



CRYSTAL WHITECAPS

The Newsletter of the Crystal Lake & Watershed Association

Protecting Crystal Lake Now for Generations to Come.

Vol. 11, No. 2

Fall 2015

COMBATING SWIMMER'S ITCH – SUMMER 2015

Swimmer's itch has been recognized in Michigan since at least the 1920s, although – for reasons not understood – has only become a significant problem for recreation in our inland lakes in recent years. A skin condition scientifically known as *schistosoma cercarial dermatitis*, it is caused when swimming larva (cercariae) of several species of parasitic flatworms (schistosomes) encounter human beings rather than their usual avian host, penetrate the skin, die, and cause an allergic reaction in many people.

Control efforts have taken two principal forms: breaking the life cycle of the parasite by removing or reducing the birds and/or the snails that form their natural hosts; or applying barrier products to swimmers' skin to prevent the entry of the cercariae.

In response to increasing complaints on Crystal Lake, the CLWA formed a Swimmer's Itch committee in the summer of 2006. This was expanded into the Crystal Lake Swimmer's Itch Partnership in 2009, which has continued to broaden its program and increase its activity (see *Crystal Whitecaps* 9:1, 10:1).

The following articles describe three important aspects of the CLWA's current efforts to combat this pest which is damaging vacations, hurting property values, and impairing the image of Michigan's pure waters.

For more information on swimmer's itch, see the Crystal Lake Swimmer's Itch Partnership's brochure, linked to the Home page of the CLWA website (http://clwa.us/PDF/Swimmer's_Itch_Brchr_2015.pdf). 



Is swimmer's itch driving people away from Crystal's beaches? What is the CLWA doing to bring them back?





PRESIDENT'S MESSAGE

Hello again from Crystal Lake. As you see in these pages, much has happened since our last *Whitecaps* edition. Your CLWA remains very active in efforts to preserve the quality of our waters now and for generations to come. I am pleased with the energy and initiatives of our Board of Directors, volunteers, our lead consultant and our steadfast boat wash manager.

Swimmer's itch management remains a primary focus of the organization. Some gains have been realized this year with the formation of a Michigan Swimmer's Itch Partnership bent on using the collective resources of 13 lake associations, the State of Michigan, private enterprise, Oakland University, and several concerned stakeholders to push for progress. SI is a complicated issue involving three primary and native species. Although a silver bullet has not been found, our collective work on management programs, personal protective products and focused research is moving us in a positive direction.

Your continued support is needed to further our ability to move faster forward in managing swimmer's itch. Our watershed management plan is nearing completion. Ed Hoogterp (lead consultant) is tying up the loose ends of maps and charts to convey the completed narratives that outline our management priorities moving forward. This effort has been extensive and has involved an enormous amount of community involvement. Hats off to Ed for his initiative and focus as he helps us to craft a watershed management plan that will provide us with significant leverage as we tackle those issues, like SI, that are crucial to making sure that Crystal Lake remains the place where our families and friends gather now and for generations to come. The spring 2016 issue of *Whitecaps* will bring you a full report on this key three-year project.

Our new assets of a lake level monitoring system and a boat washing station are proving state-of-the-art as lake associations around

the State look to the CLWA for advice on how to manage both erosion and invasive species. We have put our best foot forward with both of these key technologies: our continuing education and communication efforts with participants and stakeholders will make these assets more valuable in preserving our water quality as time passes. Say "hello" to Gary Herbert at our Mollineaux Road boat washing facility next time you are out and about. Gary is a familiar steward and friend to all Crystal Lake boat captains.

Please take a moment to read this issue, learn more about our programs and then consider how you can help your CLWA make a difference. Community, education, communication, action and financial support are the keys to working together to keep Crystal the beautiful lake that we all enjoy! 🌿

- Joel A. Buzzell, President

LEAVING A LEGACY

The CLWA would like to thank and recognize the late John (Jack) Frost and Betty Frost who named the Association as a beneficiary in their Charitable Remainder Trust. Their generosity will provide much needed assistance as we continue our efforts to protect and preserve Crystal Lake.

