METHODS FOR MAPPING SUBMERGED AQUATIC VEGETATION (SAV) WITHIN A SHALLOW SUBTROPICAL RESERVOIR, LAKE SEMINOLE, GA

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Abstract. Submerged aquatic vegetation (SAV) can affect productivity and biogeochemical transformations within aquatic systems, which fundamentally alters the physical and chemical processes occurring within aquatic ecosystems. SAV can have large effects in shallow lakes where photosynthetically active radiation (PAR) reaches the lake bottom. To evaluate the effects of SAV on a lake, the spatial coverage of SAV must be determined. During the summer of 2012, we used a visual survey by boat combined with post-processing in ArcMap to determine the spatial coverage of SAV on Lake Seminole, a shallow reservoir located at the confluence of the Flint and Chattahoochee rivers. The plant community of Lake Seminole is dominated by Hydrilla verticillata, an invasive macrophyte native to Asia. The summer of 2012 had excellent growing conditions for Hydrilla because of an ongoing multiyear drought and above normal temperatures during the previous winter. Producing annual vegetation maps will allow us to investigate the relationship between weather, climate, and water conditions (i.e. turbidity) on the spatial coverage of Hydrilla and make important inferences about lake structure and function. Field estimates are being compared to satellite imagery to determine the ability of remote sensing techniques to accurately estimate macrophyte extent and composition. Ongoing research is examining the relationship between Hydrilla coverage and the nutrient source/sink dynamics of the lake. Because Lake Seminole is the most downstream impoundment in the ACF drainage, understanding whole lake productivity and biogeochemical processes is critical for developing water management plans for the Apalachicola River and Apalachicola Bay estuary.