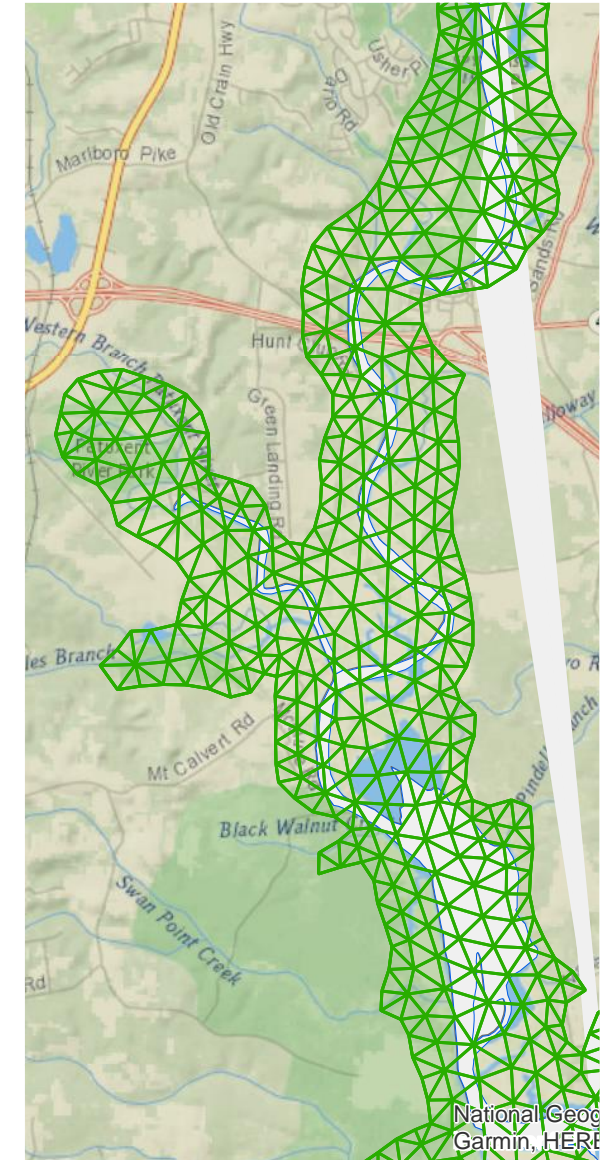
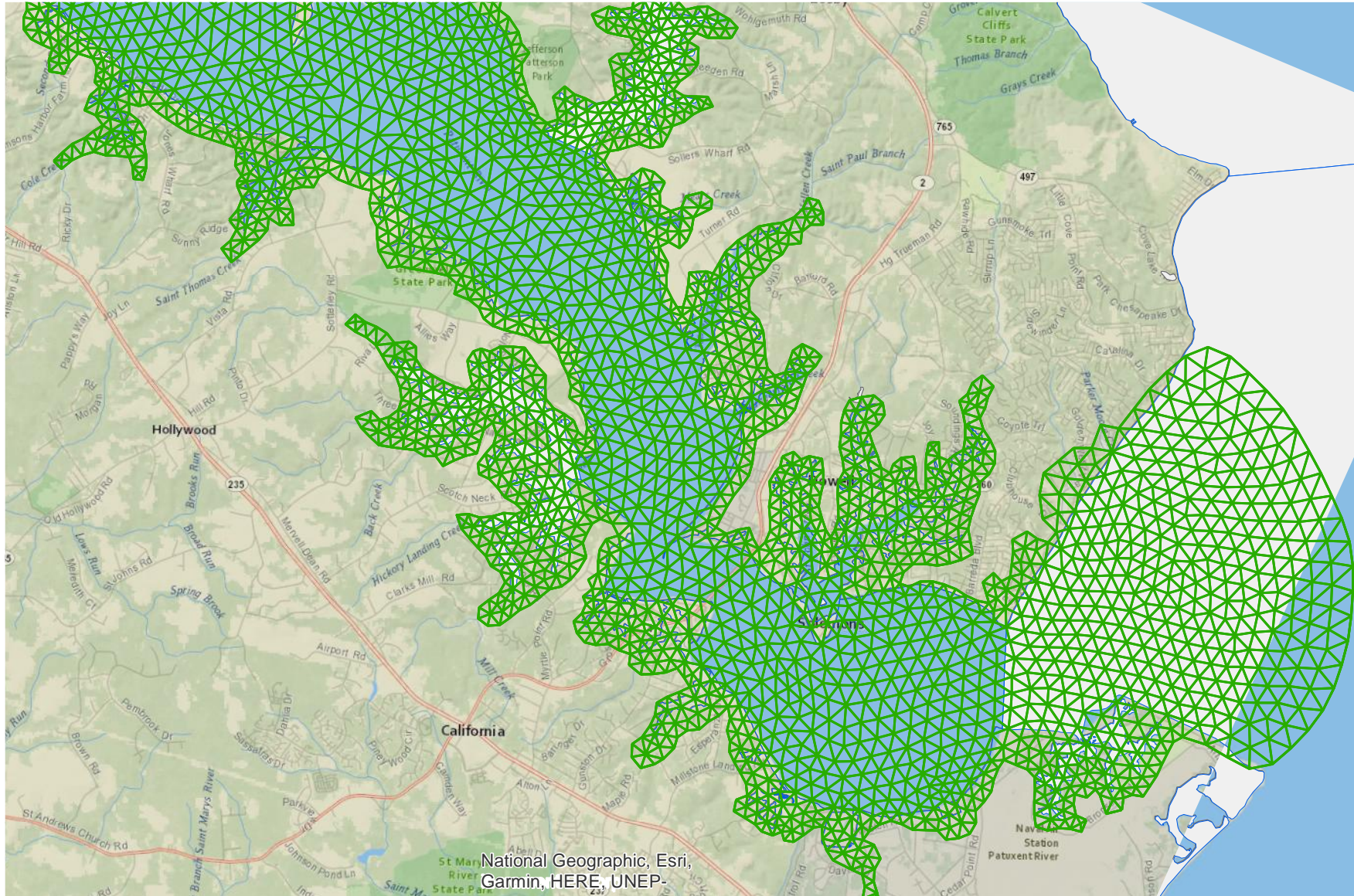