Membership dues make up less than one-third of our operating budget. Legacy gifts provide an important avenue for supporting

the crucial work performed by the CLWA. A simple way to make a bequest through your Will or a gift through your Revocable Living Trust is to name the Crystal Lake & Watershed Association as the beneficiary of the assets you wish to donate. Another approach is to name the CLWA as a beneficiary of your insurance or annuity policy, retirement plan, or Individual Retirement Account (IRA). You may also want to consider gifting

appreciated stocks, bonds or mutual fund shares which can provide the CLWA with critically needed financial support and may significantly reduce your tax liability during your lifetime. Please do not hesitate to contact me (dappleford@rwbaird.com) if you would like to explore the ways that the CLWA can be included in your estate plans! 🌿

- David Appleford, Treasurer



COMBATING SWIMMER'S ITCH AT THE CONGREGATIONAL ASSEMBLY BEACH

On a beautiful summer day no one would guess from looking at the Congregational Summer Assembly (CSA) beach, at the southwest corner of Crystal Lake, that it is actually the site of some of the most important scientific research going on in northern Michigan. While the CSA community of all ages is enjoying diving from the rafts, swimming around the lifeline, splashing from the end of the slide and building sand castles, the diligent life guarding crew is recording data that plays a significant role in the campaign to control swimmer's itch.

Since 2013 the waterfront staff, under the direction of Leslie Buntain Ritter, has collected information about the occurrences of swimmer's itch among those utilizing the beach. Undertaken at the request of the Crystal Lake Swimmer's Itch Partnership under the auspices of the CLWA, they record number and severity of SI cases, water temperature, wind direction and speed, number of swimmers and random factors such as rain and special events, on a daily basis during the nine-week CSA season. No other lake in Michigan has obtained such complete and reliable long term data about the behavior of swimmer's itch, information that is invaluable as research expands. The full three years of data is now posted on the CLWA website (clwa.us). (For one way the data is currently being used, see "Combating Swimmer's Itch in the Biology Lab," p. 4.)

Ritter, a lifelong CSA member, a Registered Nurse by profession and CSA waterfront director for over



CSA waterfront director Leslie Buntain Ritter at the "doghouse," the center for swimmer's itch information.

15 years, has also gained valuable practical experience with SI due to her close familiarity with the members and guests using the beach, who bring her feedback every day on the effects of any allergic reactions they are experiencing. The lifeguard station ("doghouse" in CSA parlance) is the center for advice, information, and helpful products.

Each morning Ritter checks the water conditions, and if swimmer's itch infestation seems to be severe, she warns swimmers and schedules beach activities for the day's classes. She recommends that swimmers take precautions to avoid or reduce the allergic reactions, such as applying long-acting, water-resistant sun screen (e.g. Bull Frog, No Ad) at least a half hour before entering the water,

then showering and toweling off well after swimming. For those affected by the itch, topical application of baking soda, alcohol (e.g. hand sanitizer), vinegar, antihistamine (e.g. Benadryl) spray, or calamine lotion can help relieve the symptoms. Excellent results have also been reported from the prophylactic use of oral non-drowsy antihistamines, such as Allegra.

Ritter has found that swimmer's itch outbreaks are difficult to predict, appearing in a wide variety of wind and weather conditions, and at different times of the day, but seemingly most common when there is a strong onshore wind. She also notes that humans have a wide variety of allergic (and emotional) reactions to the parasite.

While SI seemed better on the CSA beach in 2015, Ritter's approach remains realistic, grounded in years of exposure and experience: the problem is still with us, but there are concrete actions that can reduce the effects and those who love the lake should not be deterred from enjoying it.

The CLWA is grateful to the CSA, its managing director Ken Cox, and all its staff and members for this collaboration as we work together to preserve Crystal Lake for generations to come. 🌿



COMBATING SWIMMER'S ITCH IN THE BIOLOGY LAB

While swimmer's itch has been recognized for many years, the behavior of the parasite that causes it remains poorly understood. Partly this is due to the complexity of the parasitic life cycle on which swimmer's itch depends – in different places where it occurs around the world, the parasite is hosted by different types of birds (and even rodents), as well as different types of snails. The parasite itself occurs in several variations, making generalized approaches difficult.

