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Model name: TC-13_Pearl_Lake_WQ_Test_Case

Objective: Use EFDC+ Explorer (EE) and EFDC+ to replicate the Smith et al. (2014) results for a model of Pearl Lake, Minnesota (Figure 1). In this goal is specially to verify the capacity of EFDC+ to model unlimited algal groups in the Water Quality module.

This earlier study assessed the algal community dynamics, water quality, and fish habitat suitability in Pearl Lake, which is an agricultural land-use dominated lake. The model had successfully predicted water temperature, dissolved oxygen, as well as captured algal dynamics with four general groups: (1) diatoms, (2) green algae, (3) cyanobacteria, (4) haptophyte (flagellates algae).

Model grid: 976 horizontal grid cells and 5 vertical layers.



Figure 1. Pearl lake, Minnesota

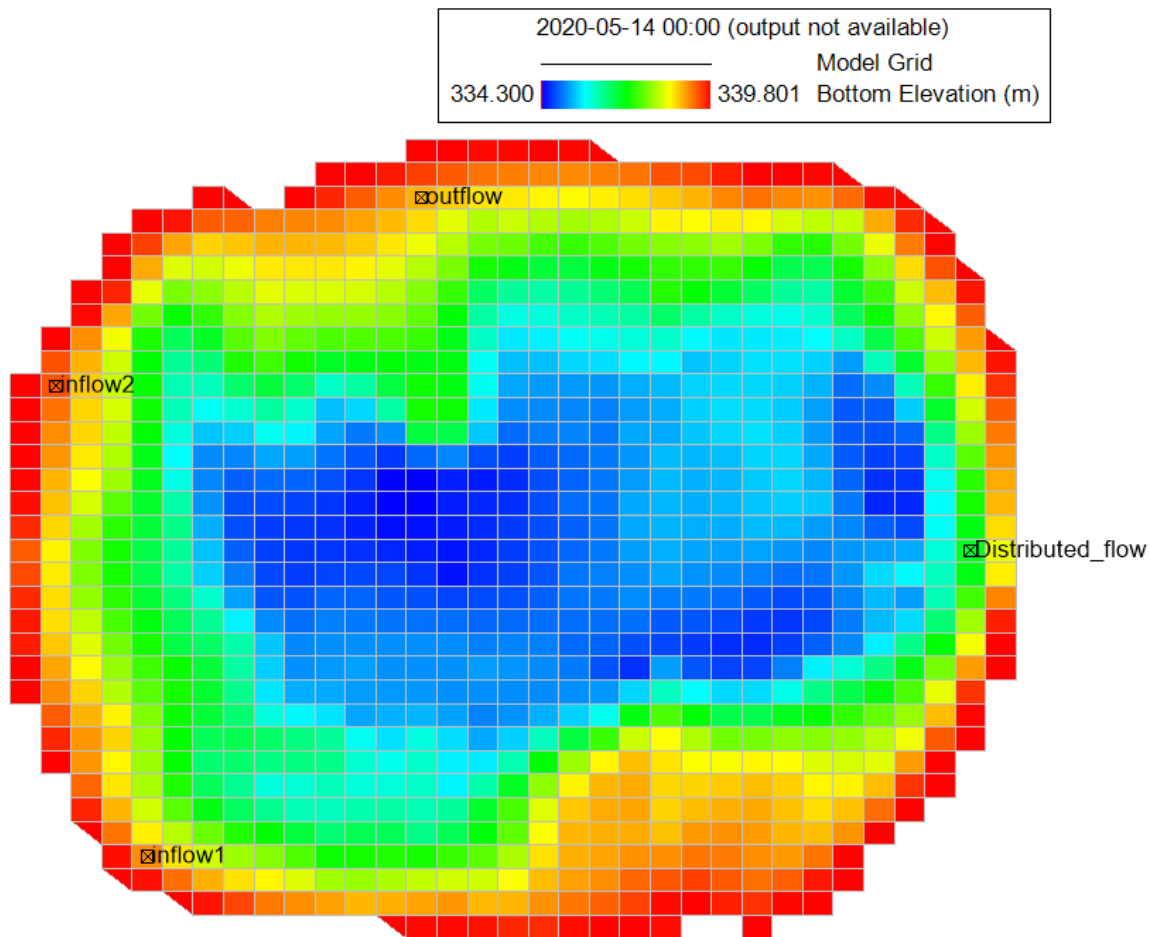


Figure 2. Model Domain of Pearl lake.

Folder structure:

Model: EFDC model corresponding to the Pearl Lake model on CE-QUAL-W2 from Smith et al.

Test_record file: This file is just a record file that informs which EFDC+ executable was used to run the model.

Modules Activated: Water Quality

Disclaimer: The model is provided to our users to demonstrate how EFDC_Explorer and EFDC+ can be used to simulate unlimited algal groups in a Water Quality model.

Citation for the technical report:

Smith, Erik A., Richard L. Kiesling, and Jeffrey R. Ziegeweid. [*Water-Quality Models to Assess Algal Community Dynamics, Water Quality, and Fish Habitat Suitability for Two Agricultural Land-Use Dominated Lakes in Minnesota, 2014*](#). Report. Scientific Investigations Report. Reston, VA, 2017. USGS Publications Warehouse.

Files in Data Folder:

- Cyanobacteria.dat
- Diatoms.dat
- Green_algae.dat
- Haptophyte.dat

Data sources: The data in the “Data” folder are derived from the technical report mentioned above.