Progress report on the Patuxent tributary model application

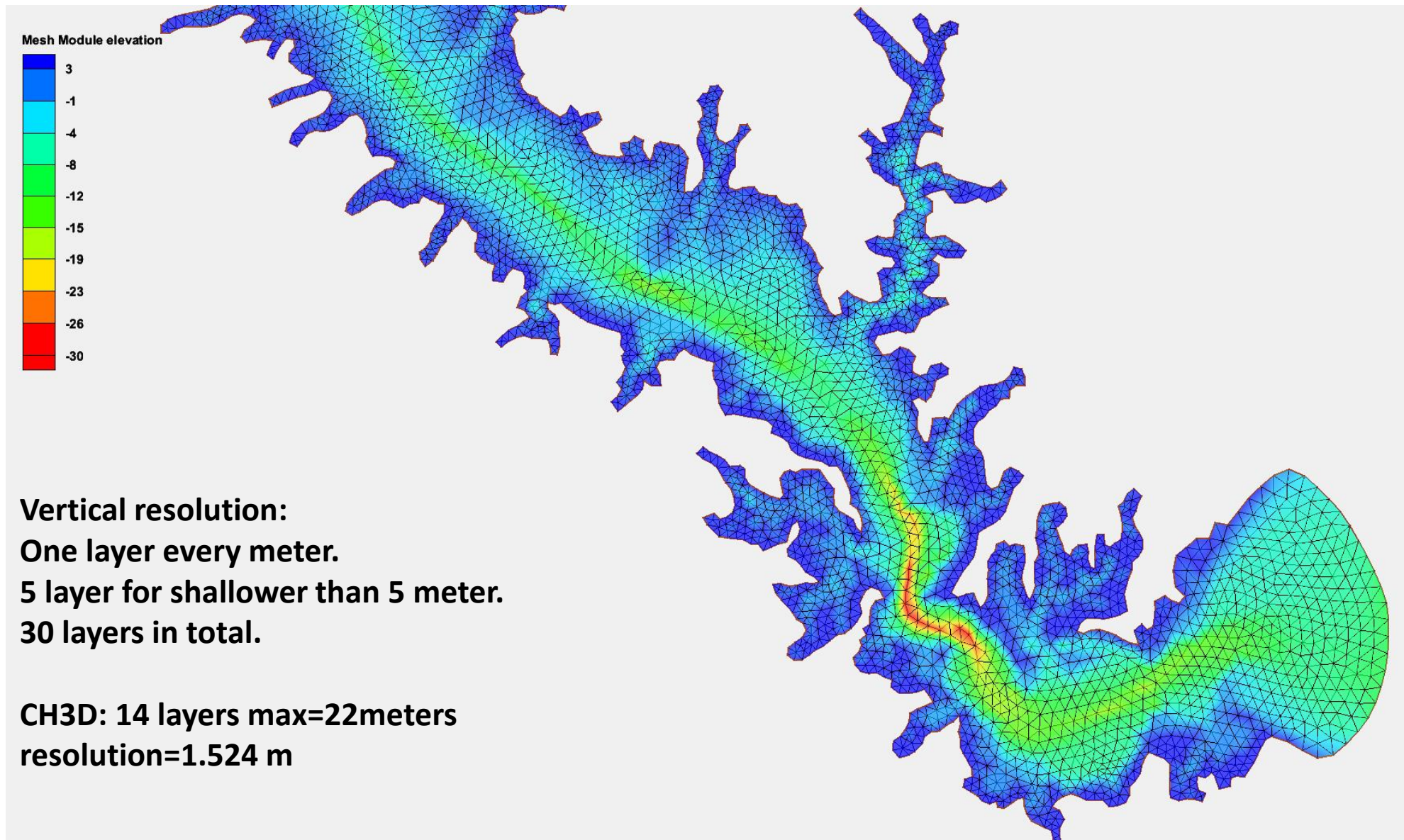
Richard Tian and CBPO modeling team

**Modeling Quarterly Review
04/06/2022
Annapolis**

