

Manuscript: Impacts on Upper Great Lakes Water Levels: St. Clair River, Draft Report Volume 1, May 2009

Author(s): No authors listed

Name of Reviewer: Brian Barkdoll

1. Are the objectives of the work clearly stated? 1
2. Are the methods employed valid, appropriate and sufficient to address the questions, hypotheses or the problem? 1
3. Are the observations, conclusions and recommendations supported by the material presented in the manuscript (e.g., data, model and analyses)? 1
4. Are the assumptions used valid and are the mathematics presented correct? 1
5. Is the manuscript well organized, material precise and to the point, and clearly written using correct grammar and syntax? 2
6. Are all of the figures and tables useful, clear, and necessary? 2
7. What is the quality of the overall work? 1.5

Recommendation (please circle your response)

B - acceptable with suggestions for revision

If you have selected **C**, do you wish to receive the revised manuscript for further review? *no*

Rating (Circle the rating you would like to give this manuscript. Unacceptable work should be given a score of 40 or less.)

Comments (limit responses to one paragraph for each question; reference pages, charts, and data. Please distinguish if responses are of major or minor concerns.)

A. What is the best/most unique part of the analysis?

Thorough analysis given large uncertainty.

B. What is the most critical aspect of the study/analysis? Why?

Large uncertainty in data available.

C. Which aspect of the analysis/modeling is weakest? Why? How can it be improved?

Unavailability of historical data needed for modeling.

D. Are there any other suggestions that are related to how this analysis may be used more effectively or the results explicated in a more understandable manner?

No

Please indicate any confidential comments to the Co-Chair(s) of the Independent Peer Review Group in the space below. Comments for transmission to the author(s) should be on a separate sheet attached.

Signature: Brian Barkdoll

Date: September 7, 2009

Comments for Transmission to Authors

It would be useful to have both general comments and specific comments for major and minor revision. Please use additional sheets should they be required.

The study is well done overall considering the lack of historical data involving many various types of analysis. The limitations of each approach are given.

The following points need addressed.

p. 107: change “AVM technology is still relatively new, and a meter recently installed in the St. Clair River in 2008.” to “AVM technology is still relatively new, and a meter was recently installed in the St. Clair River in 2008.”

In Section 5.3.1 nothing is said about conveyance changes in Reaches 2, 3, and 5. Why wasn't conveyance analyzed in these reaches?

Comment on why conveyance increased in some reaches but decreased in others.

p. 110: Change “This lake level fall analysis used water levels recorded at the Harbor Beach, MI (HB) on Lake Michigan-Huron, St. Clair Shores, MI (SCS) on Lake St. Clair, and Cleveland, OH (CLE) on Lake Erie.” to “This lake level fall analysis used water levels recorded at the Harbor Beach, MI (HB) on Lake Michigan-Huron, St. Clair Shores, MI (SCS) on Lake St. Clair, and Cleveland, OH (CLE) on Lake Erie.”.

In Section 5.3.2 it is unclear what the difference was between the two datasets used by Bruxer (2009). The italics is only in part of the word “*measurements*” and there is no corresponding italics in the sentence describing Dataset 2. In addition there is no mention of discharge values for Dataset 2.

p. 114: It seems that the statement “Bennion found that the volumetric analysis results, however, did not exceed the error threshold associated with the dataset comparisons, and so these can be used only anecdotally and not as any firm measures of change.” contradicts itself since not exceeding error threshold would make the data more accurate and therefore usable.

Throughout the chapter, capitalize the word ‘section’ if it refers to a specific section, such as Section 5.3. Do not capitalize otherwise.

Figs. 5-9 and 5-10 seem to contradict the well-known secondary current the form on a bend in which the near-surface velocity is towards the outside of the bend and dives downward along the outside river bend inducing erosion, and back along the riverbed. Please check and explain.

Please describe the uncertainty analysis in more detail, such as the assumed probability distributions and analysis procedure.

p. 135: change “The HPG-based flows generally are higher than the presently coordinated by the ad-hoc Coordinating Committee on the Great Lakes Hydraulics and Hydrology (Figure 5-19), particularly when water levels on Lake Michigan-Huron are low.” to “The HPG-based flows generally are higher than those presently coordinated by the ad-hoc Coordinating Committee on the Great Lakes Hydraulics and Hydrology (Figure 5-19), particularly when water levels on Lake Michigan-Huron are low.”.

p. 139-140: The last parenthesis is not balanced in the sentence: “The apparent effects of GIA result from using water levels recorded at gauges on a lake located away from the lake’s outlet (*i.e.*, Harbor Beach-Cleveland) versus gauges located at or very close to the outlets that is, Lakeport-~~Buffalo~~.”.

Include units on Fig. 5-25.

In Section 5.6.5, change “Based on four pairs of gauges, it appears that the Parry Sound, ON area is uplifting at a rate of 80.6 cm (31.7 in) a century with respect Cleveland, while difference between Milwaukee, WI and Buffalo is the shallowest at 16.3 cm (6.4 in) a century.” to “Based on four pairs of gauges, it appears that the Parry Sound, ON area is

uplifting at a rate of 80.6 cm (31.7 in) a century with respect to Cleveland, while difference between Milwaukee, WI and Buffalo is the shallowest at 16.3 cm (6.4 in) a century.”.

p.148: the sentence “Depending upon the relative uplift or subsidence of the Buffalo gauge with respect to the Lakeport gauge on account of GIA could be offsetting as much as 1.4 cm (0.6 inches), or contributing up to 0.9 cm (0.4 inches) of the reduction in the head difference between Lake Michigan-Huron and Lake Erie head difference since 1962.” is unclear. There seems to be something missing.