



Lake Association News

A newsletter for the Association for the Preservation of Clear Lake

WINTER / SPRING 2011

MCINTOSH WOODS SHORELINE STABILIZATION

Last fall, a survey of the Clear Lake shoreline was conducted to determine areas where shoreline erosion was taking place. About 2,700 ft of shoreline was found to be in need of protection. Of those areas, about half were located on state owned property. The Iowa DNR wanted to protect the eroding shoreline on their property and therefore put a plan together to do so. Most of the area in need of protection was along the McIntosh Woods shoreline area. The project consisted of reshaping a portion of the 1,500 ft shoreline and armoring it with native fieldstone. The project contract was awarded in December and work was completed by the end of February. The total project cost was about \$60,000. The CLEAR Project, through donations from Winnebago Industries and other private sources, provided \$10,000 towards the project. Approximately 60 tons of sediment will be kept from entering Clear Lake annually as a result of the shoreline stabilization.



Shoreline Stabilization Project at McIntosh Woods State Park

Clear Lake Water Monitoring Review

Frequent monitoring of Clear Lake's water quality has been taking place since 1998 when the Clear Lake Diagnostic & Feasibility (D&F) Study began. IDNR, Iowa State University, University Hygienic Laboratory, and CLEAR Project have all assisted with sample collection. Samples were collected twice a month from April-October from three sites on Clear Lake each year. The only exception was that from 2000-2003, only one site was sampled three times a year. In addition to lake monitoring, one site at Ventura Marsh and 8 tributary sites were monitored at various times and frequencies since 1998.

The water quality of Clear Lake is degraded by several pollutants that enter the lake from non-point source runoff. In 2005, the Environmental Protection Agency approved a total maximum daily load (TMDL) plan that set numeric targets for nutrient levels, al-

gae concentrations, and water clarity. Those targets are measured by sampling for total phosphorus (TP), chlorophyll a (CHL), and Secchi depth (SD). The recent water monitoring has shown that Clear Lake has been meeting the goals that were established, which is a sign of significant water quality improvements.

	TMDL Goal	2008-2010 Average
TP	<96 ppb	58 ppb
CHL	<33 ppb	22 ppb
SD	>0.7 m	0.75 m

When the recent water monitoring is compared to the 1998-2000 data collected during the Clear Lake D&F Study, a 69% reduction in TP, a 48% reduction in CHL, and a 108% increase in water clarity has occurred.

In addition to in-lake water quality improvements, runoff from the Clear Lake watershed has also shown improve-

ment. In 2010, monitoring of six main Clear Lake tributaries found 61% less phosphorus and 63% less sediment concentrations than what was measured ten years ago. These results indicate that watershed conservation practices have helped significantly reduce nutrient and sediment loading to Clear Lake.

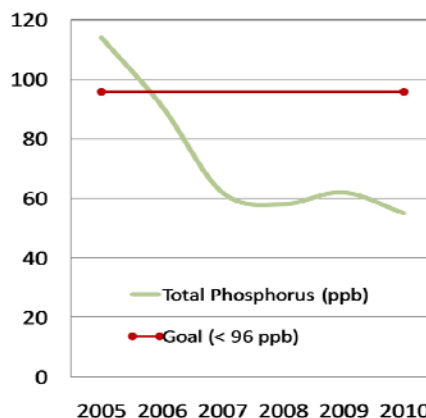
Although many of the original water quality goals are being met, it will be important to continue implementing lake and watershed practices to maintain the current level of water quality and to see greater improvement in water clarity. Continued efforts to reach bacteria loading reduction goals are also needed.



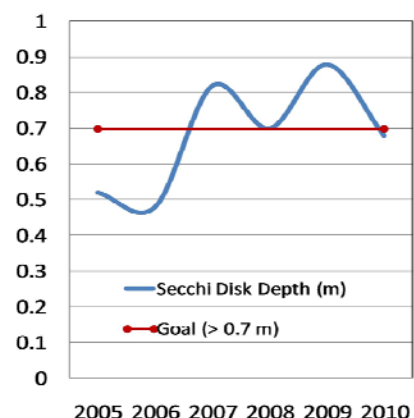
Measuring Secchi Disk Depth

Clear Lake Water Monitoring Graphs

Clear Lake Total Phosphorus (ppb)



Clear Lake Secchi Disk Depth (m)



BMP FOCUS: GRASS WATERWAY

Grassed waterways are areas planted to grass or other permanent vegetative cover where water usually concentrates as it runs off a field. Grass in the waterway slows the water and guides it off the field. The most common areas for waterways are in draws between hills, and other low lying areas on a slope where water concentrates as it runs off a field. Grassed waterways are designed to safely carry runoff water from the area that drains into them to a stable outlet. Small waterways are designed in a parabolic, or dish shape, wide enough and deep enough to carry the peak runoff from a 24-hour storm that would be expected to occur once in 10 years. Most waterways are eligible for the CRP program, providing an annual payment to the landowner. Please contact the CLEAR Project for more information (641)-923-2837x3



Grassed Waterway

LAKE NEWS

Permeable Paver and Rain Garden Funding Available

Looking to enhance the beauty of your property? Interested in doing your part to improve the water quality of Clear Lake? If so, the CLEAR Project may have funding available to help you accomplish those goals. For residences within the Clear Lake watershed, the CLEAR Project can fund up to 75% of the cost of installing urban conservation practices such as permeable pavers and rain gardens.

Rain gardens are specially designed flower gardens that capture runoff from roofs, sidewalks, and other impervious areas on your property. After a rain event, water will be ponded in the garden for a period of 12-24 hours. The gardens use a mixture of soil, compost and sand to encourage storm water to infiltrate rather than run off your property. Storm water is cleansed as it infiltrates into the soil. You can choose a variety of flowers and plants that are tolerant of moist soil to be planted in a rain garden. Rain gardens vary in size, but are roughly ten percent of the area of impervious land that drains into them. The average cost to install a rain garden without cost share funding is about \$10/square foot. Rain

gardens have been installed at about a dozen locations in the watershed to date.



Rain Garden

Permeable paver blocks resemble paver bricks and can be used in place of concrete or asphalt. The soil under the paver blocks is excavated about two feet deep and replaced with a rock subgrade where the storm water can infiltrate into. Sub-drains can be used to facilitate water movement through the system. The cost to install permeable paver blocks without cost share funding is around \$15-\$20/sq foot, depending on the size of the project.



Permeable Paver Blocks

These practices improve water quality by reducing runoff volume and removing contaminants such as nutrients, sediment, and bacteria from storm water runoff. They can be designed to coordinate with your existing landscaping and add an attractive feature to your property. If you are interested in implementing these practices please contact the CLEAR Project (641-923-2837 Ext. 3) for more information, but don't delay as funding is limited and only available until June, 2011.

Another practice to consider is installing rain barrels. Rain barrels capture water from your roof that can be used for watering flowers, gardens, and lawns. They are a great way of conserving water and reducing the amount of runoff leaving your property.

They range in price from less than \$50 to more than \$100 depending on the style. More than one barrel can be linked together to capture more runoff.



Rain Barrel

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