Investigation of Phosphorus Forms and Transformations in Soil as Influenced by Hydrologic Changes in a Subtropical Freshwater Wetland. (S10-bostic133539-Oral)

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Abstract:

Hydrologic alterations as a result of severe drought conditions can transform a wetland soil from a phosphorus (P) sink to a potential source. The objectives of this study were to simulate severe drought conditions and reflooding of a subtropical Florida wetland to determine soil P transformations and P flux from the soil to the water column in both P impacted and unimpacted areas. The study investigated the contribution of P directly from the soil vs. P derived from both plants and soil. The study site was the Blue Cypress Marsh Conservation Area in east central Florida. Water column samples were taken at eight different intervals, over a total of 38 days and were analyzed for total P and soluble reactive P. The soil samples were analyzed for total P, N and C; organic and inorganic P fractionations; potentially mineralizable P and microbial biomass P. Water column total P values ranged from undetectable in the controls to 2.5 ppm in the plant and soil cores with no significant increase in water column P until after 10 days of inundation. KCl extractable inorganic P values decreased from an average of 23 mg kg-1 in the dried cores to 7 mg kg-1 in the reflooded soil cores.

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