



July 16, 2008 Meeting Summary

The twenty fourth meeting of the Vancouver Lake Watershed Partnership was held on Wednesday, July 16th, 2008 from 4:00-6:00pm at the Port of Vancouver Administrative Offices.

Attendance:

Member Present	Member Seat
Patty Boyden	Port of Vancouver
Pete Capell	Clark County Department of Public Works
Brian Carlson	City of Vancouver Department of Public Works
Tom Gonzales	Clark County Public Health
Iloba Odum	WA Department of Ecology
Joy Polston-Barnes	WA Department of Natural Resources
Steve Prather	Clark Public Utilities
Tim Rymer	WA Department of Fish and Wildlife
Bruce Wiseman	Port of Ridgefield
Nancy Ellifritt	Citizen
Thom McConathy	Citizen
Gary Kokstis	Citizen
David Page	Citizen

Public in attendance:

Dvija M. Bertish	Citizen (Riverkeeper)
Dick Chandlee	Citizen
Mandy Clark	Citizen
Vinton Erickson	Citizen
Margaret Oscilia	Citizen (PBS Engineering)
Eric Merrit	Citizen (Benthic, LLC.)
Tabitha Reeder	Citizen (JDW/Berger ABAM)
Erik Robinson	Citizen (The Columbian)

Other Agency Members Present:

Jessi Belston	Port of Vancouver
Steve Bollens	Washington State University - Vancouver
Katy Brooks	Port of Vancouver
Loretta Callahan	City of Vancouver Public Works
Tonnie Cummings	WA Department of Ecology
Amanda Dotson	Congressman Baird
Anne Friesz	Dept. of Fish and Wildlife
Annette Griffy	City of Vancouver
George Medina	US Army Corps of Engineers
Andrew Ness	Port of Vancouver
Jerry Oliver	Port of Vancouver Commissioner
Gretchen Rollwagen-Bollens	Washington State University - Vancouver
Earl Roswell	Clark County Public Works

Jeff Schnabel
Dorie Sutton
Rod Swanson
Ron Wierenga
Brian Wolfe

Clark County Public Works
City of Vancouver
Clark County Public Works
Clark County Public Works
Port of Vancouver Commissioner

Project Management Team:

Phil Trask PC Trask & Associates, Inc.
Sabrina Litton PC Trask & Associates, Inc.
Mardy Tremblay Lower Columbia River Estuary Partnership

Introductions

The project manager welcomed the group and said he was happy to see such great attendance. Attendees were asked to introduce themselves and introductions were made around the room.

Agenda/Discussion Topics

The project manager introduced the agenda and asked if there were any changes or additions. There were no modifications.

General Partnership Announcements

Tim Rymer announced that this would be his last Vancouver Lake Watershed Partnership meeting as the agency member from the WA Department of Fish and Wildlife. He said that Anne Friesz would be attending Partnership meetings from now on. The project manager thanked him for his participation in the Partnership and hoped that he would remain in contact.

WSU Update

The project manager introduced Dr. Stephen Bollens and Dr. Gretchen Rollwagen-Bollens from WSU-Vancouver. Dr. Bollens began by stating that WSU appreciates working with the Partnership. He said that WSU - Vancouver makes it a high priority to work with the local community and joining forces with the Partnership this past year has been a great opportunity to do so.

Dr. Bollens provided an overview of basic plankton biology and the different microscopic organisms found in the lake. These include: algae, cyanobacteria, protozoans, zooplankton, and benthic invertebrates. He described the transfer of energy between these organisms and how algae and cyanobacteria draw up nutrients to produce biomass. They are then consumed by protozoans or zooplankton through grazing.

He went on to describe that cyanobacteria blooms often lead to the closing of Vancouver Lake during summer months. To begin understanding these blooms, their research objectives for the first year of sampling were:

1. Determine abundance, distribution and composition of the cyanobacteria in the Lake over a full annual cycle.
2. Initiate preliminary investigations of the biotic and abiotic factors influencing these blooms.
3. Analyze existing data from other studies.

Dr. Bollens showed a slide depicting the eight sampling locations distributed throughout the lake. Quarterly sampling occurred at these distributed locations and the more frequent sampling occurred from the sailing club dock and took place monthly during the winter, semiweekly in the late spring and late fall, and weekly in the summer months.

Results from the quarterly sampling at multiple stations showed that there was little spatial variability in phytoplankton and zooplankton composition and abundance. Dr. Gretchen Rollwagen-Bollens said that this is a helpful result because it indicates that a sample taken from

the sailing club dock is a good representation of what is going on in the lake as a whole. This will simplify sampling strategies in the future. During the past year, cyanobacteria had an extended summer bloom with extremely high abundance. Last year *Anabaena* was the most prolific cyanobacteria present with abundance peaks in late July to early August.

From the more intense sampling regime at the sailing club dock, the data showed several interesting relationships. Multiple graphs were shown depicting yearly phytoplankton and zooplankton abundance broken down into different taxa. Protist grazers (e.g. ciliates and dinoflagellates) may be influencing cyanobacteria blooms. Mesozooplankton grazers (cladocerans, copepods, rotifers) may also be influencing cyanobacteria blooms. These succession patterns were interesting because they suggested that there could be a correlation, however, Dr. Bollens reminded the group that correlation does not necessarily mean causation. Without further study, it is impossible to state the specific cause(s) of blooms and their declines.

One Partnership member asked if other potential bloom influencers were being looked at such as temperature or light. Dr. Bollens replied that water temperature was recorded during sampling, but had not yet been analyzed. They had not looked at the influence of light directly, but they were routinely measuring water clarity or light penetration via Secchi disk depth measurements.

