Carter Lake

What really caused excessive plant growth in 2012

Some residents have expressed concern about sudden weed growth starting if we have clearer water. The consensus from other lakes with Water IQ technology is that they have NOT seen new aquatic weed or grass growth in their lakes following clearer water. The only weeds reported are those that existed in the lake prior to treatment.

Most of these concerns stem from the experience of Carter Lake following chemical treatment with alum. Read on for the details of what REALLY happened at Carter Lake.

Why concerns about excessive weed growth with increased clarity at Hawaiian Village are unfounded

Carter Lake had a "Perfect Storm" of events & conditions

- 2010 Total Fish Kill to get rid of "rough fish" (common carp, black bullhead, and buffalo species)
- 2010 Alum Treatments to reduce available phosphorus for algae growth
- 2011 Record flooding of Missouri River
  - Massive groundwater (clear) water into lake (2x exchange)
  - Clarity up to 20'
  - 8' water depth across majority of lake

It is explained in the 2012 Carter Lake Preservation Society Report that it was NOT the alum treatment that was the main factor in weed growth, but rather the unprecedented clarity brought by the 2011 Missouri River flooding. (see following pages)

The Flood of 2011

The summers of 2011 and 2012 were significant in terms of Carter Lake development and change. The most memorable event of 2011 was the record level flooding along the entire Mi sin. From the end of May through the end of August, the M mained at or near historic highs for both water level and water flow through the entire system of dams managed by the Army Corps of Engineers. While a heroic effort by the Corp and the City of Omaha prevented breaches in the levees surrounding Omaha and Council Bluffs, the water pressure was sufficiently high to cause massive ground water seepage into Carter Lake. It was estimated that the flood control pump in Carter Lake removed twice the normal volume of water in the lake during the summer. While there was no immediate flooding in the area, the result was a continuous influx of fresh, clear groundwater into the lake. Combined with the fish kill and alum treatments by the Iowa and Nebraska Departments of Natural Resources the year prior, Carter Lake recorded some of the clearest water ever seen at the lake. Clarity of depths to 20 feet and beyond where measured -- which rivaled the quality of deep, fresh water glacial lakes, such as Lake Okoboji. While looking pristine, the downside of the clarity was an explosive growth of lake weeds and vegetation that virtually choked most of the lake and brought an end to most boating activities throughout the summer and fall of 2011. After the flood threat passed and the river returned to normal levels in the late Fall, the level of the lake gradually fell and the influx of groundwater stabilized.

From the 2012 Carter Lake Preservation Society Report

Due to the massive ground water seepage from the Missouri River flooding…. "combined with the fish kill and alum treatments of the prior year, Carter Lake recorded some of the clearest water ever seen at the lake. Clarity of depths up to 20 feet and beyond were measured—which rivaled the quality of deep, fresh water glacial lakes, such as Lake Okoboji."

Weed Control

It was also during the Summer that action was initiated to control the weed infestation problems that developed during the previous summer. Without the extraordinary inflow of fresh groundwater seen in the Summer of 2011, the clarity of the lake began to return to more normal levels. However, residual weeds continued to clog the canals and most of the lake, jeopardizing yet another year of boating activities. The City of Carter Lake continued to operate the lake weed cutter as it had done the previous year in an effort to reduce weeds in the canals and along the lake front. The Iowa DNR also addressed the problem when it applied an aquatic herbicide to areas of the lake that were going to be dredged.

Realizing that weeds were going to remain a significant problem, the DNR then allowed lake residents to obtain a special permit to have approved chemicals applied by licensed applicators to specific parts of the lake. The Carter Lake Preservation Society joined efforts with several Homeowner Associations and the Silverhawk Ski club to have all of the canals areas and ski course areas treated with the herbicide. CLPS coordinated the project with the contractor and contributed one-half the cost of the application along with each of the HOA's and ski club. Within 2 weeks, the treated areas were clear of weeds. Realizing the success of the program, the Iowa DNR then treated approximately 60 additional acres of the lake to further remove the problem weeds and to open more areas of the lake for boating. With the pump maintaining water levels and the clarity of the water returning to a more balanced state, boating improved and the weed levels of the lake were significantly decreased.

From the 2012 Carter Lake Preservation Society Report

"Without the extraordinary inflow of fresh groundwater seen in Summer of 2011, the clarity of the lake began to return to more normal levels."

"Following treatment with a herbicide, within two weeks, the treated areas were clear of weeds."

"With the pump maintaining water levels and the clarity of the water returning to a more balanced state, boating improved and the weed levels of the lake were significantly decreased.

Carter Lake and Hawaiian Village are also not "Apples to Apples"

