

## Restoring Clary Lake: A Success Story!

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Certified 13 Years; Clary Lake, Jefferson

Clary Lake, formerly Pleasant Pond, is one of the longest continually monitored lakes in Maine. According to DEP's Linda Bacon, my father Stuart Fergusson was the first person to start collecting Secchi disk readings on the lake back in 1975. His friend and neighbor David Hodsdon started at the same time and soon took over when my father's health and eyesight precluded him from continuing. In 2001 another monitor, Jack Holland joined David on his bi-monthly monitoring trips. I became certified and started helping out in 2013 and for a few years all 3 of us would head out on the lake. We could have used a bigger boat! Then in 2018 Kelsie French joined our monitoring team. Having plenty of help monitoring Clary Lake has been a blessing. Today Clary Lake is a relatively healthy "productive" lake but



(L-R) David Hodsdon, Kelsie French, and George Fergusson in 2019.

it hasn't always been that way. Always plagued over the years to some extent by occasional water level issues, in 2006 the dam that impounds Clary Lake had fallen into disrepair and was sold to a company who had other plans than repairing it and maintaining a historical lake level. By the Fall of 2011 the Clary Lake Association's negotiations with the dam owner had failed to resolve the issues so the Clary Lake shore owners filed a water level petition with DEP. The dam owner fought the petition but ultimately lost, and two years later in late January 2014, a Water Level Order was issued. The dam owner promptly appealed the Order in Lincoln County Superior Court which

thwarted DEP's attempts at enforcement of the WLO. Four years later, in early 2018 the Court finally upheld the WLO. That should have been the end of the story, but it wasn't. The dam owner then filed for bankruptcy, providing the Clary Lake Association with the break we'd been waiting for and in October 2018 we were able to purchase the dam from the dam owner's bankruptcy estate. The dam was quickly repaired and the water level restored.

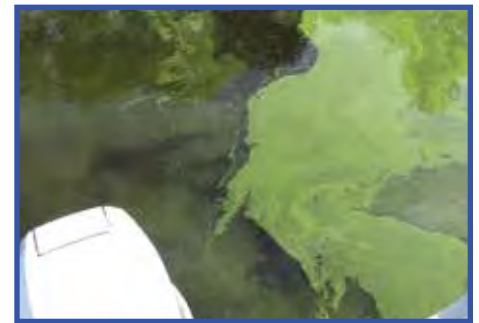


State boat launch, 2015.

The Clary Lake dam, built around 1900, raised the level of Clary Lake approximately 5 feet. For eight long years starting in 2011 and continuing until the CLA bought the dam in the fall of 2018, the then dam owner kept the gate wide open so as to keep the lake level as low as possible. The result was wildly fluctuating and generally lower water levels, and the effect was devastating. The picture above shows the State boat launch on September 26, 2015 when the lake level was close to five feet below the top of the dam. Needless to say, the boat launch didn't get much use when it looked like this. These extreme low water conditions recurred every summer from 2011 through the end of 2018. Over 300 acres of sensitive wetlands with an average depth of only 2-4 feet were completely drained, reducing the overall size of Clary Lake by as much as 42% and the lake volume by over 40%. Every spring, rain and snow melt would raise the lake level up typically to within a foot or so of the normal high water mark, but it didn't last long; by early summer the level would have again fallen four to five feet below the top of the dam. The entire littoral zone around the lake was drained, exposing dozens and in some cases hundreds of feet of sensitive lake

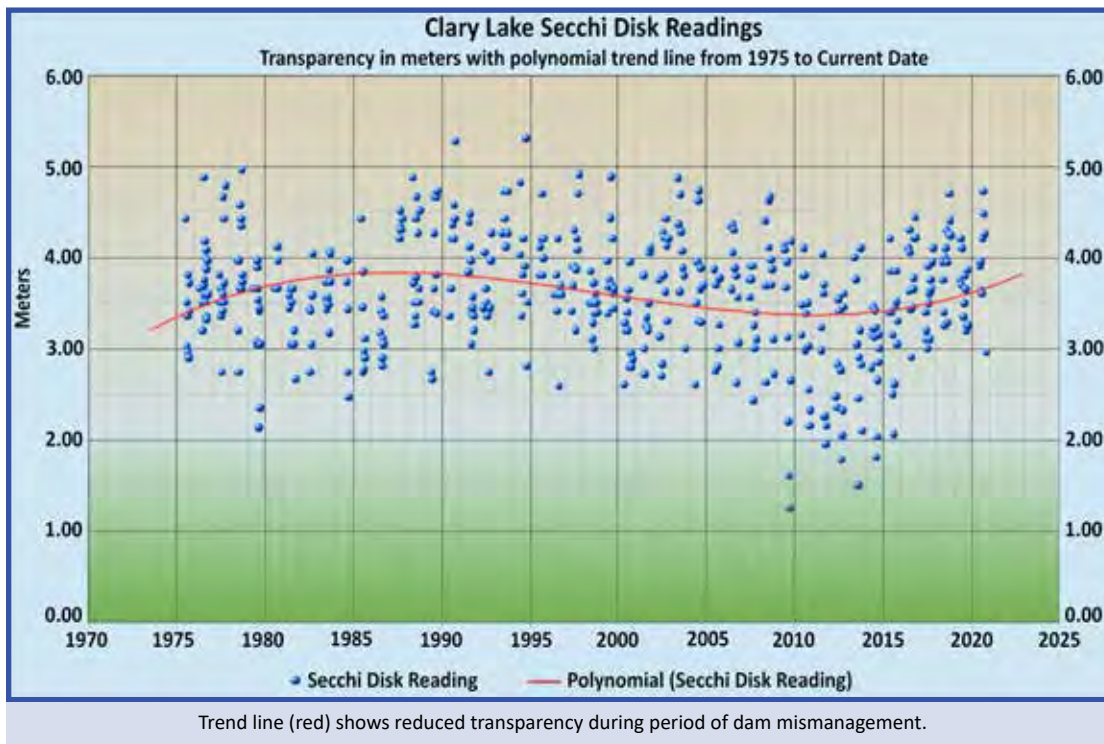
bottom, destroying valuable fish habitat and depriving lake shore owners of a usable waterfront.

