



Photo from garypiazza.com

A Message from the Partnership's Steering Group

The Vancouver Lake Watershed Partnership made exciting progress in 2012!

The Technical Group made big strides in scoping potential lake management techniques. Techniques were examined for sustainability, expected outcomes, ranges of implementation levels, and the likelihood of each achieving success.

For the first time since the Partnership's formation in 2004, the vision was revisited and initial management objectives were developed for Vancouver Lake. An ad-hoc group conducted this work, which included developing a means to characterize desired levels of beneficial uses of the lake. In 2013 these initial objectives will be developed into specific lake management objectives.

With clearer target conditions for the lake defined, the Technical Group moved forward by testing the process of developing lake management alternatives. By conducting this exercise, the group was able to see how enacting particular management actions under various nutrient conditions would address the initial lake objectives. This was important for preparing the Partnership to carry out the complete process at the end of 2013.

In the fall, the US Geological Survey completed data collection for the critical Water Balance and Nutrient Budget Study and began data analysis. Once the lake's water quality drivers are understood, the Partnership will be able to close 2013 with the recommendation of lake management alternatives.

We extend our thanks to the many members of the Vancouver Lake Watershed Partnership for their time and dedication to this valuable community asset.

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Outreach

Outreach efforts continued during 2012 and allowed us to update the community about Partnership work and to hear from individuals about their thoughts on Vancouver Lake. The Partnership participated in the April EcoFair sponsored by Clark Public Utilities' Stream Team and Clark County Environmental Services. We were able to reach many local citizens at this popular event, as it attracted nearly 700 people interested in local environmental issues. The Partnership also delivered presentations to the Vancouver Wildlife League and Sunrise Rotary. If you are interested in having the Partnership present to your group, contact us through the Partnership's website:

www.vancouverlakepartnership.org.

The US Geological Survey (USGS) completed the second and final year of data collection for the Vancouver Lake Water Balance and Nutrient Budget Study and began analyzing the data. Preliminary data suggests that the volume of water inputs, rather than water quality, is the primary factor controlling lake nutrient dynamics.

Groundwater seeps

In addition to water quality and flow sampling of lake tributaries, USGS identified several small groundwater seeps along the eastern shoreline of the lake. These seeps are only visible during the low lake level periods of late summer. The larger of these seeps had flow ranging from approximately 1 to 6 Liter/sec. USGS also measured groundwater seepage at several locations within the lake. In general, seepage into the lake was very low and much of the lake bottom consists of hard clay which appears to inhibit groundwater flow directly into the lake. USGS sampled the chemistry of groundwater from two seeps and found them to be consistently low in the nutrient nitrate.

Preliminary analysis of groundwater discharge into the lake suggests that it is a minor fraction of both the water volume and nutrient budget as compared to inputs from Lake River, Burnt Bridge Creek, and the flushing channel, and therefore not likely impacting lake water quality at this time.

Turbidity monitoring

In the summer of 2012, USGS staff added turbidity monitoring to their sampling. Continuous turbidity

sensors were installed one foot off the lake bottom in two locations. The data will help uncover if there is a relationship between water turbidity and wind speeds, as measured at the sailing club. If this relationship is statistically significant, USGS will be able to identify when resuspension of lake sediment is important as well as how long these suspension events last.

Sediment nutrient content

USGS also collected lake-bed sediment samples for phosphorus (P) analyses. Phosphorus is often the critical nutrient in cyanobacteria (blue-green algae) blooms. These analyses will identify how much of the sediment-bound P is easily available to fuel phytoplankton growth. A preliminary analysis of the data indicated that a large fraction of the sediment-bound P was in forms not readily available for phytoplankton growth. This indicates that even if resuspension of bed sediment is a common occurrence, it may not be a significant source of P for phytoplankton growth. The average total P was ~ 1mg/g dry sediment, which is low for a eutrophic lake.

