



**REGIONAL WATERSHEDS ADVISORY BOARD
MEETING MINUTES
August 10, 2016**

PRESENT: Mr. Walter Regan, Chair
Ms. Kelly Schnare, Vice Chair
Ms. Darlene Fenton
Mr. Russell Dmytriw

REGRETS: Mrs. Jennifer Rocard
Dr. Iain Taylor
Mr. Pierre Clement

STAFF: Cameron Deacoff, Environmental Performance Officer
Jane Crosby, Legislative Support

The following does not represent a verbatim record of the proceedings of this meeting.

*The agenda, supporting documents, and information items circulated to the Board are available online:
<http://www.halifax.ca/boardscom/rwab/index.html>*

The meeting was called to order at 5:02 p.m., and the Board adjourned at 7:00 p.m.

1. CALL TO ORDER

The Chair called the meeting to order at 5:02 p.m. in the Maxine Tynes Room, 2nd floor, Alderney Public Library, 60 Alderney Drive, Dartmouth.

2. APPROVAL OF MINUTES – April 13, 2016

MOVED by Ms. Fenton, seconded by Mr. Dmytriv

THAT the minutes of April 13, 2016, be approved as circulated.

MOTION PUT AND PASSED.

3. APPROVAL OF THE ORDER OF BUSINESS AND APPROVAL OF ADDITIONS AND DELETIONS

MOVED by Mr. Dmytriv, seconded by Ms. Fenton

THAT the agenda be approved as presented.

MOTION PUT AND PASSED.

- 4. BUSINESS ARISING OUT OF THE MINUTES – NONE**
- 5. CALL FOR DECLARATION OF CONFLICT OF INTEREST – NONE**
- 6. CONSIDERATION OF DEFERRED BUSINESS – NONE**

7. CORRESPONDENCE, PETITIONS & DELEGATIONS

7.1 Correspondence

7.1.1 Wendy MacDonald dated June 29, 2016 re: water quality of Kearney Lake

The Board received Ms. MacDonald's correspondence.

7.1.2 Bob MacDonald dated July 5, 2016 re: water quality Birch Cove Lakes Watershed

The Board received Mr. MacDonald's correspondence.

8. INFORMATION ITEMS BROUGHT FORWARD – NONE

9. REPORTS/DISCUSSION

**9.1. Paper Mill Lake Watershed Assessment Study Objectives and Outline
(Rick Scott and Eva Mooers, Dalhousie University)**

Mr. Rob Jamieson from Dalhousie University introduced himself and other members of the team from the Centre for Water Resources including Mr. Rick Scott, Ms. Eva Mooers, Ms. Jenny Hayward, and Ms. Maddie Smith. He indicated that they would be providing the Board with an update on the Paper Mill Lake Watershed Assessment and that feedback from the Board would be beneficial for their final report. Mr. Jamieson added that their goal is to have a draft report completed by September 7, 2016.

Ms. Schnare arrived at 5:06 p.m.

Mr. Jamieson presented the scope of work noting that it was to identify sources of phosphorous to Paper Mill Lake and Kearney Lake, and to design a water quality monitoring program for the Bedford West Subdivision to track phosphorous loading.

Mr. Jamieson explained that the team working on the project decided to do some additional water quality testing. Mr. Jamieson presented a map and noted that the team collected several samples from deep stations, outlets and shorelines on both Paper Mill and Kearney Lake. In addition, the team decided to conduct a "data mine" on HRM's water quality database, and completed phosphorous loading modeling.

A map of the Paper Mill Lake watershed was presented. Aerial photos comparing development in 2005 to 2016 were also presented to the Board. It was noted that the water quality in this watershed show an upward trend in total phosphorous concentrations.

Mr. Jamieson noted that the major sources of phosphorous were upstream. The Board entered into discussion on the various sources of phosphorous and the modeling used for identifying sources of phosphorous. Ms. Fenton inquired about sewer overflows that would have occurred at pumping stations. Mr. Dmytriw noted that those incidents would have been difficult to quantify. Mr. Jamieson explained that they used a steady state model and that they were assuming the worst case scenario. Mr. Jamieson added that according to the modelling the potential impact of sewer overflow may be greater than construction activity. He noted that assumptions were made for this modelling and it is believed that phosphorous could be as much as 25 percent from sewer overflows. Mr. Dmytriw asked if they had spoken to Halifax Water about information or validation on overflows. Mr. Jamieson responded that they had contacted them but have not received any information from them to date. Mr. Dmytriw noted that this is an important aspect of the work.

Mr. Jamieson discussed some of the uncertainty in the sources of phosphorous to Paper Mill Lake. He indicated that they looked at the quarry in the area, residential and commercial operations and septic systems. He noted that septic systems are potentially the largest source of phosphorous. He explained that the residential land use coefficient really stuck out in their study.

