



Lake Association News

A newsletter for the Association for the Preservation of Clear Lake

SUMMER 2007

CITY OF CLEAR LAKE COMPLETES PARKING LOT PROJECT

The City of Clear Lake recently completed a project to add several additional parking spaces in the busy downtown area. What makes this project unique is that it not only improved the accessibility to downtown, but that it also provided a water quality benefit. The parking lot project included the installation of permeable paver blocks and a rain garden. These features allow the runoff water to infiltrate into the ground instead of running off into a storm drain and eventually into the lake. The water that does flow to the storm drain also is treated by a filtration system installed at City Beach a couple years ago. The CLEAR Project contributed \$25,000 via Watershed Protection Funds. The pictures below show the rain garden and parking lot, and also the permeable pavers in action during a rain event.



Source: Veenstra & Kimm, Inc.

Spring Water Clarity a Good Sign

The water clarity seen this spring was a pleasant surprise for lake users and appreciators. If you took a small cup of water out of the lake during the spring and looked very closely for small transparent bugs that appeared to be hopping in the water, you would have seen the reason for our clarity. Another strong population of the zooplankton daphnia pulex, or water fleas, was present in the lake this spring. Their populations seem to hit high points about every 5 years. Similar impressive clarity levels were seen in the spring of 2002. Zooplankton like daphnia pulex are grazers that eat algae. Their voracious appetites and huge numbers allow them to basically “filter” the lake water

through their system and remove algae. They are also very good for the fish population, as the young fish in turn like to eat the zooplankton. Although zooplankton are likely playing a significant role in the water clarity improvement, other water samples taken this spring provided another possible explanation. As we all know, phosphorus is the nutrient we are most concerned about when it comes to algae blooms. When Dr. Downing from ISU conducted his monitoring in 1998-2000, total phosphorus levels were found to average about 190 ppb. This meant the lake was considered “hyper-eutrophic,” or very nutrient rich. Water samples collected this spring showed

Total P levels of 50 ppb in the west end, 40 ppb in the central portion, and a “below detectable limit” (<20 ppb) in the east end. In all of the many years of sampling Clear Lake, there has never been a total P level that was below the laboratory’s quantification limit. These low total P levels no doubt have also led to a reduction in algae production. Total P has increased during the summer months, as is typical, to an average of about 80 ppb. These levels are still below previous sampling years and are encouraging to see. It is not likely that zebra mussels are currently impacting water clarity, as their population is still small, although unfortunately increasing (see below).

Zebra Mussels Increase At Clear Lake

The IDNR conducted its second survey to determine if population levels of the invasive zebra mussel are changing at Clear Lake. The survey indicated about a 20 fold increase in numbers of adult zebra mussels that were found last year, and an even greater increase in immature zebra mussels. Numerous young mussels have been found on boat hoists this summer as they have been removed. The picture below is a close-up of one such hoist. It is likely that the population will continue to grow, as the mussels have very few natural predators. Diving ducks will feed on zebra mussels, but they offer no real help in keeping the mussel population in check. The main factor in determining the rate of their spread and their eventual population climax is the availability of hard surfaces in a water body. Zebra mussels will attach to virtually any hard surface they can find, and even colonize on each other. One benefit Clear Lake has is that docks and hoists are removed annually from the lake, which will also remove a portion of the zebra mussel population each year. The IDNR has launched a research project in cooperation with ISU to continue tracking the zebra mussel populations. Contrary to popular belief, zebra mussels often do more harm than good when it comes to water clarity in nutrient rich lakes. The mussels typically refuse to eat blue-green algae (cyanobacteria), which can then become dominant and reduce clarity.



Photo by: Lowell Washburn - IDNR

CONTAINMENT SITE CONSTRUCTION BEGINS

Dirt moving has now begun on the Clear Lake Dredging Project. The first phase is to construct a containment site capable of holding over 3 million cubic yards of sediment. To accomplish this, roughly 15 ft high berms will be constructed around the perimeter of the 160 acre containment site. C.J. Moyna & Sons from Elkader, IA is the general contractor for the project. Construction began on the project in late September and is expected to be completed before the end of the year. A bid letting for the actual dredging portion of the project is expected to take place this winter, with dredging beginning in the spring of 2008. Dredging will most likely extend into 2009 and take two open water seasons to complete.



LAKE NEWS

Aquatic Vegetation on the Rise

Several long-time lakeshore residents and lake users have noticed aquatic vegetation growing this year in shallow areas of the lake where they have never seen vegetation in before. So how did this vegetation suddenly appear? Amazingly, seeds of many aquatic plants can lie dormant in the sediment for several years or even several decades until conditions are favorable for the seeds to germinate. The clear water this spring provided many of those seeds with the light penetration they needed to grow.

The most common species showing an increase in abundance this year are two types of pondweed: a broad-leaf pondweed known as American pondweed, and a narrow-leaf pondweed known as sago pondweed. White and yellow water lilies and similar looking lotus plants are also noticeably expanding along the Ventura Grade and in other areas. Thankfully, all of these species are native and are beneficial to the lake ecosystem, providing stabilization of bottom sediments and fish habitat. Although no official survey has been conducted, it is obvious that aquatic vegetation is increasing in density and probably also diversity from what was seen during the 1998-2000 ISU study. At that time, only 12 species of

aquatic plants were found in the lake, down from 35 species documented in a 1952 study.

Aquatic vegetation is only expected to increase as water clarity improves. The increase in vegetation will not come without compromise, as it can interfere with some recreational activities. Interestingly, the Lake Association initiated having a vegetation cutting machine used at Clear Lake in 1942 to help control excessive levels of vegetation. It is unlikely we will reach that point anytime in the near future, but it is important to view the vegetation as a sign of an improving lake rather than a nuisance.

As we are beginning to see an increase in aquatic vegetation, it is a good time to remember to be vigilant about checking boats and trailers and removing invasive plant species such as Eurasian watermilfoil. In nutrient-rich lakes, milfoil can form thick underwater stands of tangled stems and vast mats of vegetation at the water's surface. This can interfere with boating, fishing, and swimming. The plant's floating canopy can also crowd out important native plants. Eurasian watermilfoil can be identified by the arrangement of its leaves in whorls of 4 around the stem and each leaf being composed of 12 or more pairs of leaflets.



American Pondweed



Sago Pondweed



Eurasian Watermilfoil

Image Sources: IDNR and University of California

The Association for the Preservation of Clear Lake
PO Box 54
Clear Lake, IA 50428