A Message from the Partnership's Steering Group

The Vancouver Lake Watershed Partnership has had an eventful 2011.

The important research of the US Geological Study entered its second year, examining the water balance and nutrient budget of Vancouver Lake. The findings from this research will be critical in making management decisions for Vancouver Lake.

In the spring, the Technical Group updated the Technical Foundation to include newly available research information and put forth a technical strategy for the Partnership. Later in the year, the project management team and Partnership developed a strategy that identifies potential funding sources for future lake management actions. The project management team also conducted field surveys around the lake edge to identify potential Vancouver Lake wetland enhancement projects.

The year was wrapped up with a major step forward — analyzing potential lake management techniques for their likely effects on the lake's beneficial uses. As the Partnership moves into 2012, there will be more work in this area, narrowing our focus to prepare for a feasibility analysis once this research stage is complete.

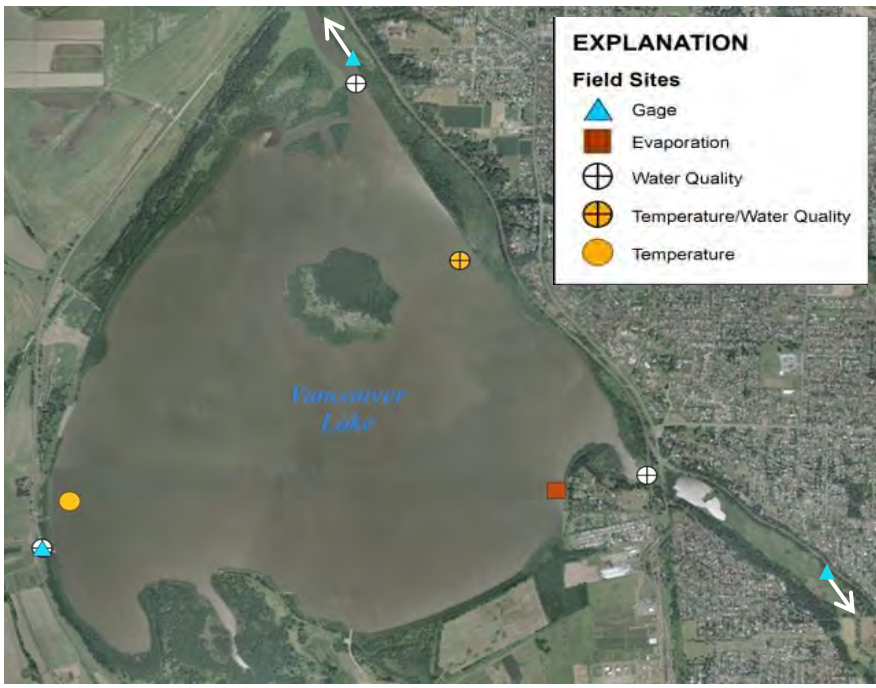
On the public outreach front, the Partnership's biggest event was the Vancouver Lake Cleanup Day on September 17. The cleanup was an overwhelming success, drawing nearly 550 volunteers to participate in improving this community treasure. Partnership staff also completed all high-priority tasks in the 2011 Outreach Plan timeline, including meeting with more local community groups in 2011 than in any previous year. Meeting with these groups, which are truly vested members of the community, allowed for open dialogue and an important exchange of information about the lake.

As always, many thanks need to go to the members of the Vancouver Lake Watershed Partnership for their interest and input over the years as we look to improve this important community resource.

Brian Carlson	Eric LaBrant	Kevin Gray	Patty Boyden	Pete Mayer
City of Vancouver	Fruit Valley Neighborhood	Clark County	Port of Vancouver	Vancouver-Clark Parks

In September, Rich Sheibley of the US Geological Survey briefed the Partnership on the first year of research into Vancouver Lake's Water Balance and Nutrient Budget. The study, which includes two years of sampling, began in September 2010 with the placement of water flow gages. The gages sample flow continually and are telemetered for real time on-line viewing. Water quality sampling began in November 2010. This study is important to lake management because it is critical to understanding the factors affecting water quality and algal blooms in Vancouver Lake.

The map to the right illustrates the locations of the sampling stations.