New research, begun on Crystal and seven other Northern Michigan lakes in the summer of 2015, aims to increase the knowledge that will lead to the development of improved methods of control.

The project forms the basis of a Master's thesis by Madelyn Messner, a graduate student in Biological Sciences at Oakland University under the supervision of Assistant Professor Dr. Thomas Raffel. Her goal is to rigorously collect temporally controlled data in order to

identify how the parasite quantity in the water changes from day to day in response to environmental variables.

During the month of July Messner focused on fourteen sampling sites – Congregational Summer Assembly, Onkeonwe, Chimney Corners, and Orchard Shores-Beulah on Crystal, and others on Glen, Leelanau, Platte, Higgins, Little Traverse, Lime

and Walloon lakes. Aided by local volunteers, she collected fifty liters of water daily from each site, which was strained to capture the cercariae (the parasite larva that cause an allergic reaction in humans). These are being quantified and examined using DNA detection techniques, and the water tested for nutrients, algae, pollution and other factors.



Madelyn Messner pouring lake water through a filter to capture microscopic cercariae for later DNA detection and quantification.

and Walloon lakes. Aided by local volunteers, she collected fifty liters of water daily from each site, which was strained to capture the cercariae (the parasite larva that cause an allergic reaction in humans). These are being quantified and examined using DNA detection techniques, and the water tested for nutrients, algae, pollution and other factors.

The CLWA provided crucial financial support to the Crystal Lake components, while members of the Crystal Lake Swimmer's Itch Partnership, led by Ted Fisher and Al Flory, assisted with the data collection.

Messner will be spending the winter analyzing this invaluable data. She commented, "This is an amazing temporal dataset that I would never have been able to get without my amazing volunteers!" The CLWA has also provided her with the three years of unique data recorded at the Congregational Summer Assembly beach (see previous article), which she will coordinate with her new sampling from the site. Upon completion next spring, Messner's study should shed light on some of the mysteries of swimmer's itch and guide our efforts to reduce this blight on our lake.

In the future, Dr. Raffel's lab hopes to expand the project across Michigan with the continued support of lake associations and residents. The experience of the CLWA has clearly demonstrated that only active and broad collaboration – working closely with other lakes and stakeholders (see "Combating Swimmer's Itch in Northern Michigan Lakes," p. 5)— will ultimately improve swimmer's itch control. 🌱



COMBATING SWIMMER'S ITCH IN NORTHERN MICHIGAN LAKES

There is power in numbers!

Over the past ten years that the CLWA has been concerned with the problem of swimmer's itch, one fact has become clear: this is not simply a local issue and it is more complex than can be solved on our own beaches. Thus it was with great excitement that the CLWA eagerly assumed an active role in the Michigan Swimmer's Itch Partnership (MSIP), a new coalition of thirteen lake associations formed last fall. The group is led by Jim Vondale of Higgins Lake.

Representatives of the participating organizations met in Frankfort in late March, where they were joined by personnel from the Michigan Department of National Resources, Department of Environmental Quality, academic scientists, and staffers for state and local elected officials. One goal is to raise awareness that SI is a statewide health, economic and social problem, and the meeting helped clarify some of the obstacles: the DNR and DEQ have very limited authorization related to SI, researchers need more funding, and politicians will ignore the problem until they get more data and can recognize the seriousness of the issue.

In late August the lake associations and researchers met again in Traverse City—with CLWA attendees both numerous and vocal – where they shared updates on their summer's work and planned

future steps. Ted Fisher, chair of the Crystal Lake Swimmer's Itch Partnership, and Joel Buzzell, CLWA President, presented the multifaceted program being carried out on Crystal Lake. The other presentations ranged from Lake Margrethe, which conceded they really do not have much of a problem (because the Black Hawk helicopters at the nearby military base scare away the infected birds?), to Higgins Lake, which has begun a three-year SI control project costing \$240,000 for the first year. The complexity of the problem is suggested by Higgins Lake's finding that the common merganser is the only bird host, but two different types of swimmer's itch-causing parasites are present, each hosted by a different species of snail.