Simulation Grid: 12863 cells versus 205 cells in CH3D

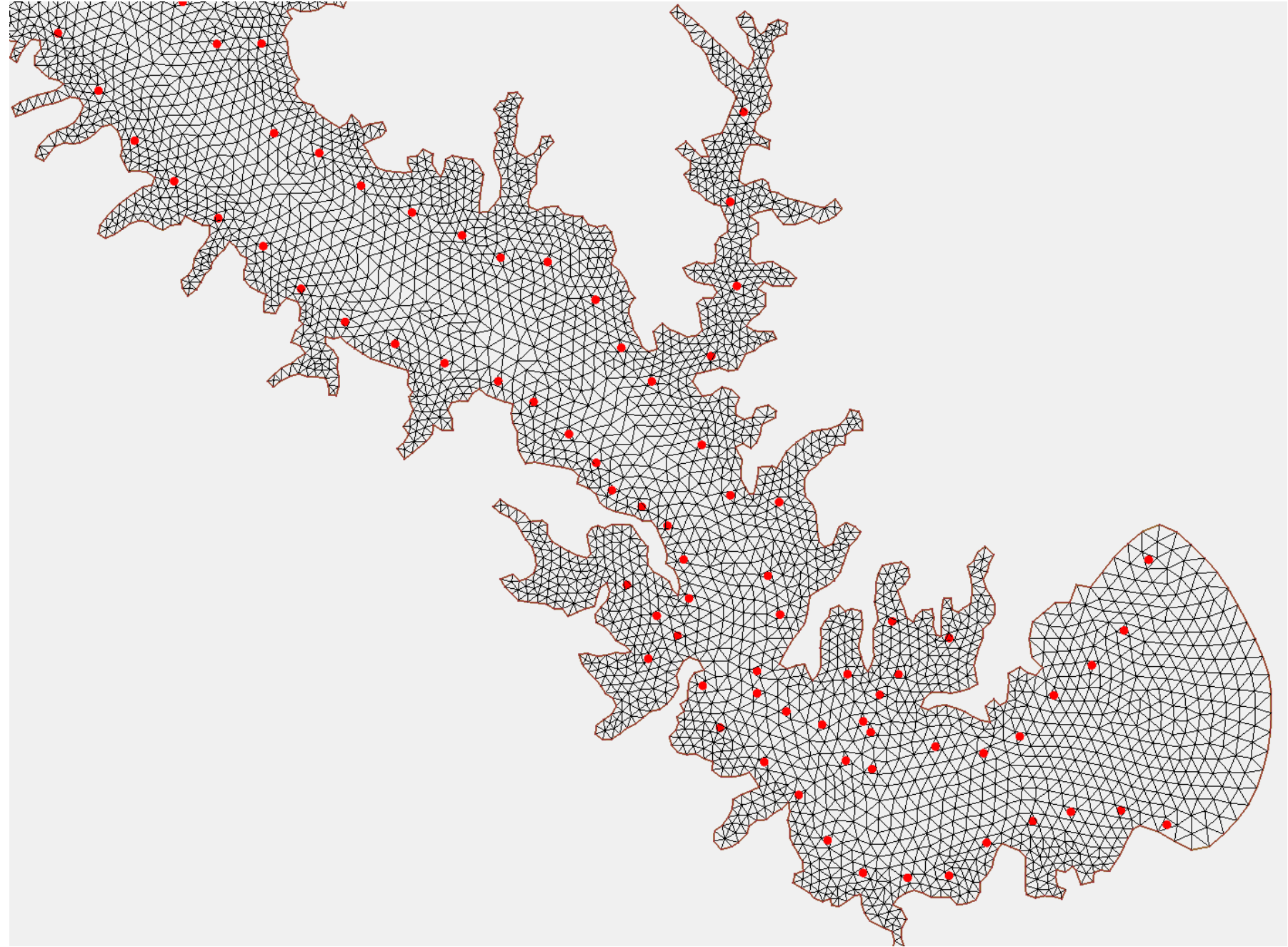


Bathymetry interpolation using the nearest neighbor method

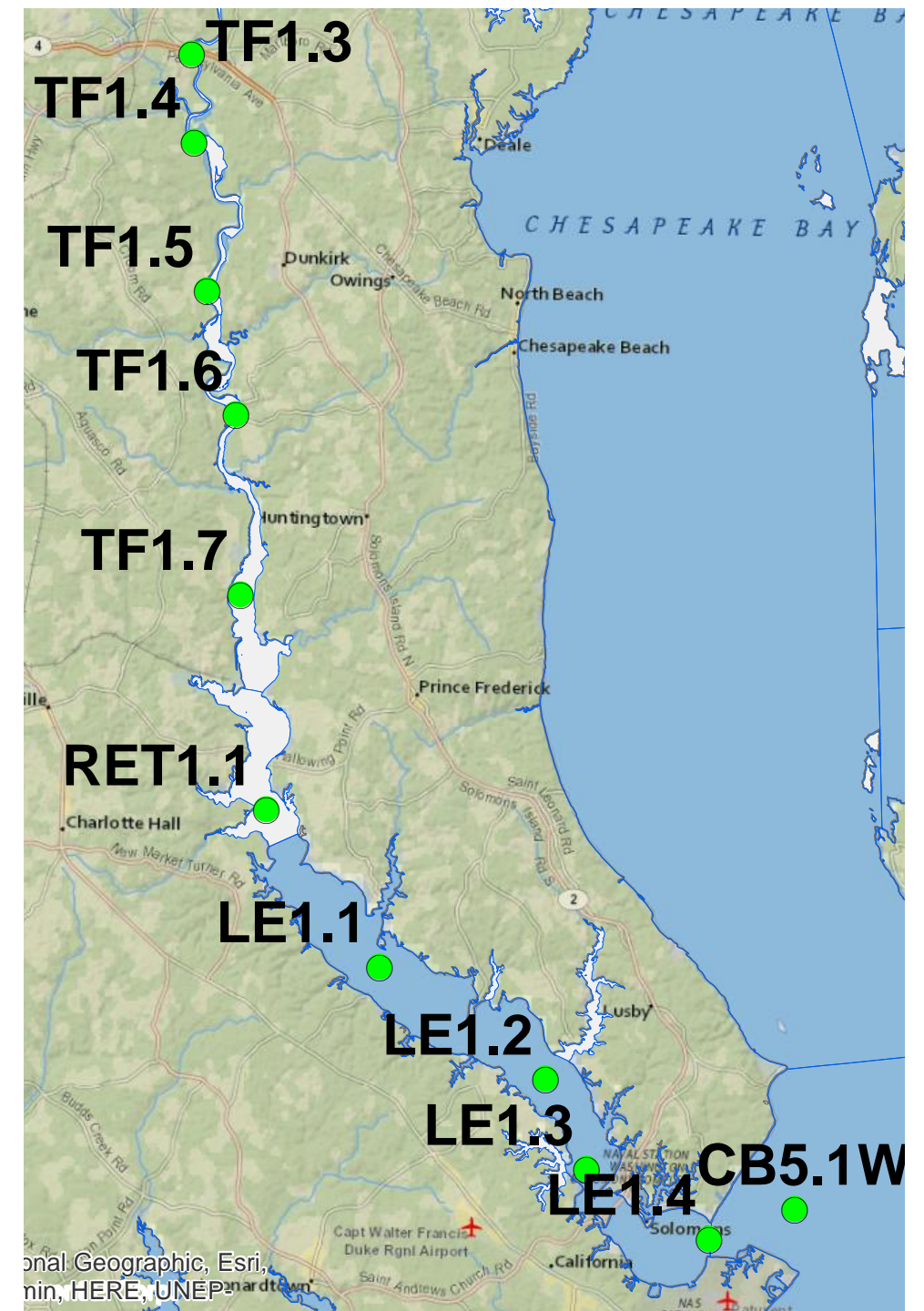


