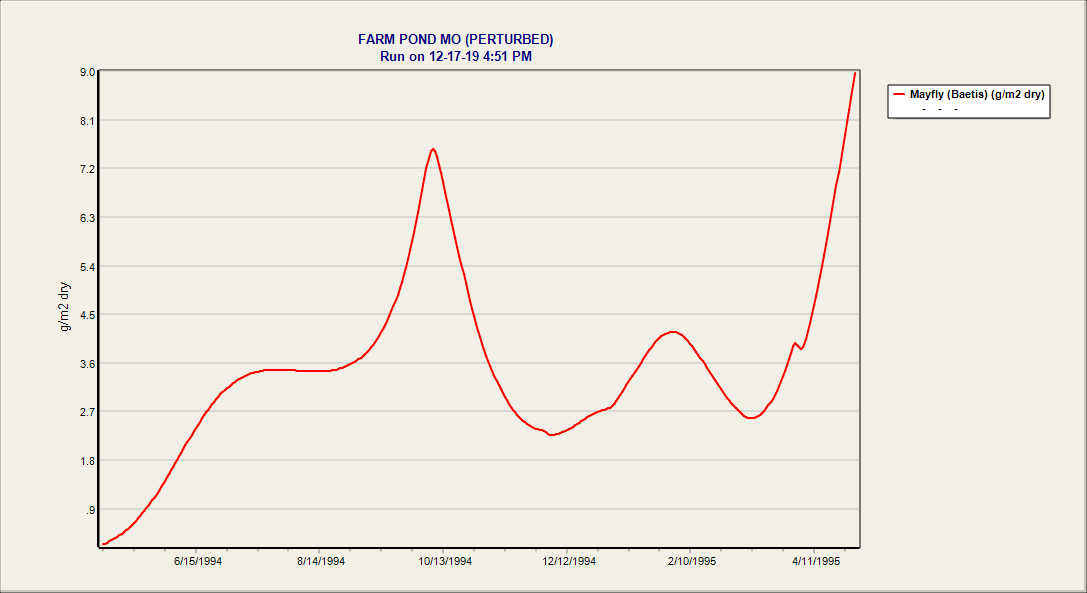
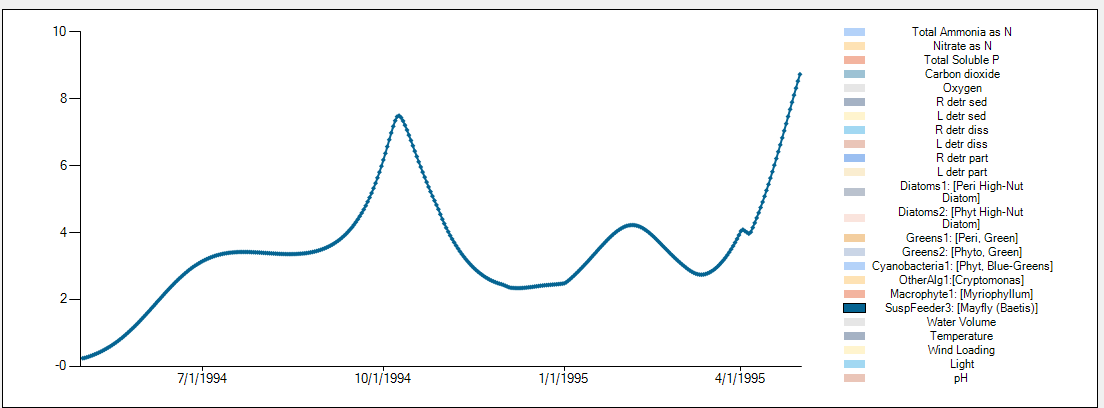
**TAnimal Programmer test log – HMS JSON vs. AQUATOX 3.2**

