

Biosolids Derived P in the St. Johns River Watershed: Implications for Legacy P Impacts

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Changes in state regulations in Florida in 2013 resulted in a shift of Class B biosolids applications out of watersheds in South Florida to nearby available areas, resulting in pasturelands of the Upper St. Johns River Basin (USJRB) receiving an additional 950 MT of phosphorus (P) annually from Class B biosolids. Watersheds in the USJRB with increased biosolids application exhibited concomitant increases in P export, while similar watersheds with negligible biosolids application showed no change in P export. A preliminary watershed nutrient budget indicated that export of a small percentage of the added biosolids P was sufficient to produce the observed changes in water quality. Immediate water quality impacts of increased P export have been observed in the headwater lakes of the St. Johns River, but the extent to which the additional P is retained in lake sediments and the expansive marshes of the St. Johns River is less understood. Attenuation of the P loading signal downstream from the headwater marshes indicated retention of P in soils and sediments. We anticipate that as watershed soils continue to export legacy P, a moving front of P-saturated soils will develop in the headwater marshes and floodplain of the St. Johns River and may continue to enrich downstream waters with P.