

**BURNS BOG ECOLOGICAL CONSERVANCY AREA  
SCIENTIFIC ADVISORY PANEL MEETING  
Tuesday, November 17 2009 from 4:30 – 7:30 PM  
Parks West Area Office, #130 – 1200 West 73<sup>rd</sup>, Vancouver BC**

**MEETING NOTES**

**ATTENDEES:**

Dr. John Jeglum, Scientific Advisory Panel  
Dr. Paul Whitfield, Scientific Advisory Panel  
Allan Dakin, Scientific Advisory Panel  
Dr. Richard Hebda, Scientific Advisory Panel (via conference call)  
Angela Danyluk, Corporation of Delta  
Sarah Howie, Corporation of Delta  
Cassandra Counce, BC Ministry of Environment  
*Chair*, Mitch Sokalski, Metro Vancouver Regional Parks  
Greg Paris, Metro Vancouver Regional Parks  
Markus Merkens, Metro Vancouver Regional Parks  
Wendy Warn, Metro Vancouver Regional Park  
Heather Sinclair, Metro Vancouver Regional Parks

**REGRETS:**

Dr. Hamish Kimmins, Scientific Advisory Panel  
Jennifer McGuire, BC Ministry of Environment  
Mike Brotherston, Corporation of Delta  
Loger Aure, Metro Vancouver Regional Parks

**1.0 INTRODUCTIONS**

**2.0 REVIEW AGENDA & OCT 13 2009 MEETING NOTES**

**3.0 ACTION ITEMS FROM LAST MEETING**

- 3.1 Mike Brotherston will follow up with Delta Council regarding a presentation by the SAP in the New Year.
- Angela Danyluk reported on behalf of Mike Brotherston that Delta Council has indicated they would like SAP to deliver a workshop of approximately 30-60 minutes prior to a council meeting
  - Council meetings take place Monday afternoons and the workshop would be held at the beginning, likely sometime between 4:00 pm – 5:30 pm; could hold SAP meeting immediately following the workshop
  - Suggested content includes a high-level overview of the BBECA, key strategies and elements of the restoration process, and the role of SAP followed by a question and answer period
  - It was also suggested that an information package be provided to the councillors prior to the meeting as background material; this would include a summary of the BBECA Management Plan, visuals pertaining to BBECA issues, and publications (as evidence of credible, peer-reviewed literature resulting from BBECA research)
  - It was suggested that Richard provide a high-level overview of the BBECA, including issues and challenges

***ACTION: Metro Vancouver staff will work with SAP and Angela Danyluk to create the information package to go to Delta Council.***

3.2 Metro Vancouver to compose a letter to Delta with discussion notes regarding Vancouver Landfill Capping issues as per Delta's letter. – **Completed Oct. 21 2009**

- Delta has responded indicating that the letter was recently received
- Angela indicated that the letter would receive a reading at the November 23 2009 Council meeting
- SAP members expressed several continuing concerns regarding the capping of the landfill not related to the biosolids proposal, including compression, depression, and the amount of mineralized run-off into the double ditch and the potential for spill-over into the Bog

***ACTION: Metro Vancouver staff will extend an invitation to the City of Vancouver engineers working on the landfill capping process to discuss the issues with SAP at a future meeting.***

#### **4.0 POTENTIAL MICROBIAL RESEARCH ON BOG PEAT**

- Richard Hebda was approached by University of Victoria microbiologist Real Roy regarding a potential study of mutual interest to him and to SAP regarding methanogenic and methane oxidizing bacteria in Burns Bog
- Many of the characteristics of the acrotelm-catotelm transition are not well understood, but methane may play a critical role in converting pervious acrotelm to impervious or weakly pervious catotelm and inventory of bacteria at the interface may provide valuable data to help describe bog function
- This study would help to determine which bacteria are present, where they are being produced and what roles they play
- Determining such information could lead to a larger, more strategic study given that it has broad implications
- Some SAP members expressed concerns regarding sampling techniques and timelines, including how to account for seasonal water-level fluctuation and how to extract samples without core holes impacting the Bog chemistry
- Richard noted that this potential study is in the very early stages, and much input would be sought from SAP and others regarding experiment design given that Real is not an expert on the Bog; however, Real has considerable experience conducting this type of sampling
- This experiment would involve probing the DNA of bacterial species in the Bog seeking genes active in consuming or creating methane and running DNA sequences against existing databases, and describing (perhaps for the first time) what bacteria are living there
- The field study would be accompanied by plating of the bacteria sampled from the Bog to determine which methane-producing bacteria are present
- This study would hopefully determine the role of methane-producing bacteria in the formation of catotelm and also identify the differences between degraded peat versus functioning peat
- It could also potentially determine whether these bacteria could be used to establish/expedite the restoration process or whether it is necessary to simply wait the 100+ years it would take for the Bog to repair itself
- John stated that research in this area has taken place in Sweden and suggested that Real contact Swedish researcher Mats Nilsson for consultation on designing this potential study

