

Seasonal Variation of a Bed of Submerged Aquatic Vegetation in Currituck Sound

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Abstract

I collected core samples over a ten month period from a bed of Submerged Aquatic Vegetation (SAV) near Bells Island in Currituck Sound, NC. Plant samples were processed in the lab and the biomass (g/m²) was calculated based on the dried weights. The three species that dominated the samples were wild celery (*Vallisneria americana*), widgeon grass (*Ruppia maritima*) and redhead grass (*Potamogeton perfoliatus*). Total biomass in the SAV bed peaked in September and October. I found that the species that accounted for most of the biomass varied by month. Wild celery was the dominant species during August and September; widgeon grass during April and May while redhead grass was the dominant in July.

Introduction

Submerged aquatic vegetation (SAV) are underwater vascular plants and can be found from the freshwater sections of North Carolina's sounds to the more marine waters near inlets. They form a critical habitat in estuarine systems by providing a variety of ecological services including, nursery habitat for fishes, food for waterfowl, stabilizing sediments and recycling nutrients. These SAV habitats are vulnerable to degradation by human activity because of their location in shallow areas and their high light requirements; globally this habitat has been declining due to poor water quality, increased runoff, eutrophication and other issues (Orth et al. 2006; Waycott et al 2009). To add to our understanding of the natural history of low salinity SAV species I monitored the biomass of a SAV bed over time.

Materials & Methods

On a monthly basis I collected core samples from a SAV bed located along the east side of Bells Island in Currituck Sound, NC. A 50 x 50 m grid was laid over the bed and ten points randomly selected from within the grid. At each point a 10.16 cm corer (0.0324 m²) was pushed down to a depth of 10 – 20 cm and the contents rinsed in the field. In the laboratory the sample was sorted by species, placed in a drying oven at 60 °C for three days and the dry weight found.

Results and Conclusions

In this bed of SAV I found three species (*Vallisneria americana*, *Ruppia maritima* and *Potamogeton perfoliatus*) that accounted for 90% of the total biomass. Another three species found (*Najas guadalupensis*, *Myriophyllum spicatum*, and *Eleocharis sp.*) accounted for 10% of the biomass.

The peak biomass of the dominant species varied by month. *Vallisneria* accounted for 77% of the sample or 6.6 +/- 2.6 SE gm/m² in August. *Ruppia* made up 58% of the sample or 11.9 +/- 2.6 SE gm/m² in April. *Potamogeton* accounted for half the sample or 6.2 +/- 3.8 SE gm/m² in July (Figure 1). With the exception of *Ruppia* the peaks in biomass are similar to those found by Moore et al (1998) in the Chesapeake Bay. Biomass of SAV was lower than in the Chesapeake Bay and the maximum biomass occurred in September and October rather than in mid-summer (Figure 2). The consistency of this pattern will be investigated with further sampling in other sites.

References

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