Patterns in submerged aquatic vegetation in the lower St. Johns River, Florida, from 2001 to 2019

Nisse Goldberg and Tiffany Trent

To understand resiliency of submerged aquatic vegetation (SAV) communities with distance from the river mouth, SAV monitoring data, consisting of nine taxa, were analyzed in the lower St. Johns River, Florida, from 2001 to 2019. Patterns were evaluated with changes in salinity, turbidity, and weather events (e.g., hurricanes). Beginning just north of the Ortega River (30.28848N, 81.70608W) to the inlet of the Ocklawaha River (29.48588N, 81.67518W), SAV bed width perpendicular from shore, taxon richness, canopy length, and water depth were recorded from 124 transects stratified by 10 river kilometer sections (RKMs) of 15-km lengths between RKM 48 to 179 from the river mouth. Mean annual salinity and turbidity values per RKM were compared with SAV parameters. SAV bed extent and taxon richness were smallest in sections farther upriver (RKM 144 to 159) and highest in RKM 64 to 79. Salinity and turbidity had significantly higher values in sections closest to the river mouth (RKM 48 to 79). Southern naiad [*Najas guadalupensis* (Spreng.) Magnus] and wild celery (*Vallisneria americana* Michx.) were the most abundant and ubiquitous in all river sections, irrespective of environmental conditions. Canopy length and growing depth per taxon were variable among river sections and years, indicating differing tolerances to turbidity, salinity, and physical disturbance from extreme storm events. The number of sites present per taxon declined in the later years, which supports global trends that reduced water quality and habitat availability, and changes in salinity and flow regimes may exacerbate SAV recovery following repeated disturbance events.