

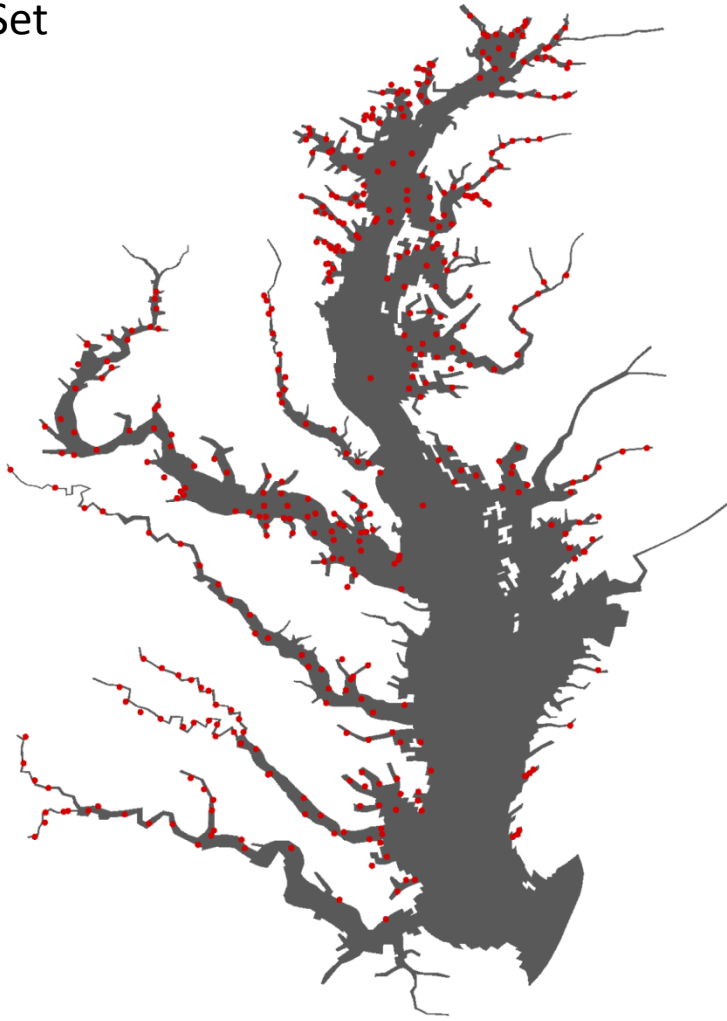
WQSTM Shallow-Water Simulation

- We received the shallow-water database from CBP circa autumn 2012.
- These are grab samples and measures collected when continuous stations are serviced and coincident with Dataflow cruises.
- More than 750,000 records.
- Roughly 84,000 useful observations.

