Winter 2006). [www.clwa.us/PDF/Crystal\\_Whitecaps\\_2006fw.pdf](http://www.clwa.us/PDF/Crystal_Whitecaps_2006fw.pdf).



## EDUCATION & COMMUNICATIONS

### CRYSTAL LAKE "WALKABOUT"

The **Crystal Lake "Walkabout"** is an 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. Participants "walk about" Interpretive Sites that represent different parts of the Crystal Lake Watershed. The program focuses on hydrology – how water moves about the watershed - and also addresses water quality, ecology, land use, zoning, septic tanks, green belts, sustainable development, and watershed management. Each participant receives a "**Walkabout**" T-shirt with a colorful map of the Crystal Lake Watershed, and a copy of the "**Walkabout**" Interpretive Manual [www.clwa.us/educ\\_comm.htm#EDUCATION](http://www.clwa.us/educ_comm.htm#EDUCATION) (\*). This year (2008) represents the 16th year of this successful program. Since 1994, the "**Walkabout**" has been presented to 3,500 students, residents, and visitors to the Crystal Lake Watershed. To date, the **CLWA** has had support from 21 (check) local or regional organizations as co-sponsors.

The Spring "**Walkabout**" was held on May 28, 2008 for 180 students from the 6th grade science classes of Benzie Central and Frankfort/Elberta Schools. The Fall "**Walkabout**" was held on Oct. 7, 2008, for 180 students from the 7/8th grade science classes of Benzie Central and Frankfort/Elberta Schools. The Sites visited: Crystal Lake at Beulah Beach, Benzie Area Historical Museum, Trapp Farm Nature Preserve, and the Crystal Lake Outlet. . We sincerely appreciate the dedicated teachers who support the "**Walkabout**" and most importantly their students. Special thanks also to the 2008 Site Interpreters from the CLWA; Benzie Area Historical Society; and the Grand Traverse Regional Land Conservancy. [www.CLWA.us/educ\\_comm.htm#Walkabout](http://www.CLWA.us/educ_comm.htm#Walkabout).

### GREEN EXPLORERS CLUB

All elementary- aged children older than six were invited to join the Green Explorers Club. A rain garden near the Betsie Valley Trail Depot in Beulah was created to clean runoff water before entering Crystal Lake. Classes filled with hands-on activities gave children real experience with how water works in watersheds. Participants learned about meandering, confluence, topography, water flow, watersheds, wetlands, water turbidity, benthic invertebrates, and invasive species. A team of Benzie Central Middle School students arranged the garden and a high school student composed the garden pamphlet. Karen Dahman, a retired elementary teacher, developed the course.

### WATERSHED MODEL

An operational model of the Crystal Lake Watershed is being constructed for educational purposes. The model consists of a large (1' x 3' x 5') clear plastic box that will contain sculptured land and water contours (topographic and bathymetric features). This model will allow us to simulate various hydrological events, such as rainfall on the watershed, runoff from steep slopes, retention by wetlands, and flow over the Outlet Dam. A special feature will be the potential to recreate "The Tragedy of Crystal Lake", when the historic lake level was artificially lowered in 1873 thereby creating the present-day sandy beaches around the Lake. Corey Bechler, Art Teacher at Benzie Central Middle School, and his students will be adding features to the model this winter.

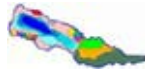
### DO YOU SEE THE LIGHT? (An Enlighting Issue)

Light pollution is caused by excessive or obtrusive artificial light. Annoying light can intrude on an otherwise natural or low light setting; and excessive light can cause discomfort and adverse effects upon human health and ecosystems. It is variously recognized as 'sky glow' (the night glow above cities), 'light trespass' (unwanted light entering private properties), 'glare' (excessive contrast between light and dark), 'clutter' (excessive grouping of lights), and 'over-illumination' (excessive use). Urbanization is readily evidenced by light pollution in satellite photographs (Ref. 1). Only 1 in 10 Americans live in areas where they can see the 2,500 stars visible under normal nighttime conditions. This can be especially disconcerting in the northern where nights are expected to be "dark".