- Richard stated that the primary contribution that Real would provide to the Bog research would be linking function to organisms by focusing on the acrotelm-catotelm boundary and whether microbes play a critical/important role in the transition
- Real has been interested in conducting research in the Bog for some time and if Metro Vancouver will contribute to the study he is willing to raise the additional funds
- Mitch posed the question of whether this study would fit into the research strategy and how it would rank in terms of priority of funding, to which the SAP members responded that they would need more information before committing, but that the study has good potential
- SAP recommended it could ideally be tied in with researching greenhouse gas emissions using flux towers, which could provide greater access to funding and a higher profile for Burns Bog on the world map

***ACTION: Richard will respond positively to Real Roy and pass on the contact information for Mats Nilsson as well as recommend reading to augment his knowledge of Bogs while working with Real to further refine the proposed study. Proposal not approved at this time.***

## 5.0 PRINCESS FARMS LAGG EXPERIMENT

- Markus reiterated that, as discussed at the previous meeting, there is the potential to design a lagg experiment at the Princess Farms site
- The contractor, Matcon, wants direction on sign-off on the removal of woodwaste encroachment at the south-east corner of the BBECA; Matcon may be willing to dig some preliminary ditches and ponds
- Markus also stated that if we act quickly there are Metro Vancouver funds that could be used, but the work must take place prior to the end of this calendar year

***ACTION: Markus and Sarah will draft a lagg design proposal and present it to the SAP for review prior to submission to Matcon.***

- The SAP pointed out that baseline data needs to be collected and the characteristics of the area, such as the direction of water flow, need to be established
- SAP also noted that the questions the study is to answer need to be defined and a plan established for ongoing monitoring
- Markus suggested that the MV funds might be best used in data collection to ensure that they are used in time
- SAP suggested it might be possible to complete some construction in the allocated time by building in flexibility
- One possibility would be building a quasi double ditch or a series of ponds with outlet controls, with water chemistry determining the direction of flow
- SAP members indicated they would like to perform a site visit once they have received the design proposal

## 6.0 INFORMATION ITEMS

- LiDAR Data
  - SAP noted that the pixelated LiDAR maps indicated that a large portion of the watershed, perhaps 18-20%, drains toward 96th avenue
  - The Bog is clearly domed to the East, South, and West but not to the North, which is where there are major drainage issues and serious concerns about the SFPR's impact
- Chemistry

- Sarah and an honours student have completed their first year of research regarding identifying the transition between bog and non-bog areas in the BBECA
- They followed the SAP's recommended protocol of taking water only from the acrotelm using pipes
- Richard questioned whether SFPR is sampling to determine if there is mineral enrichment as a result of their project and expressed concern that there has been no communication from them for a long period of time
- Greg noted that he had received the LiDAR, ortho and cross-sectional data from Gateway and is currently working his way through the data to determine the next steps
- John raised the question of whether the remediation SAP requested for the Northern boundary has been addressed
- Cassandra indicated that Ministry of Transportation may take over that aspect, but a final decision has not been made
- Paul stated that Ministry of Environment is also very concerned and had asked for the same areas to be addressed because small mistakes on Gateway's part could be catastrophic for the surrounding area
- The SAP noted that Sarah's data map showed clearly the original oval-shaped raised dome of the bog and the impact of peat harvesting and other human activity

***ACTION: Metro Vancouver will follow up with Gateway as soon as possible to try to get further information and arrange an in-person meeting to address the issues.***

## 7.0 PEAT SAMPLER

7.1 John provided demonstrations of two varieties of peat samplers

***ACTION: Wendy will have two samplers constructed for MV/Delta. Wendy to hold equipment and return to John.***

## 8.0 OTHER BUSINESS

8.1 Previously proposed Sphagnum workshop

- Markus is still working on the planning; he has not yet heard back from the proposed presenter
- Markus asked whether it should take place in the field or in the lab; SAP suggested they could participate in the collection in the field and then analyze the collected samples in the lab

8.2 Allan raised the possibility of constructing a research cell in the Bog (future project)

- This would involve isolating a "typical" sample of the type the SAP wants to restore and controlling such variables as water level and evaluating processes such as evapotranspiration and methane release
- Would require baseline data from non-isolated control
- The possibility could be raised with Richard and Real as a potential follow-up to their proposed research described earlier

## 9.0 MEETING ADJOURNED

9.1 Next Meeting: February 1, 2010 – Location and agenda to be confirmed