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CRYSTAL LAKE, BENZIE COUNTY

## **CRYSTAL LAKE & WATERSHED ASSOCIATION - A "NEW" ORGANIZATION!**

Exciting changes for the future of the Crystal Lake Watershed, Benzie County, MI, occurred in September 2004 with the merger of the former Crystal Lake Association (CLA) and the former Crystal Lake Watershed Fund (CLWF) into a new organization, the Crystal Lake & Watershed Association (CLWA). This coming together of minds, energies, and diverse talents results in a combined stronger, more efficient organization. The new CLWA is a membership organization with a 2020 Vision Fund and an Endowment Fund to support stewardship projects, scientific studies, and educational programs. The CLWA is a "new" organization with fifty years of history. Our purpose is to protect and promote the natural qualities of the Crystal Lake Watershed, and our goal is to preserve its beauty and recreational resources now and for the future. The CLWA conducts water quality monitoring, provides educational programs, promotes sustainable land development, and encourages safe use of Crystal Lake. Committees include: Executive, Water Quality, Zoning & Land Use, Education & Communications, Development & Financial, and an ad hoc Boat Launch Committee. The newsletter is now Crystal Whitecaps (www.clwa.us/PDF/Crystal Whitecaps 2004fall3.pdf) and the new website is (www.clwa.us/PDF/Crystal Whitecaps 2004fall3.pdf) and the new website is (www.clwa.us/PDF/Crystal Whitecaps 2004fall3.pdf)

#### **CRYSTAL LAKE WATERSHED.**

Benzie County, in NW Lower Michigan, is the smallest of 83 counties in land area (321 sq mi); but 24th in total water area (538 sq mi); and 18th in inland lakes water area (26 sq mi). The Crystal Lake Watershed is small compared to two larger riverine watersheds to the north and south. It encompasses parts of six townships, is comprised of 17 subwatersheds, and flows into the Betsie River and Lake Michigan Watersheds. The Villages of Beulah and Benzonia are near the East End; the City of Frankfort and the Village of Elberta are near the West End. Benzie County was first surveyed in 1838-9 by Alvin and Austin Burt, who called Crystal Lake, "Cap" Lake (short for "Whitecap", for its large waves). Since its original survey, Crystal Lake has changed only slightly in area, but dramatically in level - now set at 600 +/- 0.25 feet summer to winter. The Crystal Lake Watershed is unique - the surface of the Lake is ~ 35% of the total Watershed (land + water). It covers 43.67 square miles (28,145 Acres) with a watershed perimeter of 44.65 miles, a Lake perimeter of 20.838 miles, and a reach of 8.11 miles. The surface area of Crystal Lake is 15.4 square miles (9,854 Acres), making it the 9th largest inland Lake in Michigan! Its depth is 70.7 feet (avg) and 165 feet (max). It contains almost 1/4 trillion gallons (242,000,000,000,000 gal = 740,000 Acre-ft = 0.220 cu mi)! See Watershed FAQs at <a href="https://www.clwf.org/watershed-FAQ.htm">www.clwf.org/watershed-FAQ.htm</a>

## **ENVIRONMENTAL CONCERNS**

The Crystal Lake Watershed contains many diverse, but hydrologically intertwined ecologies and unique environmental niches, including active sand dunes, forested heights, wetlands, tributaries, and a large deep inland lake connected to Lake Michigan. Crystal Lake, with its immense body of pristine water of exceptional clarity, mixed sandy and rocky nearshore perimeter, sandy shoreline, deep marl bottom, and high-ridged vistas, captivates all who view it. The responsibility of those of us in the present is to respect, maintain, and preserve the character of the Crystal Lake Watershed for the generations that follow us. The unique features of the Crystal Lake Watershed make it alternately very resistant or potentially vulnerable to environmental impacts. Concerns that affect property owners and visitors include:

- ω Septic Systems & Alternatives.
- ω Lawns, Gardens, Fertilizers, & Pesticides.
- Natural Greenbelts, Land Conservancies, & Scenic Vistas.
- ω Boating, Swimming, and Fishing.
- ω Litter, Garbage, & Hazardous Materials.
- ω Planning & Zoning.
- ω Land Use & Water Access.
- ω Construction & Development.
- ω Land Cover, Trees, Other Vegetation the Viewshed.