Street and area lighting is usually promoted for illumination, safety, security, navigation, advertisement, and decoration. There is a lack of awareness, however, of the potentially adverse consequences of excessive street lighting (Ref. 2).

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## **DO YOU SEE THE LIGHT?**



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Light pollution can waste energy, obscure the night sky, harm human health, disrupt ecosystems and reduce security. Misuse of street lights can cause accidents by reducing “night vision”. The light from a full moon is actually brighter than most security lighting. People think “brighter is better”.

Public officials assume that if some is good, more must be better, and then mandate the brightest lights available. Retailers plug in ever-larger signs and entrance lights. Unoccupied buildings are alit all night. Numbers of lights on streets, billboards, and buildings increase with urban sprawl. Bigger homes use more electricity. No wonder people are “in the dark” about lights.

It is a common misconception that merely installing street lights will automatically make streets safer and lower crime rates. Street lights are not normally intended to light up driving routes, but to disclose signs and hazards outside of normal viewing. They are properly used only sparingly, and then only when visual information is needed quickly to make decisions to avoid risk at significant locations such as intersections.

Tall “moonlight” towers to illuminate large areas of cities were popular in the late 19th century when streetlights using smaller, shorter, and more numerous lamps were impractically expensive. Modern versions on a reduced scale are seen along expressways, in parking lots, and around public buildings and industrial sites, as well as rotating beacons to warn low-flying airplanes at night.

A ‘Deep Thought’, by Jack Handley, “Isn’t it funny how we’ll look out the window at the moon, and then we notice it’s not the moon but a streetlight? Also what’s funny is how we do this every night!”

For a very detailed description of “Light Pollution” with many links and illustrations:  
[http://en.wikipedia.org/wiki/Light\\_pollution](http://en.wikipedia.org/wiki/Light_pollution)

Ref. 1: Excerpts from “Bright Lights, Big City by John Weir (Three-part series).  
<http://earthobservatory.nasa.gov/Study/Lights/>

Ref. 2: Excerpts from “The Dark Side of Light, By Joe Bower.  
<http://magazine.audubon.org/darksideoflight.html>

## **2008 ANNUAL MEETING**

The **CLWA** Annual Meeting was held on July 29, 2008 at the CSA Meeting Hall. A short business meeting was followed by Committee updates.

Newly elected were: Ed Hoogterp, President; and new Board Members (2011): Wanda Shreiner, Jim Hooker, and Bill Beck. Re-elected were Alan Appelhof, Vice President; Sue Teteak, Secretary; and Bob Schmidt, Treasurer, and Board members Jim Buzzell, Doug Gibson.

Crystal Circle Awardees for 2008 to Dr. James and Leslie Hamp, and Ken and Vivian Baker. Special awards to Kathryn Simpson (longtime membership coordinator upon her retirement from the Board, and to Bob Appleford (our “outgoing” President). Thanks to both for their contributions and support.

The featured speaker was: Craig Seger, P.E., Benzie County Zoning Administrator and Deputy Drain Commissioner, a professional civil engineer, speaking on “Crystal View: Unique Opportunities for a Unique Lake” - Zoning and Stormwater Requirements as Applied to the Crystal Lake Watershed Overlay District (CLWOD). (See related article on Cold Creek and Crystal Lake Watershed Protection Improvement.

## **2008 SUMMER INTERNS**

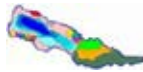
The **CLWA** was most pleased to have had the services of two Summer Interns for the 2008 season.

Emily Baker received her BA from Grand Valley State University in May 2008 in a program emphasizing Earth, the Environment, and Human Culture. She expanded her recent work on garlic mustard control at the CSA with current interests of the **CLWA**, and assisted in water quality studies, especially the aquatic plant mapping study.