To summarize their findings Dr. Bollens and Dr. Rollwagen-Bollens repeated that there was very little spatial variability of phytoplankton or zooplankton composition and abundance throughout the lake. Cyanobacteria had an extended summer bloom with extremely high abundance and certain protozoan and zooplankton grazers may be influencing the size and duration of cyanobacteria blooms.

They recommended next steps for future cyanobacteria research including:

- Continue abundance monitoring over a second annual cycle at the sailing club dock
- Determine rate processes; the growth and death rates of cyanobacteria
- Integrate plankton work into broader food web and ecosystem dynamics (longer term).

The presentation was then opened up for audience questions.

Does WSU plan to study viruses?

Not at this time as that is beyond the Partnership's current scope. There are many things to look at when investigating viruses and right now it makes more sense to look at other factors influencing blooms.

Are you factoring Lake depth into your data interpretation?

Yes we are taking it into account. The low flushing rate of the lake leads us to believe that it will not be a major factor in cyanobacteria growth and death.

How frequently will sampling occur at the dock throughout the next year?

We have proposed bi-weekly sampling throughout the year with an increase to weekly sampling during the summer bloom season.

Do Columbia River nutrient levels have any affect on the Lake by coming in through the flushing channel?

Dr. Bollens said that his team did not sample Columbia River or flushing channel water. He also noted that they did not see much variability in Lake sampling sites in close proximity to the flushing channel. Moreover, the low flushing rate of the lake (~ 3% per day) makes interactions with the Columbia River an unlikely source of rapid changes (e.g., blooms) in the lake.

Will next years' nutrient experiments be done in the lab or in situ at the lake?

They will primarily be done in the lab at WSU.

What are some sources of nutrients into the Lake?

Possible sources include things such as runoff from the upstream watershed.

Will WSU's work identify the major forms of nitrogen and their sources?

WSU will be looking at nutrients next year in terms of cyanobacteria rate processes in the lake, not their potential sources.

How long will WSU be doing the study and will it prevent the Partnership from doing other technical work?

During this first year WSU was looking at abundance and composition of plankton. This second year they will be looking at cyanobacteria growth and death factors. After two years they will not have all the answers, but they will know a lot more. They are currently building upon a larger base of ecosystem knowledge. Ron Wierenga added that the Partnership knew it would take several years to find out what was causing the cyanobacteria blooms and how to deal with them. The Partnership in the meantime is looking into implementing other studies.

Does the WSU study show where cyanobacteria are getting their nitrogen?

At this time there is no way of identifying exactly where the nitrogen is coming from.

How does Vancouver Lake relate to other lakes with cyanobacteria blooms and is there work being conducted elsewhere that could help the blue-green algae problem? What other companion studies should the Partnership do?

There are a number of studies that suggest that nutrients are a main controlling factor for algae. Other studies suggest that it depends on who the grazers are. The body of literature available on algae blooms is growing but at this time it is conflicted in that there is not one clear cause and solution to algal blooms. There is a surprising degree of uncertainty. While many other lakes experience blooms, it is difficult to generalize across them. There are more differences between lakes with blue-green algae blooms than similarities. Each lake has its own set of factors and influences. Beside nutrients, other areas of study important for the Partnership to investigate are hydrodynamics and that is where the Corps work is very important. There is no silver bullet to this problem of cyanobacteria blooms.

If the nutrients tend to be suspended, are they on the bottom or do they mix within the water?

Dr. Bollens replied yes to all. Vancouver Lake is generally well mixed.

Now that WSU is studying abundance for a second year, what is the likelihood that second year abundance numbers will be similar to the first year? How will this information affect the study of causes of growth and death of the algae?

No two years are exactly alike, but they could be similar. Rate processes can be transferred from year to year however it is difficult to say.

It was noted by one audience member that his home pond has similar problems to Vancouver Lake. With changes in temperature, his pond experiences an increase in algae blooms. He said he had seen success in his pond by treating it with nitrifying bacteria. By encouraging the good bacteria to eat the bad, one kick-starts the natural process.

Ron Wierenga said that the Partnership is looking at different lake management techniques and the science behind them. Patty asked what the longer term plan is. Dr. Bollens noted that the work WSU is doing should not preclude the Partnership from doing other technical work.

It was said by one audience member that the Columbia River should be monitored as well since it provides water to the Lake. Dr. Bollens replied that WSU does not have the resources to sample the Columbia River at this time. Ron Wierenga added that from what he has seen in available literature so far, the influence from the Columbia is relatively minor (note the lake flushing rate referenced above).

The Partnership thanked Dr. Stephen Bollens and Dr. Gretchen Rollwagen-Bollens for their presentation today and for making a complicated subject matter easy to understand.

Tech Group Update

The project manager said the Tech Group met in early June and will be meeting again in August to work on the Technical Foundation document. They plan to have a draft to the Steering Group in August for initial review.

PIO Update

The PIO Group and the project manager met last week to discuss outreach meetings with local officials and legislators to prepare them for the upcoming legislative ask.

Public Comment

One audience member mentioned the dredging at Alcoa. He said that contaminated suspended sediment caused by the dredging could get into the Lake through the flushing channel. He said the window to address this concern is closing quickly. Patty noted that the cleanup work being done by Alcoa is overseen by Ecology. She added that the Port of Vancouver is working on purchasing the land and will buy the land clean. It was asked if the Port of Vancouver could close the flushing channel gate to the Lake during dredging.

Next Steps/Close

The next Partnership meeting will be August 20th and the Corps will give a presentation summarizing the results of their feasibility study. The project manager thanked everyone for coming and closed the meeting.

Next Meetings:

Steering Group Meeting on August 6th 2008
Full Partnership Meeting on August 20th 2008