

# Alterations to Biogeochemical Processes and Sediment Transport by the Invasive Macrophyte, *Hydrilla verticillata*, in Lake Seminole

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**Abstract.** Invasive macrophytes are a particular management target in reservoir systems because they can outperform native aquatic plants, obstruct boating areas, and modify ecosystem services. Here, we use paleolimnological techniques and sediment trap collections to establish the effects of the growth and die-off of a dominant (55% of SA) invasive macrophyte, *Hydrilla verticillata*, on biogeochemical processes in a large, shallow reservoir, Lake Seminole, GA, USA (152 km<sup>2</sup>, mean depth = 3 m). This system offers a unique hydrology with the mixing of the Chattahoochee River's industrialized watershed with the agricultural watershed of the Flint River. Our results show that the sediment characteristics reflect the Chattahoochee-side historically and the Flint-side seasonally. *Hydrilla* presence serves as a bio-filtration mechanism increasing material deposition to the benthic environment. Likewise, organic matter deposition in the dam area indicates that decaying *Hydrilla* is a source of organic carbon for downstream areas, but this organic carbon is temporarily deposited, rapidly removed, or degraded. These results establish the need to better understand carbon dynamics and biogeochemical processes related to invasive macrophytes prior to eradication monitoring efforts.