**Watershed
loading**

**112 loading
points**



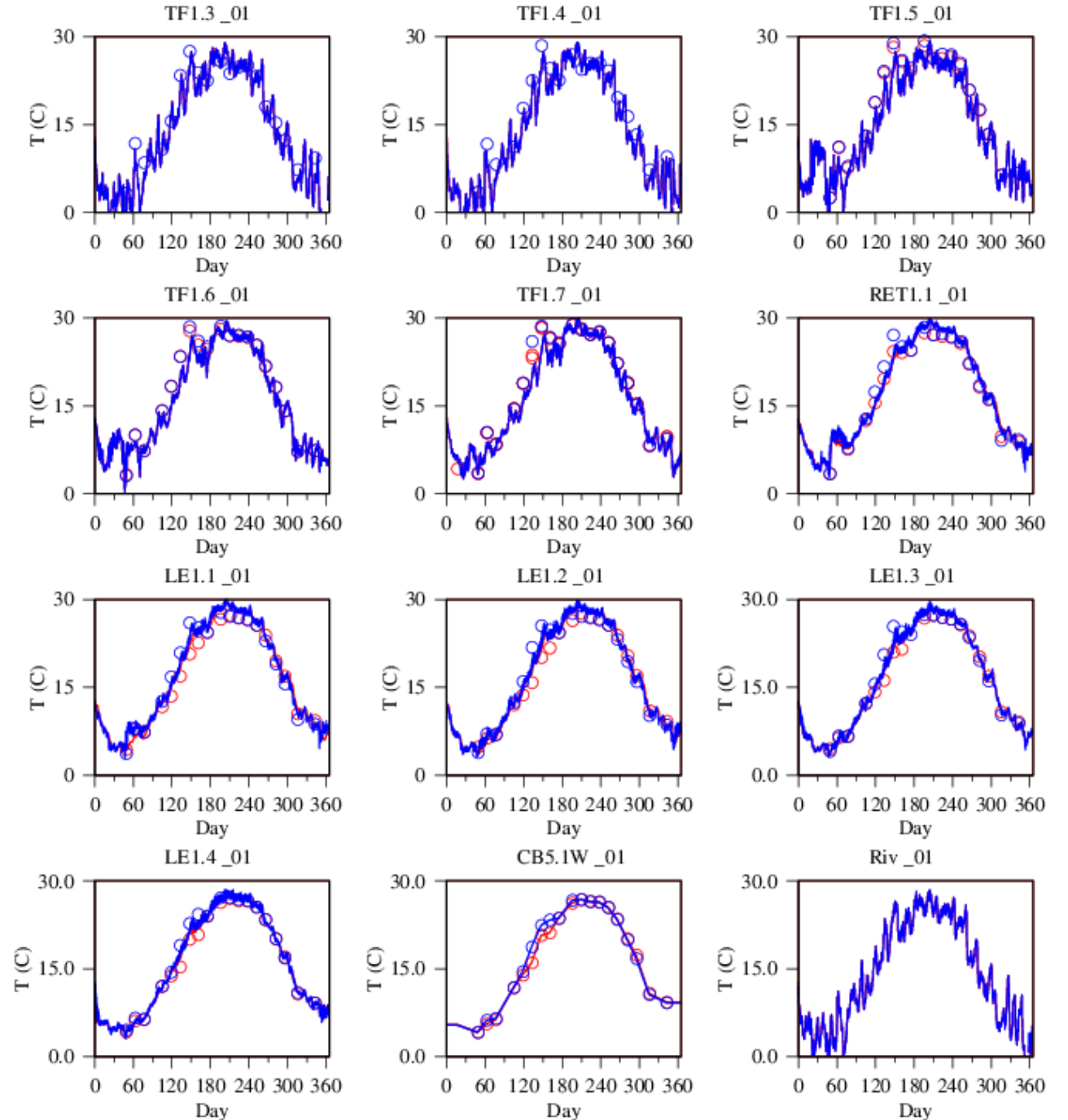
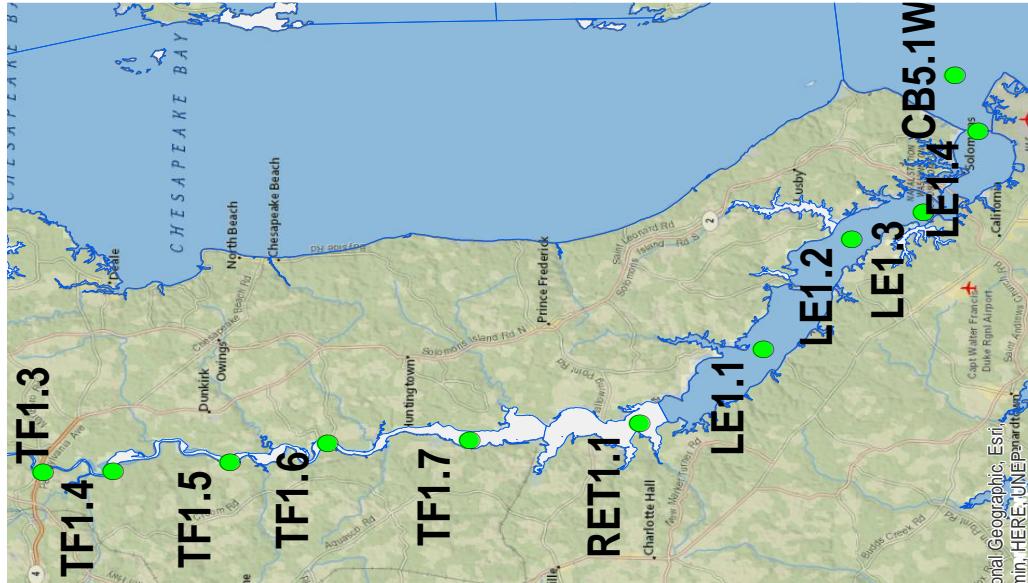
Monitoring stations for model calibration