WQSTM Shallow-Water Simulation

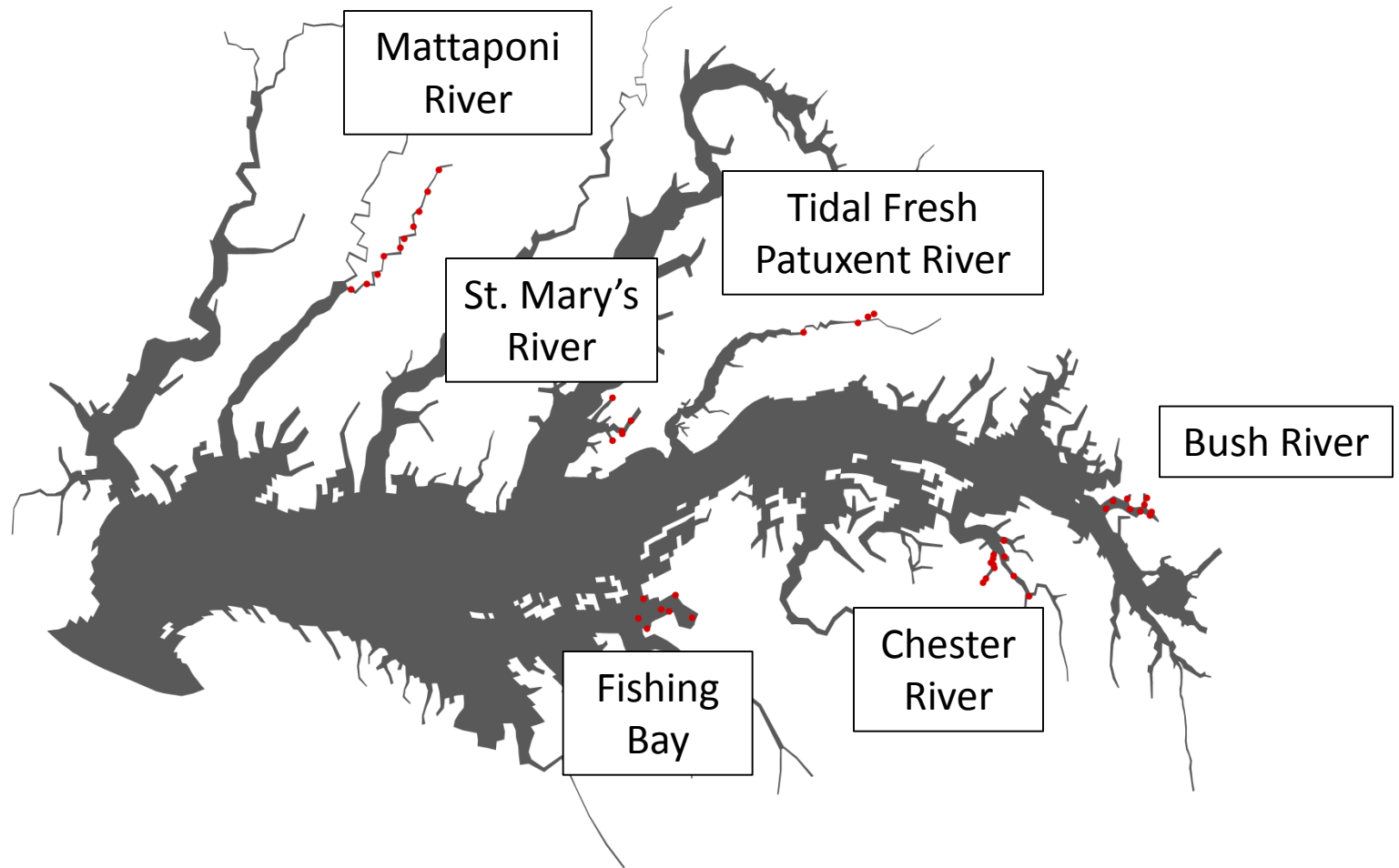
- We've reviewed the data and eliminated all stations more than two model layers deep.
- This eliminated roughly 20% of the data.
- We've repeated model-data comparisons with the latest model version and loads.

Complete
Data Set



Revised,
< 4m deep





Mattaponi River – Tidal fresh environment, abundant wetlands. Continuous monitor at Muddy point, Walkerton.

St. Mary's River – One of many Potomac embayments, well-monitored, some management interest.

Tidal Fresh Patuxent – Abundant wetlands, usually a problem area for the model. Continuous monitor at Jug Bay, Iron Pot Landing.

Bush River – Typical upper Bay embayment. Continuous monitor at Lauderick Creek.

Chester River – Site of shallow-water multi-modeling effort. Will allow for inter-model comparisons between system-wide and individual models. Continuous monitoring at Ralph's Wharf and Deep Landing.

Fishing Bay – Lower eastern shore embayment. Under influence of wetland erosion. Several continuous monitoring stations.

First Indications

- The selected systems are characterized by high chlorophyll ($> 20 \mu\text{g/L}$) and low DO ($\approx 4 \text{ mg/L}$ during daylight hours).
- The St. Mary's River is a standout. Repeated complete anoxia.
- The Bush and Chester are standouts. Chlorophyll repeatedly attains $100 \mu\text{g/L}$ or more.

First Indications

- Problem: How can we raise chlorophyll concentration while simultaneously lowering DO concentration?
- Nutrients aren't always so abundant as to readily support additional phytoplankton.
- What are the impacts of DO and chlorophyll inflows from upstream? Are there anoxia effects? What happens at night?

First Indications

- Can we generalize model parameters across systems? What parameters/processes from the Bush River can be applied to Fishing Bay?
- It appears our erosion rates etc. for Blackwater aren't helping the model results in Fishing Bay.