The impact of boat wake on submerged aquatic vegetation (SAV) in Bogue Sound, North Carolina
Colleen Whitener

Carteret County, NC has proposed the construction of a public boat access in Bogue Sound, NC, and as boat wakes are potentially dangerous to submerged aquatic vegetation (SAV) a study was conducted. The SAV has been in decline, so the purpose of this study was to determine if boat wake is the cause of SAV decline, and continues to cause it to decline, in the area surrounding and including the proposed boat access building site. Turbidity, chlorophyll-\(a\), colored dissolved organic matter, sediment shear strength, and gain size were measured. The historical changes in the shoreline and SAV abundance and area were also examined. It was found that turbidity spikes did not always correlate with boat occurrences and baseline turbidity during sampling periods was never consistent, so other factors along with boat wakes are contributing to SAV decline. A bio-optical model that examines light attenuation found that the water never reaches the ideal light clarity for SAV growth. Shear strength of soils was higher in samples with seagrass shoots indicating the ability of seagrass to hold soil; however, large sand particles were most abundant in all samples indicating easy erodibility. Examination of shoreline history and SAV showed that shorelines are retreating and SAV abundance and area is decreasing. Boat wake is contributing to SAV decline, yet other factors are as well. This is seen as waters are not clear, light is not reaching the bottom, and erosion is still occurring.