Temperature simulation

- Dots: Observation data
- Lines: Simulation
- Blue: Surface
- Red: bottom

Underestimation of thermocline in the mid-estuary



Salinity simulation

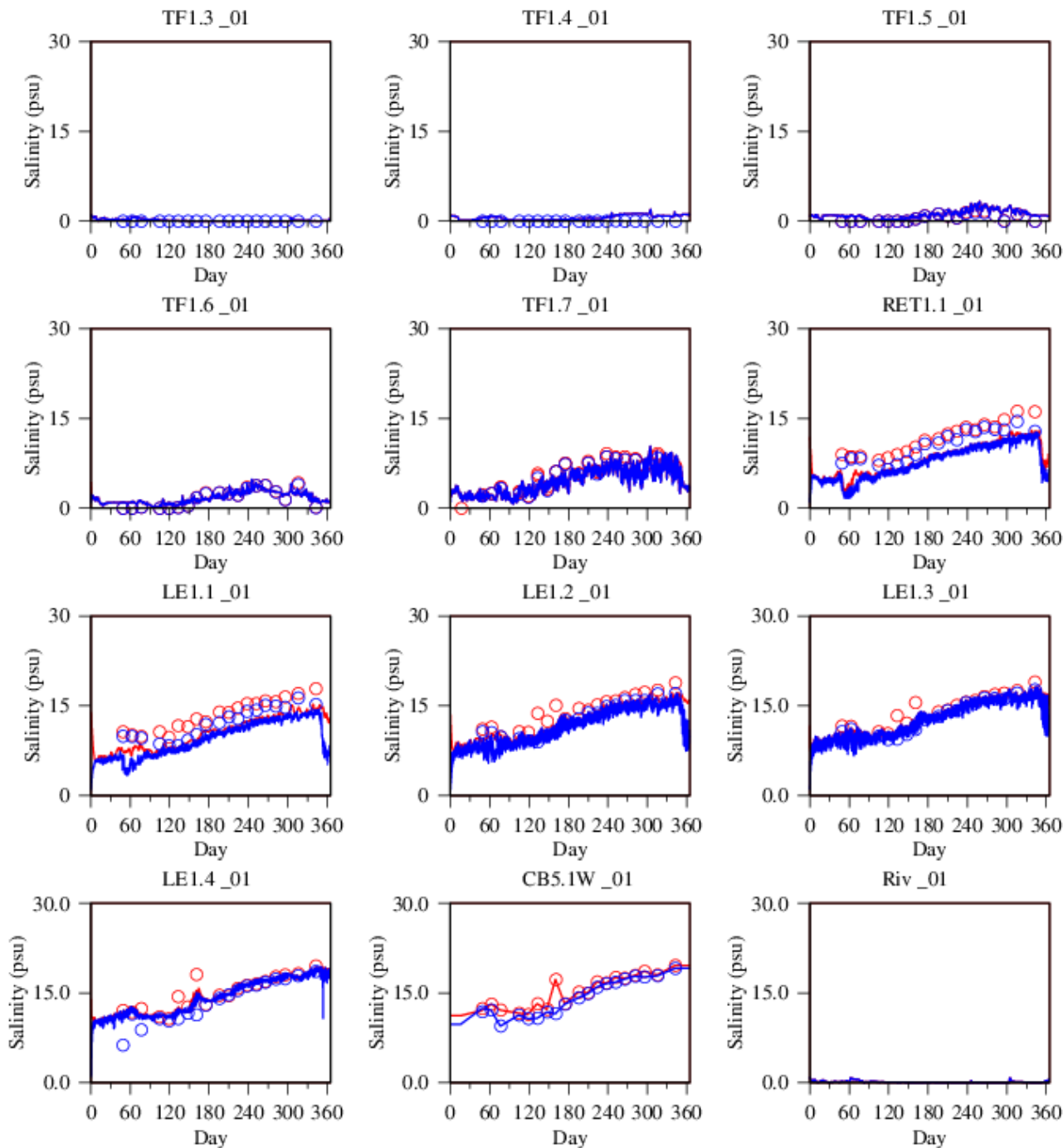
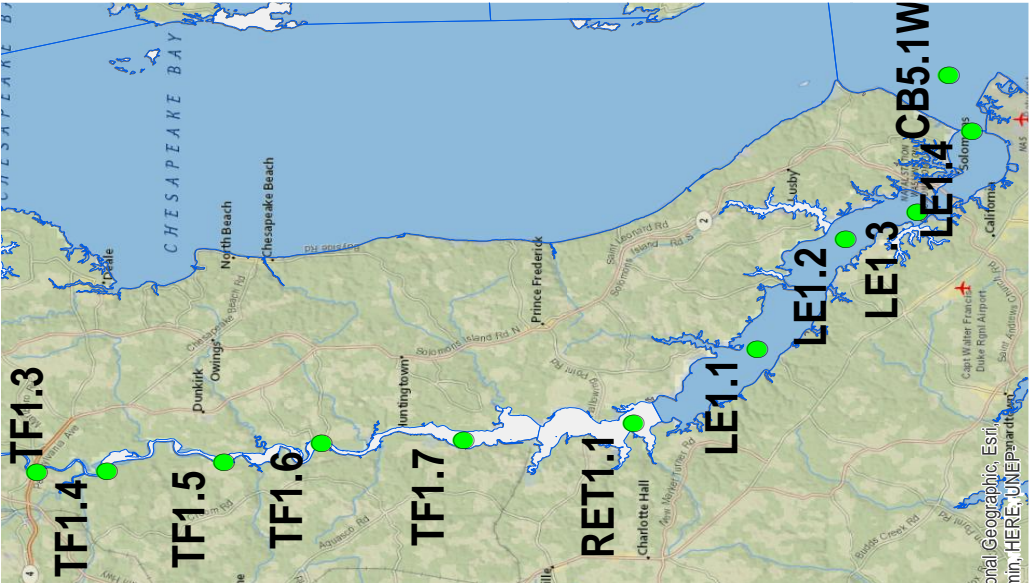
Dots: Observation data

