September 15, 2010 Meeting Summary
The thirty third meeting of the Vancouver Lake Watershed Partnership was held on Wednesday, September 15, 2010 from 4:00-6:00 pm at the Port of Vancouver Administrative Offices.

Attendance:

Member Present	**Member Seat**
Jacquelin Edwards	Citizen
Nancy Ellifritt	Citizen
Don Jacobs	Citizen
James Meyer	Citizen
Thom McConathy	Citizen
David Page	Citizen
Brian Carlson	City of Vancouver Dept of Public Works
Kevin Gray	Clark County Dept of Environmental Services
Tom Gonzales	Clark County Public Health
Bruce Wiseman	Port of Ridgefield
Patty Boyden	Port of Vancouver
Jeroen Kok	Vancouver-Clark Parks and Recreation (alternate for Pete Mayer)
Iloba Odum	Washington Dept of Ecology

Other Agency Members	**Association:**
Annette Griffy	City of Vancouver
Andrew Ness	Port of Vancouver
Dorie Sutton	City of Vancouver
Jeff Schnabel	Clark County Department of Environmental Services
Christine Webster	Clark County Public Health
Lisa Willis	Port of Vancouver

Public in Attendance:

Lehman Holder	Sierra Club
Vinton Erickson	Citizen
Anita Roberts	Vancouver Lake Crew
Gretchen Rollwagen-Bollens	Washington State University - Vancouver
Rich Sheibley	US Geological Survey
Alan Stewart	Vancouver Lake Crew

Project Management Team:

Phil Trask	PC Trask & Associates, Inc.
Eileen Stone	PC Trask & Associates, Inc.

Not in Attendance:

Member	Member Seat
Gary Kokstis	Citizen
Jane Van Dyke	Citizen
Vernon Veysey	Citizen
Doug Quinn	Clark Public Utilities
Lee McAllister	Fruit Valley Neighborhood Association
Debrah Marriott	Lower Columbia River Estuary Partnership
George Medina	US Army Corps of Engineers
Anne Friesz	Washington Department of Fish and Wildlife
Todd Welker	Washington Department of Natural Resources

Opening of Meeting/Agenda Discussion

The Project Manager opened the meeting by thanking everyone for attending. After reviewing the agenda, Phil asked if there were any changes to the agenda, to which there were none. Introductions were made around the room, with Patty Boyden introducing Lisa Willis as the new Environmental manager for the Port, replacing Jessie Belton. Lisa will assist the Partnership on the technical committee.

Phil introduced the first speaker, Dr. Gretchen Rollwagen-Bollens of Washington State University – Vancouver, and thanked her for coming to provide a presentation on year three of the Plankton Monitoring and Zooplankton Grazing Study in Vancouver Lake.

Washington State University – Vancouver Plankton Monitoring and Zooplankton Grazing Study

Dr. Gretchen Rollwagen-Bollens gave an overview of Washington State University-Vancouver's three year study of the plankton in Vancouver Lake and the food web dynamics in the lake as it relates to cyanobacteria. The study addressed the following key questions:

- What environmental factors influence the formation, persistence, and decline of cyanobacteria blooms in Vancouver Lake?
- What is the impact of organisms that eat cyanobacteria?

In overview, algae and cyanobacteria are consumed by protozoa ("small grazers"). Protozoans are consumed by zooplankton ("large grazers"). Zooplankton also consume cyanobacteria. Both the small and large grazers were found to impact the amount of cyanobacteria in the lake. While the grazers did not prevent a cyanobacteria bloom, they appear to have affected the timing, and possibly size of bloom.

Dr. Gretchen Rollwagen-Bollens recommended the following next steps for the Partnership to increase its understanding of cyanobacteria blooms within the lake and potential management techniques:

- Study the taxonomy (species) of the protozoa and zooplankton affecting blooms within the lake.
- Install instrumentation into the lake to conduct readings on a daily basis.
- Study the role of higher trophic levels on cyanobacteria (e.g.; fish and macro-invertebrates).
- If fish or macroinvertebrates appear to impact blooms, conduct small scale biomanipulation experiments to test impacts in small areas with net exclosures or enclosures.

The presentation was then opened to questions:

Q: What management actions might be appropriate to control cyanobacteria grazers? Especially the small ciliated protozoa?

A: Small ciliates are controlled by larger zooplankton: larger zooplankton are controlled by fish.

Q: Where do these ciliates come from?

A: These are naturally occurring in the lake and in water bodies throughout the region.

Q: Has the flushing channel helped or made cyanobacteria blooms worse, and how has it affected the depth of the lake?

A: Washington State University-Vancouver studies started after the flushing channel was in place, so there isn't data to compare before and after. On lake depth, it sounds as if the depth of the lake hasn't changed dramatically after the flushing channel was installed. Maybe the channel has kept the lake from filling in. In a similar manner, maybe water quality would be worse if there weren't a flushing channel. However, without looking at data we cannot draw conclusions on the impacts of the flushing channel.