**Animal model “simple” (one animal only) 12/20/2019**

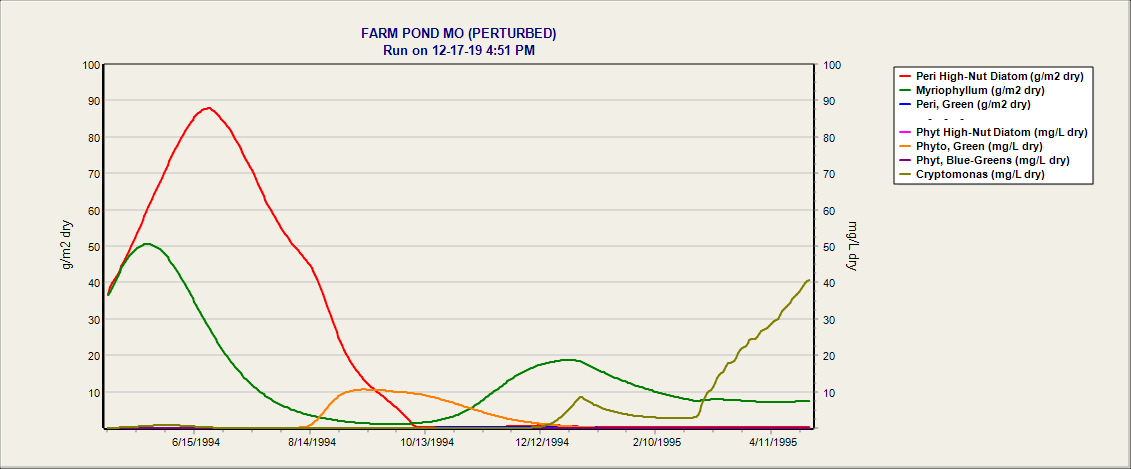
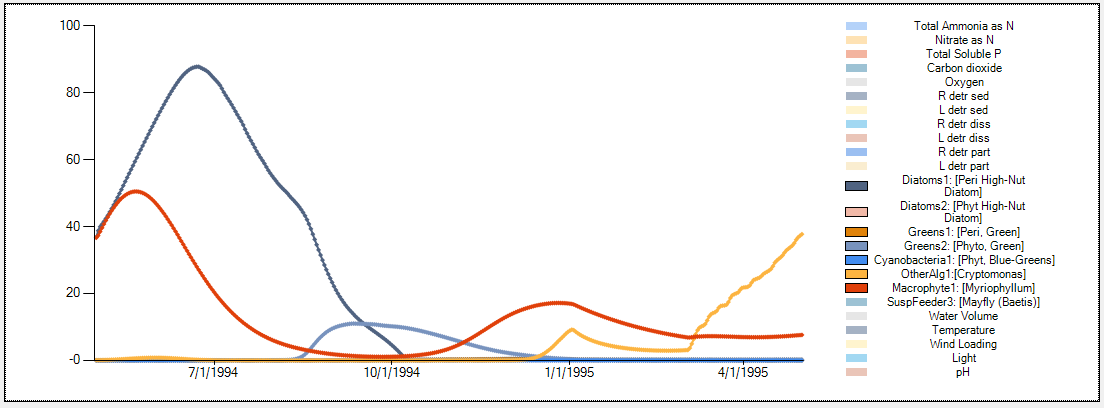
AQUATOX 3.2 file**: Farm Pond mayflyonly.aps**

HMS Input file: **Farm Pond mayflyonly.JSON**

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**Mayfly results identical**

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**Plant results identical – grazing is working properly (Also verified, nutrients, oxygen, organic matter.)**

**12/26/2019**

**Completed highly complex food web verification (blue earth river, short duration, including ammonia toxicity impacts)** System has **13 plants** and **20 animals**

AQUATOX 3.2 file**: Blue Earth R.MN\_noTSS.aps**

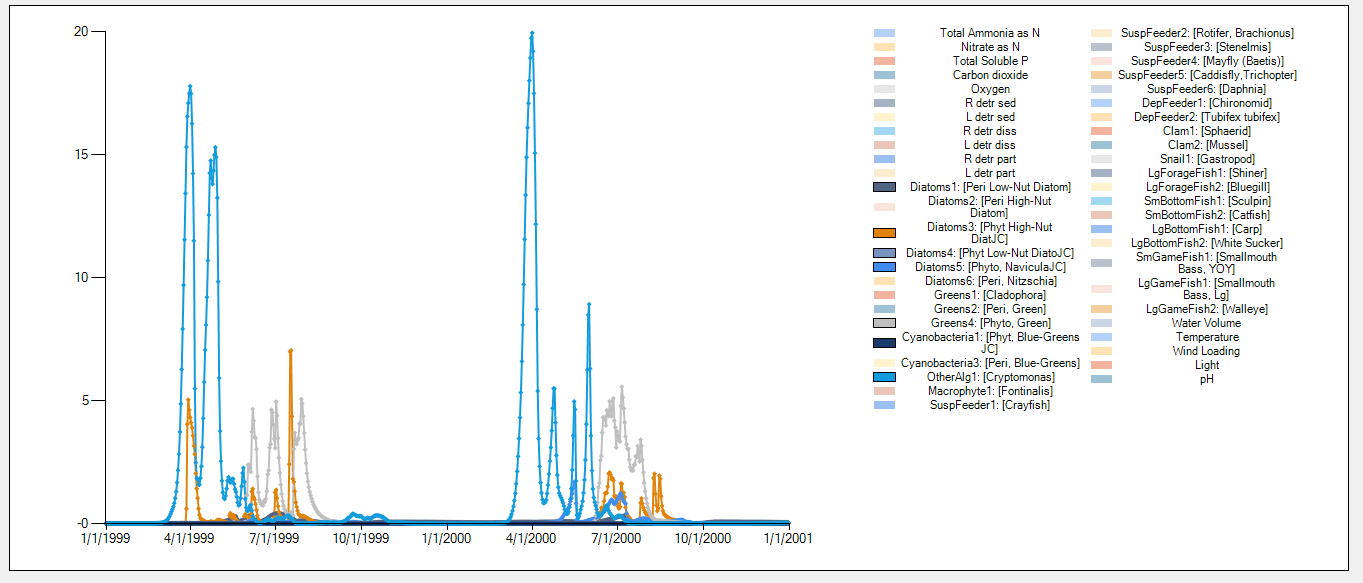
HMS Input file: **Blue Earth R.MN\_noTSS.JSON**