The meeting concluded with a presentation by John Lindley of Public Affairs Associates in Lansing,

who described possible strategies for obtaining state funding for swimmer's itch control. One option would be to find the resources necessary to expand the current Higgins Lake program, being carried out by SICON ("Swimmer's Itch Control") LLC, to an additional three lakes, including Crystal.

A small steering committee has now developed a request for supplementary appropriations from the State of Michigan for a three-year pilot program that would include both research and practical control methods (such as merganser relocation). The active support of the public, including all CLWA members, will be required to raise the substantial funds needed for such a large-scale program, but experience has now clearly demonstrated that piecemeal efforts are not enough. 



Joel Buzzell, CLWA President, and Ted Fisher, Chair, Crystal Lake Swimmer's Itch Partnership, addressing Michigan Swimmer's Itch Partnership meeting, August 2015.



ON THE LOOKOUT FOR TWO INVASIVE SPECIES IN BENZIE COUNTY LAKES

A major accomplishment of the Crystal Lake & Watershed Association over the last five years was the construction of the first boat wash station on Crystal Lake (see *Crystal Whitecaps* 11:1, Summer 2015). The purpose of boat washing is to help prevent the introduction of any new invasive aquatic plants and animals. These are continually being brought into the Midwest, often hitchhiking on boats that have previously navigated in infested waters.

Literally hundreds of invasive plants and animals have affected

the ecology of our region over the years, but two such species are of immediate concern in Crystal Lake.

Phragmites australis, a non-native shoreline plant, was first noticed a year ago on the south shore of Crystal Lake. More aggressive than the native form, these 12-15 foot giants will quickly take over a shoreline or freeway marsh, as they have in Chicago and Detroit. *Phragmites* is present now in Arcadia Lake, just south of Benzie County, and along much of the Lake Michigan shoreline in Emmett County near the Straits of

Mackinac. Onekema needed a special assessment for treatment to bring under control the large infestation blocking the village's view of Portage Lake.

Phragmites spreads by aggressive underground rhizomes that can extend out 60 feet, displacing native grasses and reeds along with associated wildlife. The only effective action is treatment with herbicides before it overwhelms an area. Once a critical mass is reached, elimination is impossible and ongoing control is the only option. Betsie Lake is a



Phragmites field near DNR boat launch before treatment, July 2015



Phragmites field after treatment, September 2015



Quagga mussel (left) and Zebra mussel (right). Courtesy Michigan Sea Grant.

classic example, where dense fields of phragmites are visible around the bridge between Frankfort and Elberta. Burning and cutting can help reduce the field and vigilant survey for reoccurrence is needed. CLWA has treated a significant infestation on the Crystal Lake waterfront, adjacent to the Betsie Valley Trail west of the DNR boat launch, and yearly reinspection will continue.

Quagga mussel (*Dreissena rostriformis bugensis*), a cousin of the invasive zebra mussel already established in Crystal Lake, has been confirmed this year in Crooked Lake near Lake Charlevoix. This is the first inland lake in Michigan reported to have this aggressive mussel that pervades the Great Lakes. The quagga can live in shallow or deep water and can survive colder temperatures than the zebra, feeding year round while the zebra is dormant in winter. It has virtually eliminated the zebra from Lake Michigan, with its expended shells thickly covering the bottom of the deeper parts of the lake. These mussels have few predators, and have caused severe degradation to

the ecosystems of the lakes where they are present.

Both mussels are prolific filter feeders of phytoplankton, the bottom of the food chain: they consume the nutritive green algae, allowing blue-green algae to prevail. This selective filtering of the water column disrupts the normal balance of the aquatic food web, affecting the growth and survival of fish, and explains the cleaner, clearer water we are seeing in Lake Michigan and Crystal. In addition, heavy concentrations of blue-green algae may release a substance called microcystin, which is toxic to fish, pets and humans.