Q: There are reports of phages regulating blooms in marine systems; is that something to consider for Vancouver Lake?

A: Phages, or viruses, are a whole other area – the WSU studies have not looked at the role of viruses in regard to cyanobacteria blooms.

With the close of questions, Phil thanked Gretchen for her presentation, and announced that when the final report comes out in the next few weeks it will be posted on the VLWP website. The information presented today will also be posted on the Partnership website. Phil commented that while cyanobacteria in lakes is being studied elsewhere, WSU is getting a lot of attention for their high quality work in Vancouver Lake.

Vancouver Lake Water Balance and Nutrient Budget Study

Phil introduced Rich Sheibley of US Geological Survey (USGS) to the Partnership. USGS is now under contract with the Partnership to study the water balance and nutrient budget of Vancouver Lake. They are in the process of installing equipment installed in the lake to begin research in October.

Rich gave an overview of the study, and how the gages will be set up in each location (flushing channel, Burnt Bridge Creek, and Lake River). The stations will be telemetered so that the data can be accessed at any time by USGS, which will assist in preventing gaps in the data collection. Rich will provide a link to Eileen for posting on the partnership website so all partners and other interested individuals can access the data.

For data collection at the flushing channel, USGS will take over the location of the current Port of Vancouver gage. The antenna has been installed for data transmission. Divers are to install the water quality gage and flow sensor next week, and it will take approximately one week to be up and running.

The Burnt Bridge Creek site is an old USGS data site, which Ecology was using for the data collection it recently completed for the Burnt Bridge Creek TMDL. USGS has installed a stage-sensing stream gage which is now up and running, including an antenna for data transmission. The water quality equipment will be set up where the creek enters the lake.

In Lake River the acoustic flow velocity meter will be installed at the bridge to the Ridgefield Wildlife Refuge. The water quality gage will be located closer to the lake, near the mouth of Lake River.

The water quality sampling will be for nitrogen, phosphorus (both particulate and dissolved), along with specific conductivity, turbidity, temperature, pH, dissolved oxygen, and will take place monthly. Sampling will be more frequent in the summer.

There will be an assessment of evaporation at the same time, with equipment set up at the Sailing Club. Atmospheric deposition of nutrients will also be examined, with a passive deposition collector to estimate nutrient deposition from rainfall. Staff will install and look at results from deposition collectors around the lake, and then compare results to the closest National Atmospheric Deposition Program (NADP) collection sites. If the data are similar the use of collectors at Vancouver Lake may be suspended. If not close, they may continue sampling, or use a correction factor.

Data collection is to take place from October 2010 to October 2012. Rich will come to meetings to give updates on the data from time to time. The information presented today, and the links to the data, will be posted on the Partnership website. The presentation was then opened to questions.

Q: What about looking at the stormwater inputs along Felida Slope?

A: USGS will sample smaller water inputs around the lake on occasion as well. Some of these locations may have small volumes of water but may have high inputs of nutrients.

Q: Are you looking at groundwater, and if so, how are your sampling stations located? Some people think there is a lot of groundwater input between the island and north side of lake.

A: The study will look at the flux of groundwater and the concentration of nutrients on a bimonthly basis. They will first sample several locations to see if there is cross-lake variation in input.

Q: Is the phosphorus study towards beginning or the end of the study?

A: Phosphorus, nitrogen, and temperature will be looked at over the entire time of the study. As USGS collects data, they will present it from time to time, but we need to be careful to not draw conclusions until all data are collected, as rainfall (and subsequent nutrient inputs) can vary greatly over short periods or from year to year.

With the end of questions, Phil thanked Rich for coming to the meeting, and commented on the value of the upcoming work from USGS as well as the completed work from WSU, and how these two studies will help inform management decisions at the lake.

Vancouver Lake Swim Beach Testing, Clark County Public Health

Tom Gonzales opened the presentation by thanking the City of Vancouver, Department of Public Works for funding laboratory costs for *E. coli* and Cyanobacteria cell counts and Washington State Department of Health for funding Cyanobacteria toxin level testing at the swim beach. Tom then introduced Christine Webster, a Clark County Public Health intern from Portland State University (PSU), who worked closely with Marty McGinn of Public Health to collect water samples this summer.

Christine gave the overview of this summer's sampling. Water samples were collected at the swim beach for *E. coli* bacteria, cyanobacteria, dissolved oxygen and other physical tests.

E.coli bacteria
Water samples were collected every two weeks this summer and tested for *E. coli* bacteria. The *E. coli* counts remained low all summer, never approaching the recommended closure levels of 236 colonies per 100 ml.

Cyanobacteria
At the same time, water samples were tested for cyanobacteria. An advisory was issued on August 5th to avoid contact with lake water due to high cell counts, after which lake sampling occurred once a week. (Cell counts of the cyanobacteria *Aphanizomenon* exceeded the World Health Organization (WHO) standard of 100,000 cells/ml.) On August 12 the cyanobacteria numbers had dropped and the advisory was lifted, with the swim beach re-opened to swimming. The cell counts were at zero on August 16th, and remained there through the end of August.

