

**Estuarine Breakout Group**  
Room: Constitution Ballroom  
Lead: Marjy Friedrichs  
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*Overall question: How does the speciation and timing of nutrients entering the tidal waters of the Chesapeake Bay (e.g. organic nitrogen vs. nitrate vs. ammonium, particulate vs. dissolved phosphorus) impact the severity of hypoxia?*

- 1) What do we know now?
- 2) Where does the speciation matter most (shallows vs. mainstem; high salinity vs. low salinity)?
- 3) When does the speciation matter most (early vs. late summer)?
- 4) How will the impact of speciation change in the future?
- 5) What is still unknown, and how should we investigate this?
- 6) What tools are needed and what analyses (numerical or otherwise) should be performed to be able to better answer the above questions?
- 7) What are the most important pieces of information that are still needed from the watershed?
- 8) Can analyzing the seasonal patterns of concentrations of N and P species in estuarine waters and comparing these to N/P loading rates help us understand the impact of loading speciation on Chesapeake Bay hypoxia?