Analysis and next steps

USGS will be presenting interim findings from their project during the March 20th Partnership meeting. The information from the USGS study is preliminary at this time and will not be final until analyses are completed and published in the report to the Partnership in late 2013. The research findings will be critical to future management decisions at Vancouver Lake.

Definitions:

Turbidity: The cloudiness of water caused by dissolved or suspended solids. Turbidity is often measured when testing water quality.

Phytoplankton: Microscopic plant-like organisms (algae and cyanobacteria).

Eutrophic: A water body of high nutrient content, which stimulates excessive plant or algal growth.



USGS technician taking water quality readings for dissolved oxygen, temperature, pH, and conductivity from a shallow groundwater well installed at the Vancouver Lake Sailing Club.



USGS technician retrieving turbidity sensor to download data and clean for redeployment.

Vancouver Lake Picnic and Planning Ahead

The September Partnership meeting took place at Vancouver Lake Park, taking advantage of the beautiful lake setting. The informal nature of the meeting included a barbeque dinner, and provided a great opportunity for members and interested citizens to talk about the lake and other pertinent issues.



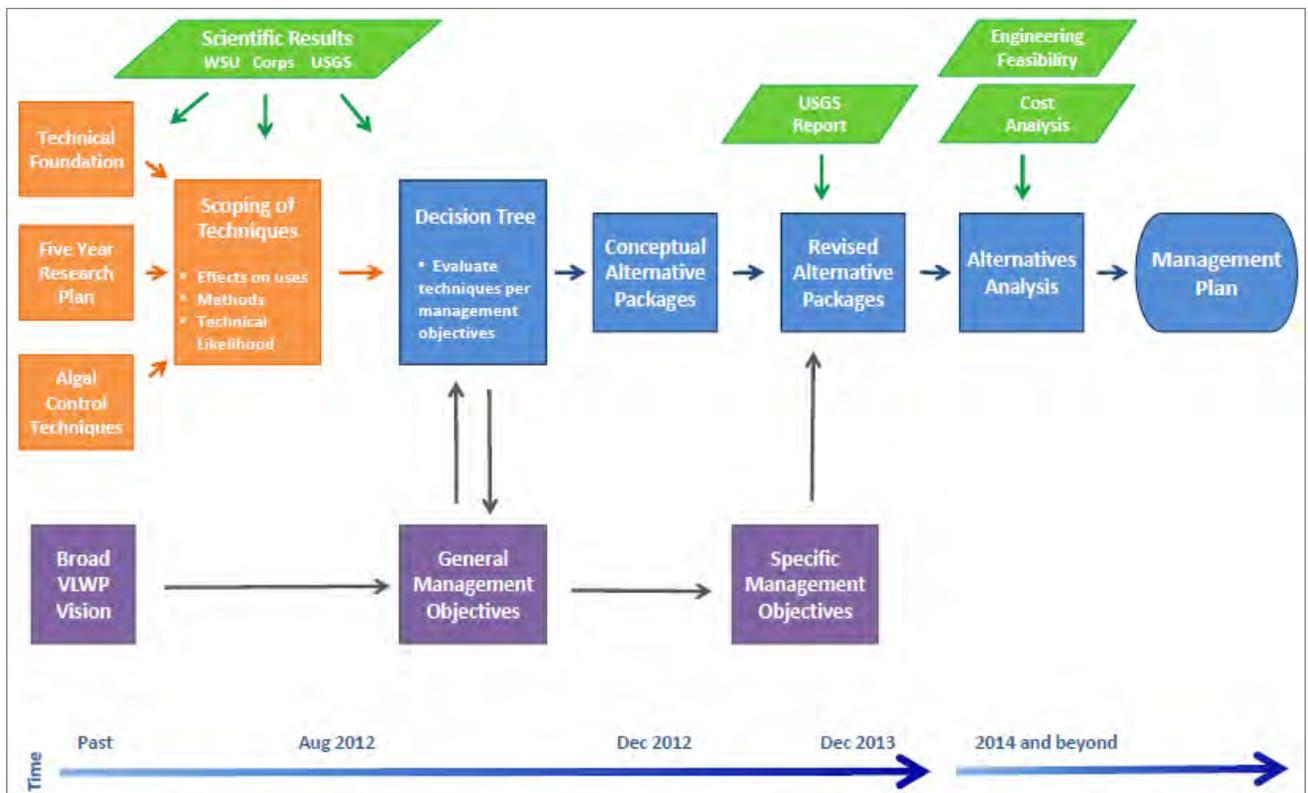
The flowchart below was presented at the September meeting. It describes work the Partnership has completed and the work ahead.

