Soil Phosphorus Forms in Wetland Soils from the Stormwater Treatment Areas of the Northern Everglades. (S10-white195631-Oral)

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Abstract:

Stormwater treatment areas (STAs) are large constructed wetlands used to treat agricultural surface water runoff before discharging into the Florida Everglades. These STA were constructed on former agricultural lands with peat soils. We compared the total phosphorus (P) as well as a number of P fractions in the pre-construction soils with the soils developed under inundation for the past 10 yrs in STA 1-West. Samples were collected by pushcore and separated into detritus, 0-10 cm and 10-30 cm soil interval. On average, the total P of the pre-construction soils was 287 mg/kg P collected in 1989 while the newly accreted wetland soil averaged 427 mg/kg P in 1999. Total P decreased with depth averaging 426, 247, and 192 mg/kg in the detritus, 0-10 cm, and 10-30 cm layers, respectively. The total organic P represented 65, 72, and 88% of the total P for detritus, 0-10, and 10-30 cm soil intervals. The inorganic P pool is 33% of total P in the detritus. Periods of dry conditions in the STAs may lead to a release of organic bound P by aerobic decomposition processes reducing treatment effectiveness over time.

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