Mr. Jamieson explained that they looked at the draining and refilling of Paper Mill Lake for dam work. He noted the lake was drawn down for the three consecutive summers, and explained the increased velocity in a channel through the lake could potentially drag sediment along. Mr. Jamieson noted that there isn't much research on this but theoretically there are mechanisms that could have brought phosphorous in however there is no data to back this up. The Board entered a brief discussion on draining and refilling lakes and the potential impact on phosphorous levels.

Mr. Jamieson noted there is a lot of uncertainty with phosphorous coming from residential uses. Ms. Fenton inquired if there was any information on malfunctioning septic systems. Mr. Jamieson responded that they did not. The Chair asked if the team did any spot testing on any of the brooks or streams feeding into the lakes. Mr. Jamieson responded that they did not. Mr. Deacoff explained that the team had access to the water quality data from HRM and noted that one of the stations along Black Duck Brook seems to have the highest phosphorous concentration however the reason is unknown. Mr. Dmytriw noted that the septic systems upstream of this site are relatively new. Mr. Jamieson added that some septic systems only take about eight (8) years before there is breakthrough of phosphorous.

Mr. Jamieson presented information on internal loading and explained the modelling used. The team determined that the predicted loading was small and would not play a significant role. They recommend tracking internal loading moving forward, in particular the anoxic area that was noted on a map. Mr. Jamieson presented initial information on a potential monitoring program for the Bedford West area. He noted that there would have to be several spots for testing to really identify where the phosphorous is coming from. Using an auto-sampler was discussed; however the cost was noted as being very high, and therefore rather impractical for the entire site. Mr. Jamieson explained that a scaled back monitoring program might be more feasible.

Mr. Jamieson discussed how the trophic state of waterbodies in the Paper Mill Lake watershed should be monitored. He explained that total phosphorous is most commonly used as a measure across Canada to define trophic state. He noted that this is based on a well-documented relationship between total phosphorous and chlorophyll A. He added that there are also several other factors that influence the trophic status of a lake.

Mr. Jamieson explained that the team reviewed what is being done in other jurisdictions for monitoring the trophic state. He noted the monitoring under the EU Water Directive. Mr. Jamieson explained that chlorophyll A is really the best indicator for trophic status. The Board entered into discussion on using chlorophyll A as an indicator of trophic state. It was noted that chlorophyll A needs to be sampled more frequently than total phosphorous. Mr. Jamieson explained that the team recommends using the chlorophyll A as a primary trophic state metric, but continue to use total phosphorous as an early warning and diagnostic tool. The Chair inquired about gauging stations and Mr. Jamieson recommends having one dedicated station. Mr. Jamieson also recommends using some sort of secondary biological monitoring approach.

The team presented identified issues with current development regulations. Mr. Jamieson talked about the practicality of some of measures for enforcing good practices with development to ensure trophic status is not impacted. He noted that using changes in trophic status and tying it to a particular development is not very practically as it is difficult to make that connection. He explained that the most rational approach is for the municipality to go back to continually monitoring trophic status.

Mr. Jamieson briefly presented the factors that would influence trophic state and recreational uses for these lakes. These include, flushing rates, climate change, colour/dissolved organic carbon, and hydro-modification. He also addressed the consequences of adopting different water quality thresholds. He explained that the report would address how a change in trophic state would influence aquatic life. Mr. Dmytriw asked for clarification on adopting different thresholds. Mr. Jamieson explained that he interpreted it as the target trophic status changing from oligotrophic to mesotrophic.

Mr. Deacoff explained that the municipality does not wish to see an increase in total phosphorous above a defined level. Should these levels persist, as is the case with Bedford West, there must be assessment completed to determine a direction to take. There was a brief discussion on the current trigger levels and whether they should be retained. Mr. Dmytriw expressed concern over the use of the term "trigger level" and suggested that it should be rephrased.

Mr. Jamieson concluded the presentation and the Board entered into discussion. Ms. Fenton mentioned opportunities for partnership with the academic community for sampling and monitoring. It was noted that it is important for the developers to be aware of water quality. Malfunctioning septic systems were discussed as they are a contributing factor to change in water quality. It was noted that it is difficult to prove these types of problems and that much of the general public is not aware of how septic systems should be maintained. The Board noted that wastewater management districts would be beneficial.

Mr. Dmytriw noted that using chlorophyll a as a measure expensive and that using total phosphorous as a handle is much easier. In response, Mr. Jamieson believed that chlorophyll A is a better measure and that total phosphorous is not always a clear measure. Ms. Schnare asked if the team could look into examples across Canada of how water quality is monitored successfully.

The Board thanked Mr. Jamieson and his team for the presentation.

10. ADDED ITEMS – NONE

11. DATE OF NEXT MEETING – September 14, 2016

12. ADJOURNMENT

The meeting adjourned at 7:00pm

Jane Crosby
Legislative Support

INFORMATION ITEMS – NONE