

# CARBON DYNAMICS OF URBAN STORMWATER PONDS: BURIAL, GAS FLUX, AND DOM COMPOSITION

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Permanently Wet Stormwater Ponds are engineered stormwater management systems that are increasing in number on the landscape and have the potential to play a significant role in altering biogeochemical cycling on the landscape, especially that of carbon. Although individually small in size, stormwater ponds collectively are estimated to make up just under 1% of Florida's land area and remain under-researched. This study aims to assess the potential impact of urban stormwater ponds on regional carbon cycling by examining burial rates, greenhouse gas flux ( $\text{CO}_2$ ,  $\text{CH}_4$ ), and the composition of dissolved organic matter (DOM). C analyses were conducted on five residential stormwater ponds selected by an age gradient (14-34 years) in the Lakewood Ranch community of Bradenton, FL, a subtropical region. We hypothesized that urban stormwater ponds would bury significant quantities of carbon and be sources of greenhouse gases to the atmosphere. Additionally, we predict runoff to consist of relatively labile sources of terrestrial DOM and the pond to contain more labile sources of internally produced DOM. Data will be presented on carbon burial rates from pond sediment cores collected during May 2019, as well as preliminary data on biweekly measurements of GHG emissions and OM quality via fluorescence spectrometry that began June 2019. The goal of this study is to understand how small constructed aquatic systems intercept water from the landscape and transform carbon that is either stored, emitted to the atmosphere, or sent downstream to naturally occurring streams, rivers, wetlands, or lakes.