The Role of Freshwater Wetlands as Nutrient Sinks in Agricultural Landscapes. (S10-craft134517-Oral)

Authors:

- C.B.Craft* Indiana University
- . J.Creasser Indiana University

Abstract:

Soil nitrogen (N), phosphorus (P) and organic carbon (C) accumulation were measured in ten freshwater wetlands, five located in predominantly agricultural watersheds and five in mostly forested watersheds, of northern Indiana. Bulk density, N, P, organic C content and soil accretion, determined by Cs-137, were used to calculate contemporary (post-1964) rates of organic C and nutrient accumulation. Wetlands in agricultural watersheds had higher accretion rates (4.4 mm/yr) and soil P (900-1130 ug/g, 0-30 cm depth) than wetlands in mostly forested watersheds (AR=2.1-2.6 mm/yr, P=630-740 ug/g). There was no difference in soil N content between wetlands in agricultural (2.5-2.8%) and forested watersheds (2.2-2.9%). In agricultural wetlands, enhanced soil accretion and phosphorus resulted in much higher rates of organic C (400 g/m2/yr), N (32 g/m2/yr) and P (1.5 g/m2/yr) accumulation as compared to wetlands in mostly forested watersheds (C=100 $g/m^2/yr$, N=7 $g/m^2/yr$, P=0.02 $g/m^2/yr$). In addition to creating wildlife habitat, restoring wetlands in agricultural landscapes may be a useful tool to reduce nutrient loadings to aquatic ecosystems downstream.

Corresponding Author Information:

Christopher Craft Indiana University Public and Env. Affairs Bloomington, IN 47405 phone: 812 855-5971 fax: 812 855-7802 e-mail: ccraft@indiana.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 9:00 am

Keywords:

Nitrogen, Phosphorus, Soil accumulation, Wetland vegetation