Lines: Simulation

Blue: Surface

Red: bottom

Underestimation in the mid-estuary



DO simulation

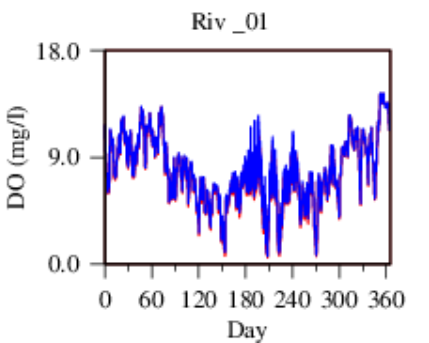
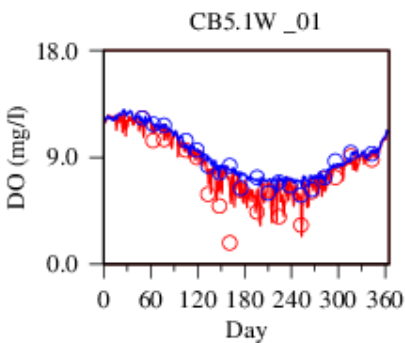
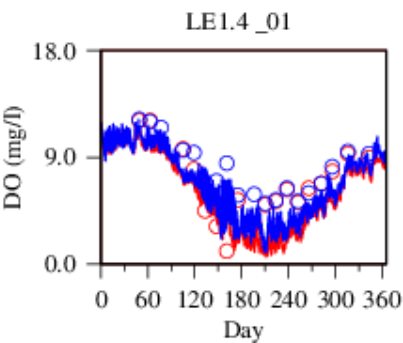
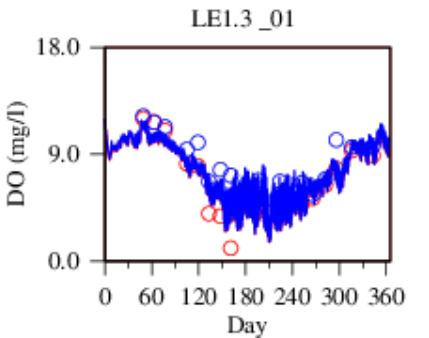
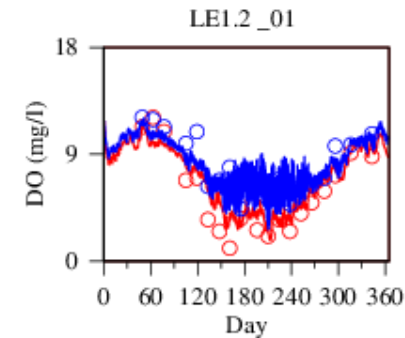
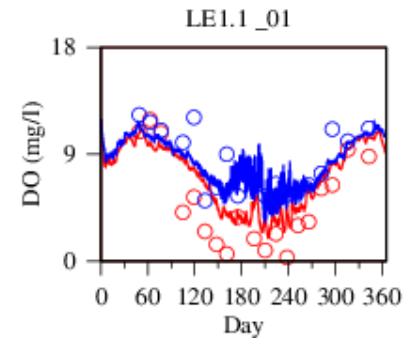