Work completed by the Technical Group is shown in orange. This includes the Technical Foundation, Research Plan, and Algal Control Techniques documents. This past year the Technical Group conducted a scoping of potential management techniques. This entailed looking at their effects on beneficial uses of the lake, developing a narrative to document the common understanding of the methods and scope behind the techniques, and considering the technical likelihood of success.

Areas in green depict research data that informs the process: the research completed by WSU, the Corps, and USGS as well as a research report still to come from USGS late in 2013.

The purple areas in the lower half show the Partnership's work on social aspects – early development of a broad vision for the lake in 2005, 2012 work in development of general management objectives, and the work ahead to develop specific management objectives for the lake.

Areas in blue are informed by all of the other sources for future development of a lake management plan. While working towards such a plan, the conceptual alternatives process was completed by the Technical Group in December 2012. That exercise was a test run in order to better understand the process. As a result, the Partnership is better prepared to go through the process in late 2013 using USGS research findings and specific management objectives. At that time, alternatives will be developed in preparation for feasibility analyses.



Life on Vancouver Lake

There is a lot happening on Vancouver Lake – much of it right at the surface.

Two dynamic community groups that spend countless hours on the lake are Vancouver Lake Sailing Club and Vancouver Lake Crew. These two clubs are noteworthy in that they provide recreational access to the lake for their many vested members as well as for the larger community, offering lessons to boaters of all ages. They also draw many visitors to the area with their regional competitions. They serve as reminders of two of the ways in which Vancouver Lake is important to the community.

Vancouver Lake Sailing Club

The Sailing Club plays an important role in life on the lake. The club provides year-round lake access to its nearly 300 members and hosts regional sailing events. Vancouver Lake is the largest open body of water within a 50-mile radius, making it a prime small sailboat venue.

The four annual regatta events, two of which are youth regattas, draw up to 100 sailors and their families to the lake and have seen people come from as far away as British Columbia, California, and Nevada. In 2012 VLSC ran 251 races, recording over 1400 finishes by over 451 racers.



Vancouver Lake Crew

Rowers from Vancouver Lake Crew can be found skimming the lake's surface throughout the year. This past December the high school team even practiced through a snowstorm! Crew programs are home to nearly 100 local members.

Six different rowing races take place on the lake from April through June. The NW Junior District Championships in May typically bring nearly 2000 high school rowers plus families and coaches. The June Northwest Masters Regional Championships often draw 1000 rowers to the area.

The Vancouver Lake Watershed Partnership was started in 2004 to bring citizen stakeholders together with federal, state, and local public agencies through their mutual interest in Vancouver Lake and its watershed. It was founded by the Port of Vancouver, City of Vancouver Department of Public Works, Vancouver-Clark Parks and Recreation, Clark County Department of Public Works and the Fruit Valley Neighborhood Association.

Citizen Members

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Agency Members

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Port of Vancouver
City of Vancouver Department of Public Works
Vancouver-Clark Parks & Recreation
Clark County Environmental Services
Fruit Valley Neighborhood Association
Clark County Public Health
Port of Ridgefield
Clark Public Utilities

Project Management

PC Trask & Associates, Inc.



For more information please visit the Partnership's website: www.vancouverlakepartnership.org