

The final calibrated version of the Catawba WARMF model (Catawba_Cal_Apr2014.wsm) includes the Phase I and Phase II Systech Water Resources, Inc. model updates.

The set-up file identified below includes the model software, data input files, and calibration simulation output files for the Catawba watershed below the Lake Wylie, SC dam. An earlier opportunity to download the model allowed the user to download a version representing the full NC/SC watershed and a version only representing the watershed below the Lake Wylie, SC dam. The former option is not currently available as calibration work was limited to below the Lake Wylie, SC dam. The calibration scenario in this release of the model and discussed in the Calibration Report simulates the Oct 2003 through Sep 2012 time-frame. Though the model may be used to simulate earlier time periods, the coefficients and reaction rates in this calibration may not be appropriate. The land use data in this version of the model is based on 2006.

If you downloaded the earlier versions of the WARMF model application and its associated files, it is recommended that you uninstall the application and delete the folder C:\Program Files\Systech\ prior to installing this October 2014 version and its associated files.

The October 2014 WARMF installation file is named 'Catawba_WARMF-6.7c_Apr2014_Final.exe', contained in the zipped file Final_Model_Setup.zip, which can be downloaded from SCDHEC website. Any model simulations completed using the July 2014 version of the model are unchanged. The October 2014 version of installation package only includes a functioning TMDL module that can be used to evaluate reduction scenarios. All other components of the installation package are the same as originally made available in July 2014 along side of the final modeling report. Importantly, the model calibration has not changed from the July 2014 version of the application.

Note that the executable file is approximately 188 MB in the compressed format that will be downloaded; however, the file will initiate a program that will install the model and its associated files onto your computer. The installed program will initially require approximately 350 MB of hard drive space.

To install the model, download the .zip file, copy the file to your Desktop or C:\ drive, extract the WARMF installation file, and then run it (double click the icon). Unless the user chooses another location, the install program will create a series of folders on the hard drive: C:\WARMF-6.6\Catawba\. The WARMF model files will be in the \WARMF-6.6\ folder and the files specific to the Catawba model in the \Catawba\ folder. On some Windows versions, WARMF may give the user the message that 'Cannot find the WARMF.HLP Help file. Do you want to try to find this file yourself?', when the Help icon '?' on the menu bar is clicked. Click Yes and then Warmf.hlp (Found in the /WARMF-6.6/ folder.) to open the Help file.

To run WARMF:

- 1 - Click on Start or the Windows icon (For Windows XP you may need to go to Start, then All Programs to locate the WARMF icon).
- 2 - Click on the WARMF icon.
- 3 - Click on File/Open.
- 4 - Open Catawba_Cal_Apr2014.WSM in the /Catawba/ folder.
- 5 - Generally you will start in the **Engineering Module**, when asked to select.
- 6 - The default scenario 'Catawba_Calb_Apr2014' is the calibrated scenario that is presented in the Calibration Report.
- 7 - You may create new scenarios using the Scenario Tab on the Menu Bar. Use Save As to copy the current scenario to a new scenario under a different name.

Also, the download includes a WARMF user's guide, technical document and a coefficient key. These provide some guidance for running the model application. Check the WARMF program folder on your computer for these .pdf documents.

You can then explore and run the model application. Model coefficients and reaction rates can be seen while in the Input Mode (Under Mode Tab on Menu bar). Double click on a catchment, stream or lake segment to open a dialog box. Model inputs such as Point Source loads or rainfall can be viewed by selecting the input type from the View Tab on the Menu bar. Observed data sites (Water Quality Stations and Gaging Stations) can also be displayed from View. Output (Under Mode Tab on Menu bar) allows you to look at model results in most stream and lake segments. Results for the calibration scenario are provided with the model installation. No results will be available for streams or lakes upstream of the Lake Wylie tailrace for this scenario. Results will be available for all lake and stream segments in the Lower Catawba Basin. Where we have water quality data, the model will show model simulation results compared to the observed data. Results will display for up to 4 scenarios and any observed data. The Scenario Tab on the Menu Bar is where you select scenarios (Coefficient Files - *.coe) to display and run.

This version of the model includes changes to the calibration based on stakeholder comments to the January 2014 model. A functioning TMDL module is also included for the purpose of evaluating reduction scenarios. It is SCDHEC's intention to use this calibrated model to develop nutrient TMDLs for the Lower Catawba Basin. TMDL allocations will address nutrient sources below Lake Wylie, SC, including those contributions from North Carolina.