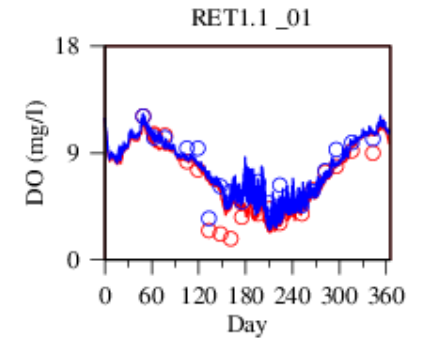
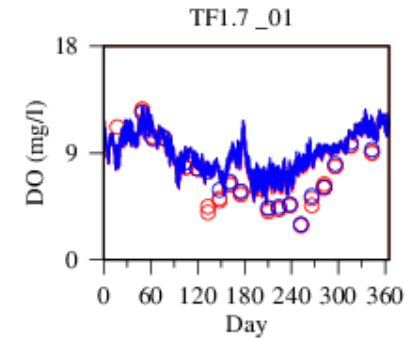
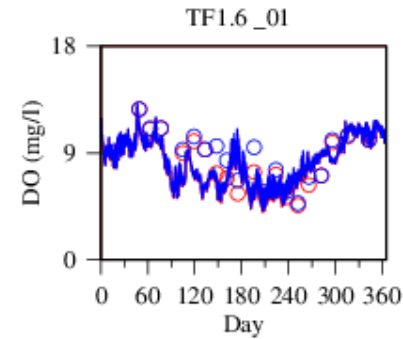
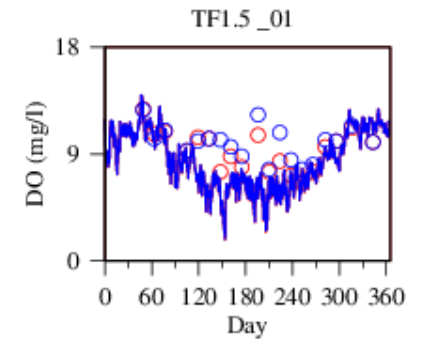
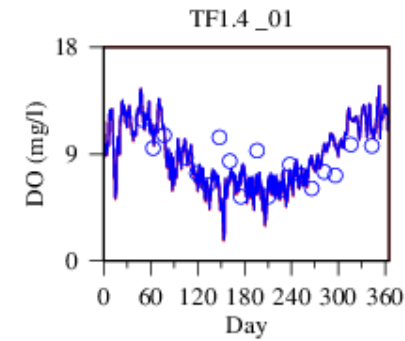
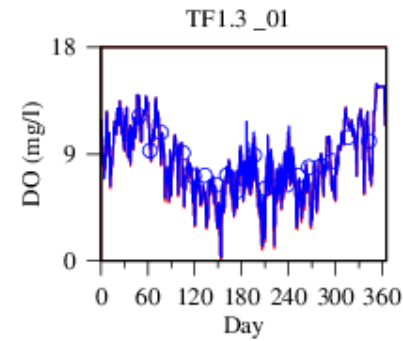
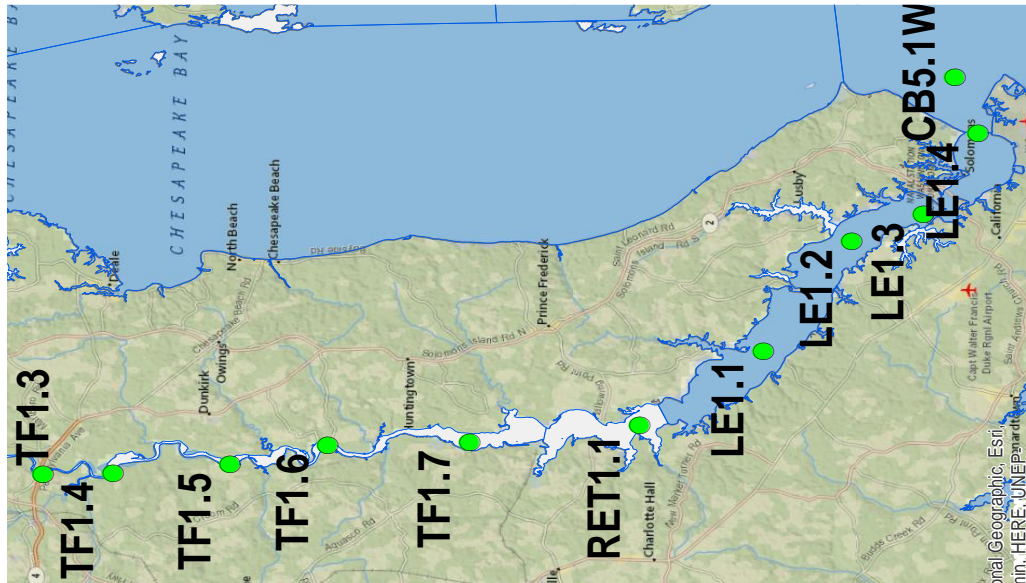
Dots: Observation data

