

Process for the Review and Finalization of the Savannah Harbor Hydrodynamic Model

Finalization of the hydrodynamic model of Savannah Harbor is critical to implementation of the Harbor Expansion Project. A tremendous amount of resources has been spent on developing the model to its current state of calibration. Additional resources are needed to finish the acceptable calibration of the hydrodynamic model, including any post-processing models. As part of the finalization process a team of representatives from the Federal Agencies involved in the project, (USACOE, USGS, EPA) was convened to review and assist in the hydrodynamic model calibration. The first step in the finalization process was delivery of a working version of the model system (WQMAP) to the Federal Agency group and to train members of that group in the use of that system. This step has been completed.

Five main tasks can now be undertaken concurrently to finalize the hydrodynamic model and progress with the water quality models:

1. Calibration improvement: Recent improvements in the water-level predictions with the hydrodynamic model had an adverse effect on the salinity predictions. Salinity improvements need to be made while maintaining the improved water-level predictions.
2. Expectations Document: The Federal Agencies, with interaction from ASA and ATM, need to finalize the model calibration expectations document. Finalizing the document necessitates receiving the data and WRDB database. The Federal Agencies have received the database and intend to present a revised draft expectations document to other reviewers at the next MTRG meeting.
3. Salinity Transformation Functions: Preliminary results from a salinity transformation function using correlations of model predictions to measured data were very encouraging that the predictions can be improved to levels needed by the Resource managers. These transfer functions may be critical for developing a defensible tool for assessing impacts and addressing mitigation issues. Further development of the transfer functions need to be made.
4. Calibration of the DO model: The calibration of the hydrodynamic model is adequate to begin the preliminary calibration of the DO model. Improvements in the calibration of the hydrodynamics model (Item 1) should not adversely affect the preliminary calibration progress of the DO model.
5. Calibration of the chlorides model: As for the DO model, the calibration of the hydrodynamic model is adequate to begin the preliminary calibration of the chloride model and improvements in the hydrodynamics model calibration should not adversely affect the chlorides model calibration. The idea of using neural networks for the prediction of chlorides in Abercorn Creek should be explored.

It is expected that the improvements to the hydrodynamic model calibration outlined in Item 1 will take approximately ten man-weeks of effort on the part of the model

development team (ASA/ATM), which will include periodic meetings with the Federal Agencies team. In order to expedite the progress, it is proposed that the **Savannah Multi-Agency Review Team (SMART)** meet monthly to provide the forum for the technical input towards finalization of the model. In addition, SMART will provide the forum for the Federal Agencies for the technical transfer of the model and improvements. SMART meetings will be scheduled the day after each MTRG meeting when scheduled but should meet monthly even when no MTRG meeting is scheduled. It is anticipated that the next MTRG/SMART meeting will be November 8, 9, and two days during the first week of December. It is anticipated that approximately five SMART meetings will take place over the course of the calibration process and Federal Review.