

TITLE

Influence of Watershed Characteristics on Wetland Hydrology (Tampa, FL)

Authors

Darrin Dantin¹

Marc Russell¹

Fred Genthner¹

Janet Nestlerode¹

Andrew From²

Alex Almario¹

Ken Krauss³

Affiliation of authors

¹ U.S. EPA – ORD – NHEERL

Gulf Ecology Division

1 Sabine Island Drive

Gulf Breeze, FL 32561

² Five Rivers Services, LLC

USGS National Wetlands Research Center

700 Cajundome Blvd

Lafayette, LA 70506

³ USGS National Wetlands Research Center

700 Cajundome Blvd

Lafayette, LA 70506

Abstract:

The availability of oxygen in wetland soils is a major driver of rate changes for several important ecological functions (e.g. nutrient processing, carbon sequestration) that the Tampa Bay Ecosystem Services Research Program (TB-ESRP) is quantifying to estimate ecosystem services. Fluctuating water levels in coastal and riparian wetlands expose soils to differing oxygen regimes which have significant impacts on biogeochemical transformation processes. To better characterize the relationships between adjacent hydrology, precipitation and nutrient processing with groundwater level fluctuations, continuous water level data were collected in forested or marsh wetland within landscapes characterized as being either predominantly urban, agriculture or of natural influence. These data are essential for refinement of our dynamic simulation models for predicting wetland flooding/drying cycles to link estimates of biochemical processes to impacts on wetland ecosystem services. Presented are water level fluctuations over a one year period from 27 wetland study sites in the eastern Tampa Bay watershed; relationships between wetland soil denitrification potential, hydrology, and landscape characteristics are explored.