Water Budget Sampling:

Burnt Bridge Creek: Discharge range since study began: 6-340 cubic feet per second (cfs).
Flushing Channel: Discharge range since study began 0-194 cfs. The lower end (0) cfs is due to the tide gate that prohibits backward flow in this tidal system.
Lake River: Discharge samples have a broad range due to tidal influence, from -2720 cfs to 2890 cfs.
Measurements are also being taken for groundwater seepage within the lake as well as water input from precipitation and output by evaporation.

Water Quality Sampling:

To date, about 90 samples have been collected across all sites. All samples are analyzed for nutrients (various forms of nitrogen (N) and phosphorus (P)) and total suspended sediments. Lake sites have additional analysis, including chlorophyll-a as an indicator of algae concentrations.

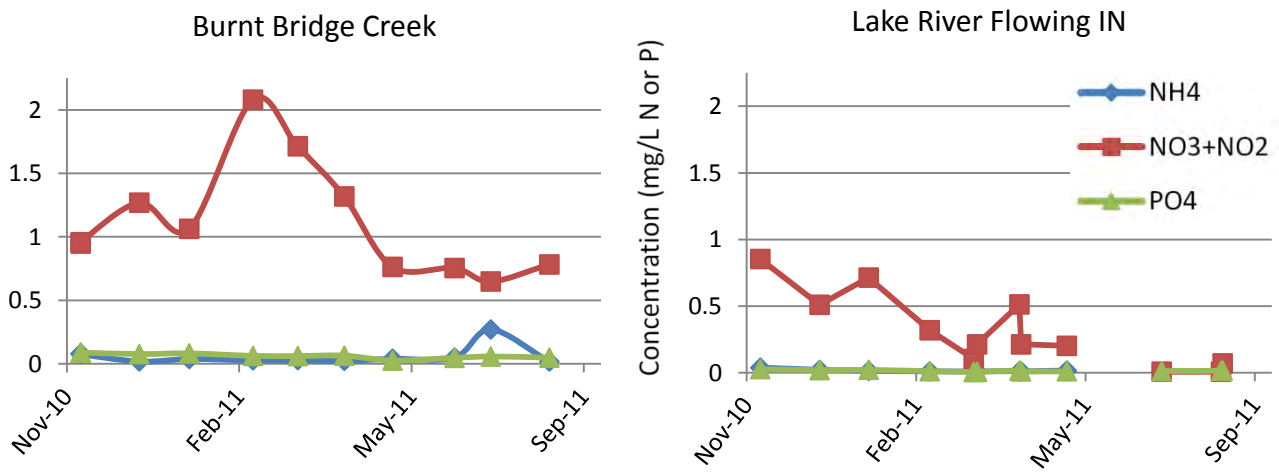
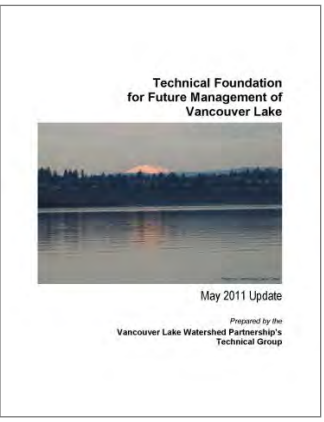


Figure 1. These graphs show concentrations of ammonium (NH4), nitrate with nitrite (NO3+NO2), and phosphate (PO4) from Burnt Bridge Creek and Lake River. Higher levels of nitrate were seen during winter/spring with a decrease in summer. This pattern is typical of a wet winter/spring causing a high runoff of nutrients, and less rain during a sunny summer resulting in low runoff. While Burnt Bridge Creek shows higher concentrations, Lake River may be bringing higher amounts of nutrients due to higher water volume. Also of note, although NO3-NO2 is higher in each graph, it is still to be determined which nutrients are important to algal growth in Vancouver Lake.

Technical Foundation Update



In May, substantive changes were made to the Technical Foundation, incorporating newly available research information. The document was updated throughout, with the most significant addition to the document being a description of the overall technical strategy, including a conceptual model that illustrates the technical strategy and management alternatives selection. Several maps have been added to describe the Vancouver Lake watershed, and a diagram portrays cyanobacteria blooms and lake closures each year due to both E. coli and cyanobacteria.