Deterring invasive species is an ongoing struggle that requires the cooperation of all those who enjoy the lake. Local ordinances now require the washing of boats entering Crystal Lake, and the CLWA wash station at the main DNR boat launch on Mollineaux Road is in active use throughout the summer. But Crystal has numerous secondary access sites – including Beulah public beach, Crystal Lake Yacht Club, and

numerous obscure dirt road ends. Boat washing needs to expand to all these points if we want to prevent quagga or other new variants of the zebra mussel from entering our lake.

You can help protect Crystal Lake for the future by recognizing the types of mussels that you see on your beach or at a launch site or public area, or noting suspicious new growth that may be phragmites in our watershed or shoreline.

Please report the location of any invasive species identified or suspected in the Crystal Lake watershed by email to CLWA@CLWA.US or by phone at 231-882-4001. Reports will be investigated and/or passed along to the regional experts at Northwest Michigan Invasive Species Network. In addition, the Midwest Invasive Species Information Network (MISIN) has a reporting option for public use on its website: www.misin.msu.edu.

– Jim Hamp, Vice President



CRYSTAL LAKE & WATERSHED ASSOCIATION

P.O. Box 89 • Beulah, MI 49617
Tel 231/882-4001
Fax 231/882-7810
www.CLWA.us • info@CLWA.us



BOARD OF DIRECTORS

OFFICERS

President

Joel Buzzell

Vice President

James Hamp

Secretary

Ellen Herscher

Treasurer

David Appleford

MEMBERS AT LARGE

Catherine Boshier
Susan Brown
Rick Cassard
Rick Cosaro
Stacy L. Daniels
Ted Fisher
Charles (Chuck) King IV
Tom Kucera
Alan Marble
John E. (Jack) Maurer
Michael Musgrave
Ann Pepper
Wanda Shreiner
Hugh Walton
David Wynne

PAST PRESIDENT

Bob Appleford
Ed Hoogterp

CRYSTAL WHITECAPS is published twice a year and is a benefit of membership in the Crystal Lake & Watershed Association. Back issues and membership information are available on the CLWA website: clwa.us.

STORMCLOUD BREWING COMPANY TOASTS CLWA

On Saturday, June 20, Stormcloud Brewing Company in Frankfort hosted a fund-raising event for the CLWA as part of its Stormcloud Builds Community program. From 4:00 to 6:00 p.m. of their regular business hours, twenty percent of their sales was designated for the CLWA. CLWA board members and friends were delighted to gather early in the summer to greet one another and boost Stormcloud's sales.

Stormcloud Brewing Company is a small brewery and restaurant that opened on Main Street in Frankfort in June 2013. Operating year round, its Belgian-style brewing is done on-site: in its short life, it has become popular with residents and visitors alike for its 16 taps and flatbread pizzas.

CLWA is grateful to be recognized as an organization making a difference in northern Michigan, and is proud to be included among a distinguished group of past recipients who are making our area a better place for future generations. 



Stormcloud Brewing Company co-owners Brian Confer and Rick Schmitt present donation to CLWA (l to r: Joel Buzzell, B. Confer, Ann Pepper, R. Schmitt)

CLWA ANNUAL MEETING 2015

The Annual Members Meeting of the CLWA was held Saturday, July 18, 9:30-11:15 a.m., at the Congregational Summer Assembly Community Building, with over 100 members and interested persons attending. President Joel Buzzell surveyed the accomplishments of the past year, and committee chairs presented reports on their current work to preserve and protect Crystal Lake for future generations. Featured was a panel discussion of new and expanded initiatives to control swimmer's itch. The following officers and board members were elected:

Re-Elected Vice President:
James Hamp (2015-2017)

Re-Elected Treasurer:
David Appleford (2015-2017)

New Board Members:
Catherine Boshier, Michael Musgrave, David Wynne (2015-2018)

Re-Elected Board Members:
Susan Brown, Alan Marble (2015-2018); Stacy L. Daniels (2015-2016)

Full minutes of the meeting are available on the CLWA website clwa.us.

CLWA thanks the Assembly for the use of its facility!