Molly Walton received her BA in International Relations, with a minor in Communications, from Wheaton College (IL) in May 2008. She is planning on continuing graduate studies in international relations and environmental policy at Boston University this fall. She coordinated the outreach activities of the **CLWA** at various summer events, and developed permanent educational displays depicting watershed history and current issues, including the prototype “hands-on” interactive model of the Crystal Lake Watershed.

Continuation of the **CLWA** Summer Intern program is planned for 2009.

## **PLAUDITS & CONGRATS**



To outgoing Board members: Bob Appleford, Jay Pettitt, Kathryn Simpson, Keith Schneider.

To incoming Board members: Wanda Shreiner, Jim Hooker, and Bill Beck.

To Kyle Axtell, formerly of the BCD, who provided water quality monitoring expertise over the past two years, who has moved to a new position in a large Watershed near the Twin Cities in MN.

To Lisa Christian for her continued efforts in creating the 2008 **CLWA** Directory.

To Kathryn Simpson (longtime membership coordinator upon her retirement from the Board.)

To Bob Appleford (our “outgoing” and first **CLWA** President) for his yeoman duty.

To Crystal Circle Awardees: Dr. James and Leslie Hamp, and Ken and Vivian Baker.

To Ron Renner and Stacy Daniels for providing boats for water quality monitoring.

To Fred Tanis for donation of a current meter, to monitor flows in Cold Creek and Outlet Creek.

To Paul Murphy, our former water quality expert (now with NPS in FL) for underwater photos.

To the **CLWA** team of Janet Krueger, Cody Krueger, John Nelson and Stacy Daniels, who ran the 26 miles of the 2008 Crystal Lake Team Marathon!

To Rose Baker and Family, 1361 South Shore East, for their conscientious effort in conserving the natural habitat along a narrow strip of beach with native vegetation that effectively filters out nutrients and sediment, thereby protecting the Lake. These and other features, are usually not found where manicured lawns and cultivated plants predominate. Other riparians with similar interests are welcome to visit.

## **WATERSHEDWEAR**

The **CLWA** line of “*Watershedwear*” includes: the sporty **CLWA** “Wave” T-shirts (\$15); the well-known “*Walkabout*” T-shirts (\$15) (never get lost in our Watershed!); and a handsome denim semi-dress shirt with the **CLWA** logo embroidered as a heart patch (\$40) (New Item!). They always make good gifts for your “lakie-townie-fudgie-shedie” friends. Contact the **CLWA** office.

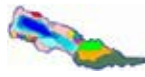
## **www.CLWA.us**

The **CLWA** Website contains Watershed history; maps, facts and figures, descriptions of the **CLWA**, activities by our standing Committees, photographs, publications; references, links to other websites, and calendar of events. Recent updates include: latest newsletters and “Walkabout” Interpretive Manual, a summary of lake water level, and the “Flora of Benzie County”, a four-part listing of the many local plants by William & Edith Overlease, well-known chroniclers of logging oral histories. [www.clwa.us/references.htm#Other\\_Special\\_Pubs](http://www.clwa.us/references.htm#Other_Special_Pubs).

## **FIREPITS - RIPARIAN ALERT**

The **CLWA** Water Quality, Shoreline Stewardship and Aquatic Nuisance Species Committees remind Riparians with natural “firepits” to clean out ashes before the winter snowmelt leaches the rich supply of nutrients from them into Crystal lake to feed both the lake weeds and the snails.

# FINANCIAL DEVELOPMENT



## CLWA MEMBERSHIP

Membership in the Crystal Lake & Watershed Association (\*) includes:

Crystal Whitecaps, The **CLWA** Newsletter.

The Annual **CLWA** Membership Directory.

Progress reports on Crystal Lake Watershed activities and issues.

The Michigan Riparian magazine (optional).

An active voice in the protection of the Crystal Lake Watershed.

(\*) The **CLWA** is a nonprofit 501(c)(3) organization with over 1,000 members that supports a comprehensive program of activities affecting students, riparian owners, and visitors in the Crystal Lake Watershed, Benzie Co., MI. **CLWA** memberships are \$35 per year. 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.

