

Friends of Green Lake Meeting Notes

October 28, 2008

People Present:

Ron Horning, Marcia Norman, Ellen Hewitt, Kris Fuller, Brian DeLuca, Rob Zissette, Don Torcas, Kevin Stoops, Richard Fleming, Gayle Garman, Martin Muller.

A. Water skiing Issue

On Oct 23, five of 6 Park Commissioners recommended ending the special permit allowing waterskiing on Green Lake (the Board President only votes to break a tie). The Parks Board received and reviewed 170 comments on the issue. On Oct 27, Superintendent Gallagher agreed with the Board and ended the special permit, meaning there are no exceptions to the Seattle Municipal Code: power boats can be on Green Lake only to protect human safety and for rescues. Supt Gallagher sent a Thank-you letter to FOGL, which Ellen put on the website.

B. Milfoil cleanup on Oct 18:

Gayle reported for Karen Schurr that 11 adults and 4 children participated. Donna Kostka of the Board of Park Commissioners also attended and asked about FOGL. The group finished in 1 hour. Parks Dept ground crews picked-up the milfoil the next day. FOGL may sponsor another clean up in early 2009.

C. WA State Lakes Protection Association (WALPA)

FOGL joined WALPA in Sept, and Karen, Gayle and Richard attended the WALPA annual meeting in Oct. WALPA is sponsoring a Lakes Day at the State Legislature on Jan 28 and suggests telephoning on Nov. 10 to make appointments with State reps. WALPA proposals: restrictions on phosphorus use on lawns, and creation of an advisory committee to develop a Lakes strategy for Dept of Ecology.

D. “Green Lake Alum Treatment – Dose for a Decade”

Rob Zissette, Herrera Environmental Consultants

Rob Zissette of Herrera Environmental Consultants, the company that developed the alum treatment strategy for Green Lake, also is a FOGL member. He shared the presentation he made to the WALPA annual meeting. He used monitoring data collected by FOGL since 2003, in addition to other data collected by Kevin Stoops, Harry Gibbons(Tetra Tech) , Gene Welch, Rebecca Dugopolski (Herrera), and Emil Rydin (Uppsala University in Sweden). These data show the Lake has had repeated problems with algae blooms, and that previous alum treatments have been effective for about 5 years. The treatment in 2004 used about 3 times more alum, to bind with more phosphorus and provide a long-term solution for Green Lake. Using this large an alum dose is somewhat experimental. Rob also brought samples of invasive water plants including milfoil and two types of Elodea, (native) canadensis and (invasive) Brazilian for us to see. Milfoil is present in Green Lake, but not the

invasive Elodea. The invasive Elodea is sold for aquariums, so please don't empty freshwater fish tanks into GL. Like milfoil, pieces of Elodea also can be transported from lake to lake on boats.

Notes from Rob Zisette's presentation:

1. History of the Alum Treatment and Green Lake

- a. Watershed/lake characteristics- the main drainage basins are Woodland Park, lake near shore, and Densmore drainage. The Lake is 105ha with a volume of 4.12×10^6 cubic meters. The mean depth is 3.9m with a maximum depth of 9.1m. Water replacement rate is 3-5 years.

2. Lake problems

There have been complaints since 1916 about smell. Blue green algae (cyanobacteria) blooms contribute to both odor and toxicity. The lake has a high internal phosphorous load due to phosphorus build-up in bottom sediments. Waterfowl feces are another source of phosphorous. The 1960's solution was to input massive volumes of drinking water from nearby reservoirs to dilute the Lake. Expense and other demands on drinking water ended this solution. A diagnostic study in 1981 determined phosphorous was the limiting nutrient, controlling cyanobacteria growth. Internal loading accounts for 21% of the annual P load and 88% of the summer P load. One 1980's Plan was to dilute with ground water but samples of groundwater from around the Lake also were high in P. It was suggested that water be pumped to GL from Lake Washington, but no permit could be obtained and it was expensive. A groundwater treatment plant at Woodland Park was suggested, but also deemed too expensive. Alum treatment was thus chosen as the preferred solution.

In the 1990's goals were established to limit P to less than 30ug/L then revised to less than 5ug/L. Average summer Secchi disk depth was to exceed 2.5m. In 1994, alum, and a buffer solution to maintain a pH above 6.0, was applied. The recommended dose was 13.7mg Al/L, but the actual application was 8.6mg Al/L. Water quality improved and met goals for 3-5 years. At the same time, Eurasian milfoil continued to grow. In 1999 algae blooms returned, and the Lake was closed to water contact in the late summer. Closures also occurred in 2002 and 2003.

In 2003, Herrera was contracted by the Parks Dept to do an Alum Treatment Study, which summarized data since 1995. A new dosage was calculated based on jar tests. An Integrated Phosphorous Management System was set up for an NPDES permit. It was decided to focus on treating the top 20cm layer. Alum has a 10% binding efficiency-estimated 18mg Al/L for sediment P and 6mg Al/L for the water column, 24mg Al/L dosage throughout the lake where depths were greater than 5 ft. This large dose was applied in March 2004. Estimated cost was 1.5 million, but the actual cost was 1 million. The treatment is designed to be effective for 10 years.

E. Reports

1. Richard Fleming, Rob, and Kevin report remarkable clarity – 22 ft. The lake is well mixed.
2. Web Master – Ellen Hewitt

Ellen would like some of Rob's graphs to post on the web site.

3. Treasurer's Report.

We had a \$25.00 donation, \$20.00 in t-shirt sales, and \$3.59 in interest.
The savings acct balance as of 9/30/08 was \$3,064.38

4. Kevin Stoops' SPR report

SPR is waiting for lab results from the lake. This summer may be the best clarity he's ever seen. The tennis courts and their parking lot have been rebuilt and "French drains" were installed to reduce runoff by encouraging infiltration into the soil. The south gravel parking lot on the west side of Green Lake Drive has been paved, and the oil/water separator cleaned and new rock added to the vaults. The gravel parking lots contributed sediment laden storm water to the lake through the drainage pipe, which had been noted by Gayle and Richard. The other parking lot will be paved in 2011/2012.

F. Other news

Brian DeLuca said that an owl had been seen several evenings at the south end of the Lake, in trees overhanging the water. Some thought it was a Great Grey Owl, but others thought it was probably a Barred Owl.

The meeting adjourned shortly after 9:00pm.