

Sturgeon Bay Water Quality Action Group

Summary of Meeting – September 7, 2005

Participants: Liza Vandermeer MOE
Eric McIntyre, MNR
Dr. Karl Schiefer
Duncan Boyd, MOE
Greg Mason, TOA
Ken Gibson, MOE
Catherine Whiting, NBPSDHU
Steve Kaegi, TOA
Ted Briggs, MOE
Rod Sein, MOE
Larry Taylor, MDM
Ngan Diepe, MOE
John Cochrane, TOA
Neil Gervais, MOE
Peter Jekel, NBPSDHU
Terry Desmasdon, TOA
Sue Watson, EC
Janette Anderson, EC

Participant Updates:

Ken Gibson (MOE) reported that no microcystin had been detected in the treated water at the Community Centre – testing done through the **Drinking Water Surveillance Program (DWSP)**

Catherine Whiting (NBDHU) reported on meeting held between Twp, MOE, and North Bay District Health Unit that took place at end of July. Public notice, warning of potential algae bloom released in mid August to all ratepayers surrounding Sturgeon Bay. Public Advisory Notice has been prepared for release in case of blue-green algae bloom in Sturgeon Bay. Pursuing criteria for determination of safety of drinking water.

Eric McIntyre (MNR) reported that MNR will be undertaking a nearshore community netting index, evaluation of fish communities in Sturgeon Bay in the next two weeks and will report on findings at next meeting.

Township will be undertaking sediment coring in deep basin to gain an historical perspective. Coring is to take place in mid-september. This is being done with the guidance and support of Dr. Karl Schiefer, Andrew Patterson (MOE), and Queens University and partially funded from the Ministry of Natural Resources.

Presentations:

The following presentations were given by way of update and provision of information:

- Dr. Karl Schiefer – Winter Water Chemistry of Sturgeon Bay
- Dr. Susan Watson – Summary of phytoplankton results from MOE Lake Partner Expanded program (Thanks to Susan for volunteering to do this)
- Dr. Karl Schiefer – overview of Solar Bee technology

Discussion Summary resulting from presentations:

One of the purposes of the meeting was to discuss the viability of Solar Bee technology for implementation into Sturgeon Bay to facilitate disruption of Blue-Green Algae. The following points were raised as questions about this technology and the state of Sturgeon Bay:

- Solar Bees would not, in their recommended format, result in break down of hypolimnion thus would not stop release of phosphorus from the sediments
- Would Solar Bees disrupt all forms of blue-green algae but may result in a species shift to other forms of toxic algae which favour turbulent water. They appear to be specific to a few taxa.
- If Solar Bees were successful at disrupting blue-green what might be the unintended consequences (i.e. change in species of algae, increased weed growth, increased suspension of sediments in shallow areas etc..)
- Typically, Solar Bees are most efficient in small lakes – their applicability in larger areas like Sturgeon Bay is untested.

OUTCOMES:

- 1) Group to send a list of their potential issues/questions with Solar Bees to TOA.
- 2) Group recommended that Solar Bee address issues in a more detailed proposal which would better explore the current and anticipated biological status (including trends in nutrients, algae, and macrophytes).
- 3) Group to provide TOA with an understanding of the possible legislative requirements needed for Solar Bee implementation or similar approach.

Additionally, a considerable portion of the meeting was spent discussing the status of Sturgeon Bay and the science required to fully understand what is happening in Sturgeon Bay. The Solar Bee technology was often used as a counter point to illustrate the need for this science. A summary of the points made includes:

- insufficient sampling was done to adequately characterize phytoplankton results and determine any real conclusions
- need to establish what the priorities and goals are for Sturgeon Bay (i.e. the goal to disrupt blue-green algae blooms is different than the goal of nutrient management to improve water clarity)
- Need to clarify what kind of phosphorus is being released, from what sources, and in what amounts

OUTCOMES

A summary of the meeting culminated in a return to the original remediation plan developed by the Township for discussion by SBWAG. The discussion highlighted the remediation plan and added to it in the following manner and approximate order:

PHASE 1:

1. Gain Historical Perspective (Sediment coring of deep basin)
This would provide a means of determining how much time and energy should be put into a nutrient budget for Sturgeon Bay. It will also help to determine what goals for Sturgeon Bay water quality might be achievable (i.e. to what degree is nutrient management possible?)
2. Phytoplankton Study and Water Quality Monitoring
In order to measure success of any remediation measure you need to first have a good understanding of the pre-intervention state of Sturgeon Bay. A monitoring program needs to be established so that it can continue prior to (for a number of years) and after (for a number of years) intervention.
3. Fish Study – MNR

PHASE 2:

1. Nutrient Budget of Sturgeon Bay Watershed
The scope of a nutrient budget would depend on the outcome of the sediment coring and a clearer understanding of the goals of remediation. Once the nutrient budget was established it could be used to determine the best approach to remediate Sturgeon Bay and mitigate impacts of future algae blooms.
2. Hydrologic Study

PHASE 3:

Remediation Alternatives Assessment

Using the Hydrologic Study and Nutrient Budget, intervention methods can be modeled to help understand the potential outcomes (and unintended consequences) of the various remediation options. Because the ultimate strategy for Sturgeon Bay is likely to be a multi-pronged approach including Source Management and In-lake Remediation this Assessment should help to better clarify how much time and energy should be spent on the various components of the strategy.

PHASE 4:

Remediation Implementation and Monitoring

Implementation of a strategy to remediate Sturgeon Bay waters and mitigate impacts of algal blooms would be done in conjunction with continued monitoring of water chemistry, phytoplankton, and

macrophytes. NOTE: A remediation measure may be installed in advance of Phase 4 in a manner more similar to a "research and study" approach.

Commitments from the group:

- a number of parties agreed to meet in order to clearly establish what should be monitored and how this might be accomplished (resource and staffing etc) (MOE, Env. Can.)