Verified all state variables to a tiny fraction of a percent error in **P\_Blue Earth R.MN\_noTSS\_Table.xlsx**

**Long run verification and ammonia toxicity**

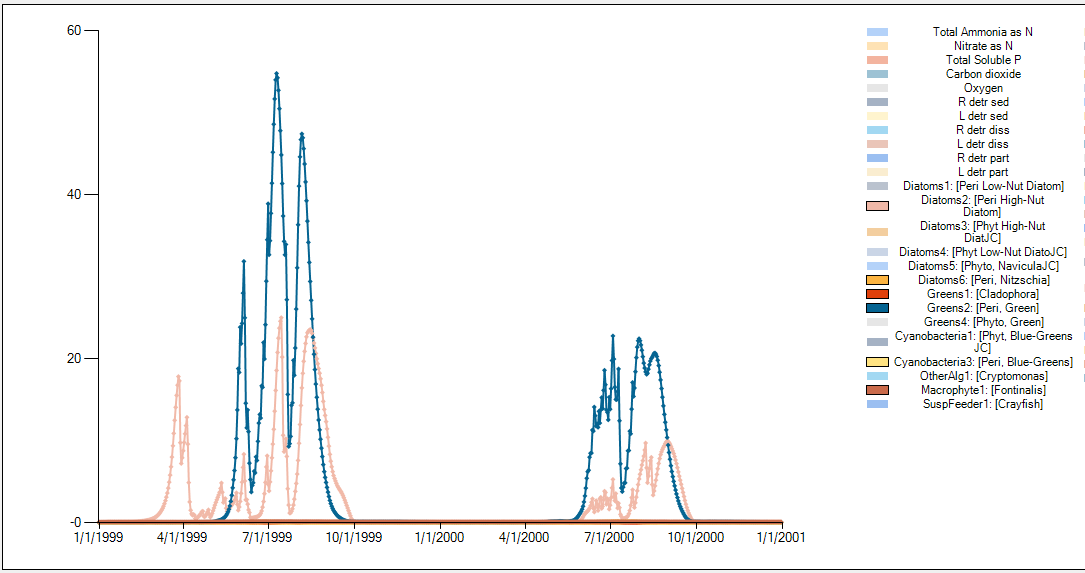
**Phytoplankton:**

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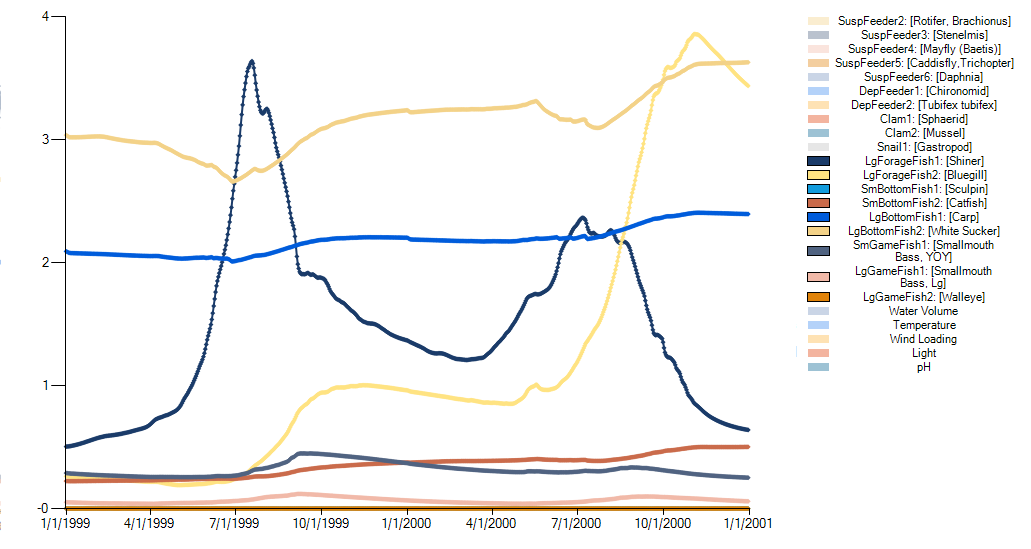
**Periphyton**

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**Fish:**

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Pct error is extremely low as shown in Blue Earth R.MN\_Long\_Run.001.xlsx

**Tests to run:**

* Multi-animal test
* Inorganic sediments effects test
  + Complete coding of inorganic-sediments linkage
    - TSS -- total suspended sediments or total suspended solids
* Age-class fish test
* Marine animals test including size-class oysters
* Low-oxygen effects