## THE CRYSTAL LAKE & WATERSHED ASSOCIATION

The **CLWA** is a nonprofit 501(c)(3) organization with over 1,000 members that support a comprehensive program of activities affecting students, riparian owners, and visitors in the Crystal Lake Watershed. The **CLWA** encourages members to contact local and state government on local issues of critical importance to the sustainable development of the Crystal Lake Watershed.

The **CLWA** is comprised of the Executive Committee; four standing committees: The Water Quality Committee, the Zoning & Land Use Committee, the Education & Communication Committee, and the Financial Development Committee; along with ad hoc committees on Public Access, Shoreline Stewardship, Finance, Swimmers Itch & Invasive Species, and Long-Range Planning. Our newsletters and webpages describe recent and ongoing activities. Please contact the **CLWA** if you would like to participate on a Committee!

## CLWA MISSION

“The purpose of the **CLWA** is to protect and promote the natural qualities of Crystal Lake (Benzie Co., MI) and its surrounding Watershed. 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.” (**CLWA** Bylaws)

## SUMMER 2008 EVENTS

The **CLWA** expanded its outreach activities to the public at six 2008 summer events: the 12th Spring Craft Fair - Frankfort, The Beulah Art Fair, the CSA Arts & Crafts Fair, the CSA Ecology Day, the 32nd Annual Frankfort Art Fair, and the **CLWA** Annual Meeting. In addition, we began work on conceptualizing and designing two permanent displays at the Point Betsie Light and the Benzie Area Historical Museum, resp. The **CLWA** banner together with an enclosed canopy allows us to display our educational materials and discuss issues with local citizens and visitors of our Watershed. Similar events are planned for 2009.



**CLWA  
Board of Directors**

**Officers**

*President:*

Ed Hoogterp

*Vice President:*

Alan Appelhof

*Secretary:*

Sue Teteak

*Treasurer:*

Bob Schmidt

**Members at Large**

Bill Beck

Jim Buzzell

Tom Clare

Stacy Daniels

Doug Gibson

Elizabeth Hill

Jim Hooker

Susan Kirkpatrick

Jim Laarman

Phil Meek

Wanda Shreiner

Hugh Walton

**Ex-Officio**

Bob Appleford

Bill Decker

**2009 CALENDAR**

**CLWA EVENT SCHEDULE**

May ..... Spring CLWA "Walkabout"  
 May 30 ..... CLWA Board Meeting, 9:00 a.m.  
 June 27 ..... CLWA Board Meeting, 9:00 a.m.  
 July 18 ..... CLWA Annual Membership Meeting, 9:30 am, CSA  
 July 31 ..... CLWA Fund Raiser  
 August 6 ..... CLWA Evening Board Meeting  
 September 12 ..... CLWA Board Meeting, 9:00 a.m.  
 October ..... Fall CLWA "Walkabout"  
*(Dates for CLWA events subject to change)*

**LOCAL EVENT SCHEDULE**

February 14 ..... Winterfest, Beulah  
 February 20-22 ... Shiver by the River, Frankfort  
 June 20 ..... Spring Craft Fair – Frankfort  
 July 4 ..... Parades/Fireworks– Beulah/Frankfort  
 July 4 ..... Firecracker 5K Race - Beulah  
 July 11 ..... Beulah Art Fair  
 July 18 ..... Elberta Art & Crafts Fair  
 July 18 ..... Port City Run - Frankfort  
 July 22 ..... CSA Arts & Crafts Fair  
 August 8 ..... Crystal Lake Team Marathon  
 August 14/15 ..... Frankfort Art Fair

For updated lists of events visit: [www.CLWA.us](http://www.CLWA.us) • [www.benzie.org](http://www.benzie.org) • [www.frankfort-elberta.com](http://www.frankfort-elberta.com)