Lines: Simulation

Blue: Surface

Red: bottom

Overestimation in the mid-estuary



Chlorophyll simulation

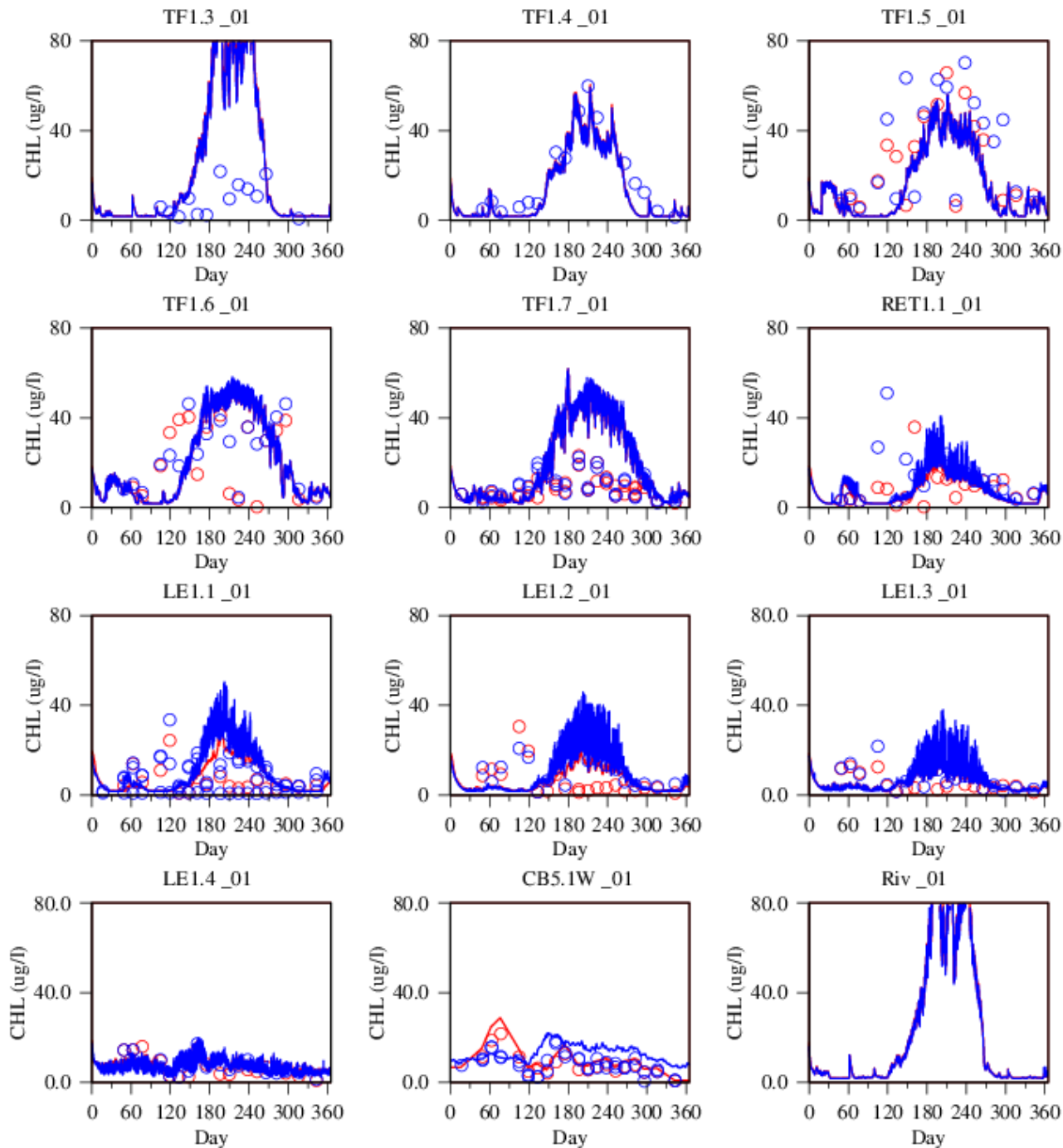
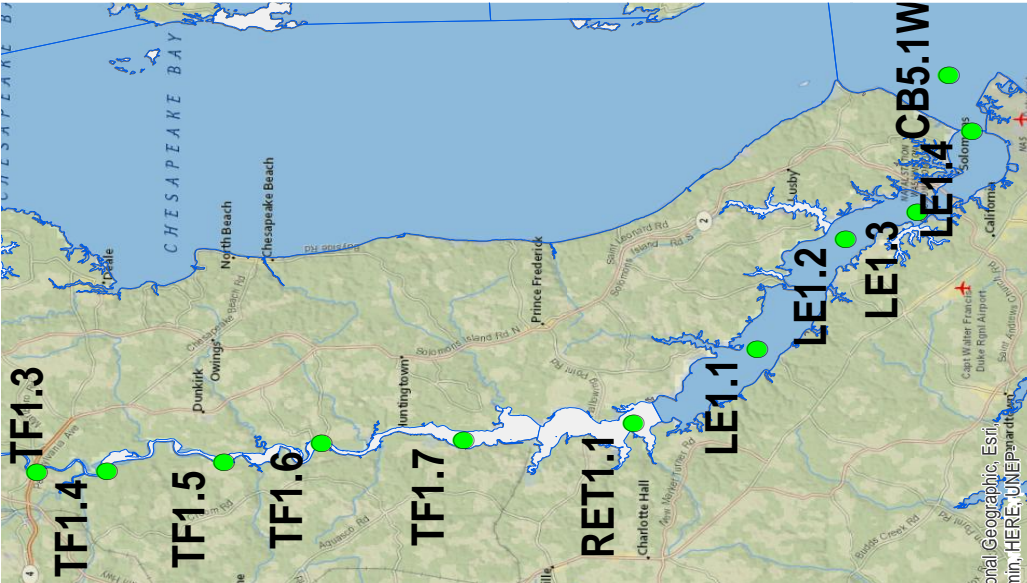
Dots: Observation data

Lines: Simulation

Blue: Surface

Red: bottom

Light limitation in the upper estuary?
Impose salinity limitation on diatom and green?



Messages

- **Working on the mid-estuary.**
- **Light attenuation in the upper estuary.**
- **Adding salinity limitation on diatom and green?**
- **Spatial varying growth rate?**