- ω Critical Areas Steep Slopes, Wetlands, Dunes,
  & Other Critical Habitats.
- ω Erosion & Shoreline Protection.
- ω Soil, Sediment, & Nutrient Runoff.
- ω Atmospheric Deposition & Ozone.
- ω Aquatic Vegetation, Fish, & Waterfowl.
- ω Algae, Bacteria, & Molds.
- ω Nonindigenous Plants, Animals, & Microorganisms.
- $\omega$  Aesthetics & Noise.
- ω Natural, Economic, & Social Challenges.

## **WATER QUALITY MONITORING**

From 1820 – 2004, over 160 environmental studies have been done in the Crystal Lake Watershed or in contiguous watersheds (<a href="www.clwf.org/PDF/CLWFREFS04071304.pdf">www.clwf.org/PDF/CLWFREFS04071304.pdf</a>). Many have been done by the CLWA and its predecessors with other organizations, including the Cooperative Lakes Monitoring Program with MDEQ, and Watershed Monitoring of Lakes & Streams with Interlochen Arts Academy (<a href="www.mlswa.org/School-Lake-Project/Interlochen.htm">www.mlswa.org/School-Lake-Project/Interlochen.htm</a>). Recent studies include: lake monitoring, biomonitoring (<a href="www.clwf.org/PDF/CLWFvolmonfinal032804.pdf">www.clwf.org/PDF/CLWFvolmonfinal032804.pdf</a>), and nearshore monitoring. The long-term program relates lake water quality to social and political aspects of watershed planning. Volunteers and a Science Review Panel (<a href="www.clwf.org/sci">www.clwf.org/sci</a> rev panel.htm).

#### **ZONING & LAND USE.**

The **CLWA** is active in addressing issues of public interest, such as a proposed boat launch and alternative treatment units for septic systems. In 2004, concerns were raised about size, scope and justification for a public boat launch proposed by the MDNR and permitted by the MDEQ. The **CLWA** petitioned the MDEQ to reconsider its earlier decision. It is hoped that a thorough examination will result in an outcome that provides the people of Benzie County adequate and safe access to Crystal Lake without diminishing the beauty and unsurpassed recreational opportunities that make Crystal Lake unique. For history, see at <a href="https://www.cla-upnorth.org/dnr.htm">www.cla-upnorth.org/dnr.htm</a> and <a href="https://www.clwf.org/DNR\_launch.htm">www.clwf.org/DNR\_launch.htm</a>. In 1989, Benzie County was the first county in the U.S. to adopt a precedent-setting ordinance to require upgrading of onsite wastewater treatment systems prior to sale of any properties. Enforcement has focused on upgrading failed or poorly operating systems located near water bodies. To date, several hundred individual systems have been upgraded. Benzie and Leelanau Counties have adopted new standards for Alternative Treatments Units (ATU's) using "innovative" or "advanced" technologies provide greater treatment to protect water quality. This allows septic systems to be built on properties with soils that do not allow wastewater to percolate (<a href="https://www.clwf.org/development.htm#Regulations">www.clwf.org/development.htm#Regulations</a>).

#### **EDUCATION & COMMUNICATIONS.**

The **Crystal Lake** "Walkabout" is an educational program to teach students, property owners, and visitors about the Crystal Lake Watershed. Focusing on <a href="https://www.nytorlogy.com/my.c

## **ADDITIONAL REFERENCES.**

Decker, R. William, Chair, Ad Hoc Committee, Benzie County Board of Public Works, "Crystal Lake - Life or Death", A Lake Owners' Manual, 1987, 32 pp, <a href="https://www.clwf.org/development.htm#MANUAL">www.clwf.org/development.htm#MANUAL</a>; Crystal Lake Handbook, CLA and MSU Extension, Betsy Youngblood, Editor, Beulah, MI, 2002, 64pp.

Winnie, Donald E., Crystal Lake, Benzie County, Michigan, Michigan Riparian, Nov. 1989, Cover + p 8; Groves, A. F., Crystal Lake Protection Plan - Part I., Michigan Riparian, Feb. 1993, pp 10-11; Ibid., Part II., Michigan Riparian, May 1993, Cover + pp 10-12, 20-21; Daniels, S. L., Letter to the Editor, Michigan Riparian, Nov. 1993, p 6.

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