The Technical Foundation serves as the foundation from which the Partnership develops technical, research, and management strategies. The document identifies and prioritizes studies necessary to understand the forces driving lake function in order to make sound management decisions.

Vancouver Lake Cleanup Day

They say a picture is worth a thousand words, but what about 4,500 pounds of trash and 2,340 pounds of invasive plants?

Nearly 550 people came to Vancouver Lake on a drizzly Saturday, September 17, 2011. Undeterred by weather forecasts, the volunteers gave their time to help remove trash and invasive plants from in and around Vancouver Lake and the greater Vancouver community. The amazing part is that after all of the hard work was over, many people said they had a fun time helping out!

Debris in the lake, some of which created boating hazards, were mapped by Clark County staff with information from the Vancouver Lake Crew prior to the cleanup event. County staff, the Clark County Sheriff's Department, and several members of the Vancouver Sailing Club removed this debris, which could only be reached by boat. County staff returned to the lake to mark with buoys those boating hazards that could not be removed. The buoys will help improve safety for recreational water users and at the many events hosted by both the Vancouver Lake Sailing Club and Vancouver Lake Crew.

This successful cleanup event was held in partnership with the Vancouver Watershed Alliance and SOLV. Volunteers came from throughout the community, including many individuals from the Church of Latter Day Saints and Wells Fargo. The Partnership expresses its utmost thanks to all who were involved!

The efforts at Vancouver Lake were featured on local KGW television and can be viewed at the Partnership's website: www.vancouverlakepartnership.org

Partnership member Thom McConathy pauses before the start of activities next to a map of the day's cleanup areas.

A volunteer makes more room for the large amount of invasive weeds that were pulled during the day.

In-lake cleanup efforts by the Clark County Sheriff's Office and members of the Vancouver Sailing Club helped with both lake safety and aesthetics.

Notes on Life in Vancouver Lake

Jeff Schnabel of Clark County Environmental Services holds a bryozoan colony found during a trip looking at potential wetland restoration sites in the lake.

The summer of 2011 brought good news to lake users with no closures of Vancouver Lake due to cyanobacteria (blue-green algae). In contrast, the lake was closed to swimming and water contact for one week in 2010 and for one month in 2009. Cyanobacteria blooms are natural, but can produce toxins that can be harmful at high levels.

An interesting life form that was witnessed in the lake this year was the bryozoan colony. These jelly-like animals are thought to be indicators of water that is eutrophic (high in nutrients), but of otherwise good water quality. These filter feeders can be eaten by fish, snails, and insects. The specimen pictured on the left was found in the northeast corner of Vancouver Lake. Washington State University Aquatic Ecology Lab researchers and members of Vancouver Lake Crew noted the presence of bryozoans elsewhere around the lake.

Outreach

Community outreach was strong in 2011. Presentations were made to several community groups, including the Salmon Creek Watershed Council; the Felida, West Hazel Dell and Fruit Valley Neighborhood Associations; the Sierra Club, Loo-Wit chapter; and the Vancouver Audubon Society. The presentations have advanced the Partnership's goal of raising community awareness about the lake and the work that is being done, and provide another opportunity to hear from the community.

Planning for 2012 outreach is currently under way. Groups interested in learning more about Vancouver Lake and Partnership activities are asked to contact Eileen Stone of the project management team at eileen@pctrask.com.

Milestones on the Horizon

2012 promises some important results. The Partnership is continuing its analysis of potential management techniques and their likely effects on valued lake uses – things we value about Vancouver Lake.

What will that mean for the end of 2012? A better defined desired target condition for Vancouver Lake with a discrete list of management actions that are most likely to help the Partnership reach that target.

The USGS will complete data collection for the water balance-nutrient budget study in the fall of 2012 and begin analysis. Once this critical information is available from USGS in 2013, the Partnership will be able to further focus in on preferred management techniques for a Vancouver Lake management plan based on science and the desired target condition. This will bring the Partnership to its next stage and the future implementation of solutions.

The Vancouver Lake Watershed Partnership is the result of efforts 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 in 2004 to bring federal, state, and local public agencies with interest and jurisdiction over Vancouver Lake and its watershed, together with citizen stakeholders.

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