The presentation was then opened to questions:

Q: It seems very unusual to go from very high numbers to zero. Is there any information on that?

A: Such a dramatic change is unusual. Also, sampling at the swim beach had never detected such a high level of *Aphanizomenon* before. Maybe the zooplankton were responsible for the population drop, but it is unknown at this time.

Comment: Vancouver Lake Crew is interested in the potential role of water level and water temperature on cyanobacteria blooms.

With no further questions or comments, Phil thanked Tom and Christine for their presentation to the Partnership. The information presented will be posted on the Partnership website.

Partnership Business

Phil gave an overview of activities by the Project Management Team, currently concentrated on meeting with Partnership members on an individual basis. These meetings are providing valuable insights on the lake values and issues. Among other things, these meetings will help inform the Outreach Plan that Eileen is developing. Eileen will present an overview of the plan later in this meeting.

Phil also commented on the CVTV segment on Vancouver Lake. Members agreed that it was a good overview (under a half-hour) on the lake and related issues. Tom Gonzales remarked that Clark Public Health will have a link to it on their website, which will be very valuable at any time there may be an announcement of a closure of the lake.

Phil provided an overview on the progress the Partnership has made thus far and the importance of outreach in telling others what has been accomplished at the lake. Phil reviewed last year's project management flowchart and the research plan timeline, and discussed how progress has been made although there are still large tasks ahead. The largest gap of information that is not yet planned is a fish study, both for general assessment of species composition and abundance and the potential role of these species in the food web as it relates to cyanobacteria.

In addition to the development of the research plan and the research that has been completed or is beginning, the Partnership has developed three important documents: a vision for the lake, a Technical Foundation, and a report on algal control techniques for lake management. These are significant accomplishments as we work to meet our goal of addressing cyanobacteria blooms in the lake. There is still work to be done, but these serve as a solid foundation as USGS embarks on its work, we prioritize other research needs, and we look to study potential management actions in greater depth.

The Project Management Team will develop a timeline of what the partnership has completed to date. This timeline and the outreach plan that is currently under development will show our current understanding of the lake functions and issues. They will also show what we still need to know in order to move forward in addressing cyanobacteria issues at Vancouver Lake, and the projected timeframe for making management decisions.

Thom McConathy commented that he believes there are additional tasks that should be listed, including looking at the impacts of the flushing channel, Burnt Bridge Creek, and Salmon Creek on the lake, as well as potential phosphorus reduction. He would like to develop his suggestions and have them forwarded to the Partnership. Thom also believes we need to start working on tasks in a more parallel manner. For example, conduct the fish study concurrently with USGS study.

The project management team agreed it would be valuable to conduct a fish study at the same time as the USGS work. This and other studies need to be viewed in terms of the available budget. The Partnership is achieving a lot in these challenging economic times.

Outreach Plan

Eileen Stone presented an outline of the outreach plan she is currently developing. Eileen asked for partners to call or email her with any comments they have that would assist in developing a more thorough outreach plan. The outline presented will be posted on the Partnership website.

Suggestions raised during the meeting were to add Ducks Unlimited to the groups to contact, as well as Friends of Vancouver Lake. The comment was also made that citizen members could assist with giving slideshow presentations, which would leverage the Partnership and would get more people to be involved in delivering information and key messages to the public.

Technical Group Update

Jeff Schnabel remarked that the presentations by WSU and USGS covered a lot of technical ground, and with these studies and the project management contract most of the projected financial resources of the partnership are committed. The Technical Group will be meeting in early October to make recommendations for potential studies in the near and mid-term.

Public Comment/Meeting Closure
Phil opened the floor to general comments and announcements.

Alan Stewart asked about who is responsible for the lake/lake bottom. There is some debris in the lake that he would like to see cleaned up, especially larger debris (steel pipes, rotting boats) that could be harmful to a boater or swimmer. Mr. Stewart offered to take anyone on a tour of the lake if they would like to see what he is speaking about. The project management team said they would follow up with Alan.

Lehman Holder commented that it would be helpful for the project management team to come to a Sierra Club Executive Committee meeting to talk about what has been learned and potential management techniques for Vancouver Lake. The lake is a tremendous asset to the people of Vancouver. Phil and Eileen agreed to follow up with Lehman.

Lisa Willis commented that the City of Vancouver Planning Commission holds speaking events the first Tuesday of each month for presentations on issues of importance to the citizens of Vancouver. It would be a good opportunity to present an overview of Vancouver Lake and the Partnership at one of these events. Eileen will check into this for 2011.

With no further public comment, Phil thanked everyone for coming and brought the meeting to a close.

Next meetings:

Steering Group: The next Steering Group meeting is November 17th at 3:30 pm.

Partnership: The next meeting of the full Partnership is December 15th at 4 pm.

All meetings are at the Port of Vancouver offices.