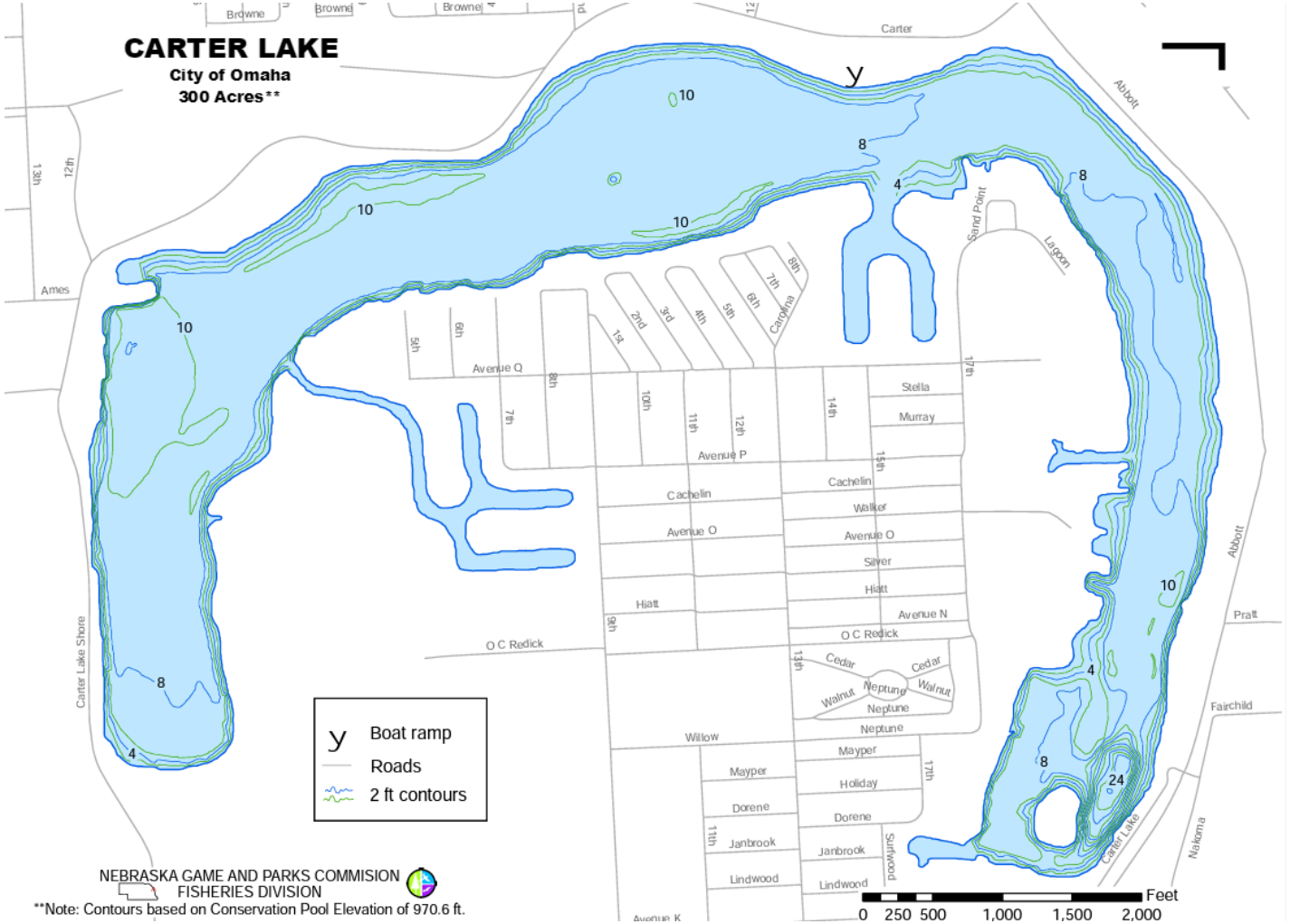
Carter Lake

- Oxbow Lake, 315 acres, formed by & repeatedly flooded since 1877 (150 yrs.)
- Mud bottom, ideal for plant growth (soils are "suited to grass, cultivated crops and windbreak plantings"-2008 Carter Lake Preservation Report).
- On the Nebraska List of Impaired Waters (2006) due to high concentrations of phosphorous, nitrogen, PH, bacteria, and algae (prompting 15 agency response).
- Closed 18 weeks of boating seasons 2004-2006 due to blue-green algae blooms (No Contact Orders).
- Shallow depth (8 ft. throughout most of the lake) contributes to propellers stirring up the bottom & allows sunshine to heat bottom throughout the lake (only one small deep area to exchange cooler water with during annual turnover).
- History of existing aquatic plant growth, especially lily pads (aggressive growth habit).
- Lake recharge/refill comes from underwater springs, stormwater runoff through sewers and overground flow.
- Much of runoff came from industrial use areas, contributing to high mineral concentrations and fish contaminated with PCB's

Hawaiian Village

- Former Sand/Gravel Pit, since 1968 (55 yrs.)
- Sand bottom, manmade, 80 acres
- Depths range 1’-32’, average depth 11.7’, several large, deep pools and numerous mid-level depths for cooler water exchange during turnover.
- No history of invasive aquatic plant growth (our protocols at the boat ramp keep out more than just zebra mussels).
- Lake recharge/refill comes from Platte River, aquifer/springs, and stormwater runoff from residential street sewers and overground from agricultural land.
- No required closures in history of water testing (even after the flood).
- Introduction of excessive nutrients (and silt & debris) during 2019 flood resulting in increased algae blooms we see now.

CARTER LAKE


CARTER LAKE
City of Omaha
300 Acres**
Boat ramp
Roads
2 ft contours
NEBRASKA GAME AND PARKS COMMISION
FISHERIES DIVISION
**Note: Contours based on Conservation Pool Elevation of 970.6 ft.
Feet
0 250 500 1,000 1,500 2,000
Carter
Abbott
Sand Point
Lagoon
Ames
Carter Lake Shore
Avenue Q
Avenue P
Avenue O
Avenue N
Cachelin
Walker
Silver
Hiatt
O C Redick
Willow
Stella
Murray
Cedar
Walnut
Neptune
Mayper
Holliday
Dorene
Janbrook
Lindwood
Surfwood
Pratt
Fairchild
Nakoma
Carter Lake

HAWAIIAN VILLAGE

Other lakes report no increased weed growth

- Lake Cupsaw, NJ- 4 years
- Ginger Cove- 3 years
- Timber Lodge- 4 years
- Valley Shores- 5 months
- Blue Water- 3.5 months
- Timber Shores- 3 months
- Curtis Acres- 3 months
- Riverside- 1.5 months
- Eagle Woods- 1 month
- Willow Bend- 1 month
- Woodcliff (Fishing Lake)- new