

Abstract:

In shallow aquatic ecosystems, the benthos can play an outsized role in system-level biogeochemical cycling, and sediments are a final repository for organic matter and minerals. Biogeochemical cycling is governed by a combination of abiotic geochemical reactions and microbially-catalyzed reactions. In sediments, these reactions are in turn impacted by higher level drivers, including physical processes such as water column stratification and resuspension, and biological factors such as organic matter sinking, vegetation growth, and animal burrowing. In recent years I have focused on microbial ecology, particularly as a tool for informing an understanding of biogeochemical cycling. I have focused extensively on one particular sedimentary microorganism, cable bacteria, because over the course of several studies, we have found these bacteria exert a quantitatively important influence on sediment biogeochemistry. In this talk, I will highlight recent scholarship and discoveries related primarily to sediment biogeochemistry and microbial ecology, and additionally indicate some forthcoming directions of new research.