The water level crisis had a profound and deleterious impact on lake water quality as evidenced by Secchi disk readings. Between 2009 when the water level crisis began through the end of 2018 when we were finally able to take control of and repair the dam, we experienced severe algal blooms (defined as transparency below 2m) five of those years and several minor blooms (defined as transparency between 2m and 2.5m). The reason was obvious: with lake volume cut almost in half but with normal amounts of rainfall and runoff, the nutrient load was significantly higher than had the lake been full of water. Ironically, starting about 2017 and in spite of the ongoing water level crisis, transparency and water quality was much improved due in large part to summer drought conditions which limits runoff, to the benefit of many Maine lakes, including Clary. *The chart on the following page shows 45 years worth of Secchi disk readings.* It is easy to see the impact of reduced water levels on transparency from 2009 through 2015. The 2nd-order polynomial trendline shows the likelihood of improving transparency in the future, though we are not about to become complacent since excessive nutrient load in many Maine lakes is a perennial problem.



Algae bloom, 2013.

The picture above shows the end result of a particularly bad algal bloom that occurred in 2013. At the height of this bloom, our Secchi disk reading was only 1.5 meters. The green scum is dead blue-green algae that floated to the surface. Not conducive to wanting to go swimming! This bloom was pretty much lake-wide.



Now, 2 years after historical water levels were restored, Clary Lake is well on its way to a full recovery, but its going to take a while longer before the effects of 8 years of subpar water levels is fully reversed. This year the average transparency was about 4 meters and the once-devastated wetlands and littoral zone are rapidly returning to their former states. In a few more years the travails of the past will be but a distant memory.



Years of low water levels transformed this once-sand beach.

The picture above shows the long-term impact of reduced water levels on a small section of shoreline on the north side of the lake where the water is rather shallow to begin with. Taken in June 2017, the water level was only down about 2.5 feet at the time but it had already receded fully 75 feet from the normal high water mark. Five years of reduced water levels had turned what was a sandy beach area into this uninviting weedy shorefront. As the water level fell, people would move their docks and moorings further out into

the lake. A month after this picture was taken the lake had fallen another 2 feet and the water had receded an additional 75 feet. Periodically the lake shore owners would descend on what used to be beach with lawnmowers and weed whackers in an attempt to preserve their access to the water. Everyone on Clary Lake was affected by the water level crisis to some extent, some more than others. For the 7 years of our water level crisis, the people who had camps on this shoreline in particular didn't have much summer fun at the lake.

Perhaps the most devastating impact of our multiyear water level crisis was the complete dewatering of 300 acres of emergent wetlands at the northwest end of Clary Lake. The picture below, taken in early April of 2013 shows a small section of this wetland area and only hints at the devastation. With luck this wetland area might have had water over it for about a month in late winter or



De-watered wetland.

early spring when runoff and snow melt brought the lake level up. The rest of the year it was completely dewatered. After a few years this sensitive wetland area had become a meadow with exclusively terrestrial vegetation growing on it. Rather than ducks, turtles, and lily pads it was home to coyotes and growing maple trees and goldenrod. I am happy to report that in the two years since historical water levels were restored, this important wetland is recovering nicely.

In closing, I'd like to take this opportunity to thank David Hodsdon (pictured below, using our YSI Pro20

DO meter) for his exemplary service as Clary Lake's principal Water Quality Monitor. This year David decided to give up the job he's held for 45 years and let me and Kelsie French take the reins. I only hope we can bring the same degree of dedication, quality control, and perseverance to the job that David did. We owe him that much, and more!



David Hodsdon - 45 years of lake monitoring!

David has been a mentor to me over the years, and a true friend. David and I still consult on water quality issues and get together every few weeks for a cup of hot black coffee and a good discussion on all things Clary Lake. Plans are underway for a more fitting tribute to David next year when hopefully this pandemic craziness will be behind us. ☹

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