**CRYSTAL LAKE NEWS BRIEFS...**

**The November election** wasn't only about national issues. Elected to the Benzie County Board of Commissioners were: District I (Almira Twp.), **Mark Roper**; District II (Lake, Platte, and Crystal Lake twps.), **Mary Pitcher**; District III (City of Frankfort and Gilmore Twp.), **Kristin Hollenbeck**; District IV (Benzonia Twp.), **Anne Damm**; District V (Homestead Twp.), **Frank Walterhouse**; District VI (Colfax and Inland twps.), **Tom Kelley**; District VII (Blaine, Joyfield and Weldon twps.), **Donald Tanner**. Also elected were Benzonia Township Supervisor, **James Sheets**; Lake Township Supervisor, **William L. Robinson**; Crystal Lake Township Supervisor, **Robert D. Barton**; Beulah Village President, **Jerry Rank**.

**Benzie County voters** also chose a new law enforcement team. **Rory Heckman** is the new sheriff and **John B. Dougherty** is prosecutor for four-year terms beginning in 2009.

**The DNR planted** more than 72,000 fish in Crystal Lake during 2008. The total included about 50,000 lake trout, planted at the Yacht Club, and 22,000 rainbow trout, introduced at the Beulah Boat Launch. The springtime plantings provide a field day for seagulls, but many of the 5-8 inch fish survive for the enjoyment of Crystal Lake anglers.

**Benzonia Township** and the Village of Beulah paid this fall to clean out the Cold Creek settling basin, which is designed to capture sediment before it reaches Crystal Lake. A contractor removed some 7,000 cubic yards of organic muck, enough to cover a football field more than three feet deep. That clears the facility to help keep the lake clean in future years. **CLWA** supported the effort by re-establishing reference marks in the basin.

**Winter came** to Benzie County on schedule, with more than a foot of snow on the ground the first week in December, and even a crust of ice along the east end of Crystal Lake. It may still be awhile before ice fishermen can venture out on the water. Last winter, which was fairly typical of recent years, ice fishers were on the east end of Crystal Lake from Jan. 22 to April 5. The deep western basin typically freezes a few weeks later.

**Benzie County Sheriff's Deputies** spent an extra 130 hours patrolling roads around Crystal Lake this past summer in a program funded by **CLWA** membership dues. The association paid for the extra patrols in an effort to keep traffic within the posted limits on roads shared by cars, bikes and pedestrians. Deputies working in the program issued 40 speeding tickets and 24 verbal warnings.



**CRYSTAL LAKE & WATERSHED ASSOCIATION**

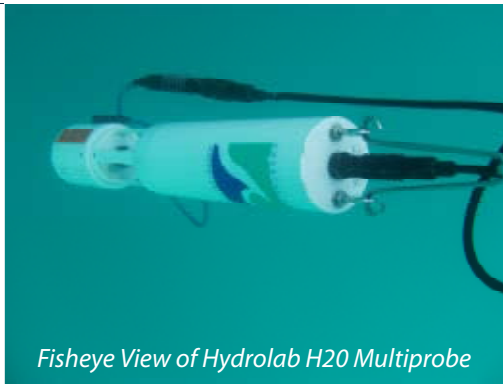
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Fisheye View of Secchi Disk



Fisheye View of Hydrolab H20 Multiprobe



Annual Meeting  
(Bob & Molly Appleford)



Outlet Dam (High and Wet) June 2008



Cold Creek Sediment Basin Spoils



Outlet Dam (Low and Dry) October 2008



Fall "Walkabout"  
(Jim Laarman w/ Phragmites)



Fall "Walkabout"  
(Ed Hoogterp w/ soils & sediments)



Fall "Walkabout" (Jim Laarman  
w/ Hand Waving Students)



Water Quality (Emily, Molly,  
Paul Murphy, Kyle Axtell)



ML&SA Display  
(Pearl Bonnell & Don Winnie)



Beulah Art Fair  
(Molly Walton & Stacy Daniels)



Plant Mapping  
(Emily Baker)



Frankfort Art Fair (The Gang!)  
(Ron, Emily, Liz, Stacy, Ed, Jim)



Plant Mapping (The Motley CLWA Crew!)  
(Stacy, Kyle, Liz, Jo Latimore, Emily, Ron)