Ichetucknee Springs State Park
Florida Department of Environmental Protection, Division of Recreation & Parks

Summary of the Ecological Health of the Ichetucknee River Using 31 years of Submerged Aquatic Vegetation Monitoring

Within a spring ecosystem, the plants that make up the submerged aquatic vegetation (SAV) or its "underwater forest" are the foundation of a healthy freshwater community. Loss of these plants would cause a collapse of the natural spring ecosystem.

With over 30 years of data, the SAV transects within Ichetucknee Springs State Park are undoubtedly the best long-term dataset that has been used to document patterns and changes to the ecological health of one of Florida's most iconic freshwater springs and spring run streams.

This dataset has illustrated the effects of recreation on this spring ecosystem's SAV plants and the subsequent recovery when recreation is removed (i.e., previously over winter, and now for a full year because of COVID-19 restrictions during 2020).

Diversity of SAV in the Ichetucknee River has been declining for the past 31 years while overall SAV coverage has seen dramatic increases in two plant species (springtape and American eelgrass) as well as a plethora of nuisance algae, changing the ecological character and aesthetics of this river system.

Increasing groundwater-based nutrients and decreasing springwater discharge are primary causes of springs eutrophication, however, excess nutrient abundance is mostly responsible for overstimulation of SAV growth.

The significant presence of increased nuisance algae, including its dense encrustation on SAV leaves, reflects the poor physiological condition of the SAV within this spring ecosystem.

Evidence from the Lower Ichetucknee suggests that this section of the river may be experiencing an ecological tipping point and transitioning from a healthy SAV-based ecosystem to one that is eutrophic, unhealthy and dominated by algae like numerous other Florida springs that have already undergone a complete or near complete collapse in their submerged aquatic plant structure (e.g., Manatee, Fanning, Volusia Blue, and Homosassa springs).

As SAV health declines due to impacts from lower water quality and quantity, in addition to recreational use, the prevalence of algae will only increase in dominance as seen in other Florida springs.

Recreation damages the ecological health of the Upper Ichetucknee more so than the lower because of the shallower water depth. Foot traffic in shallow areas directly impacts the SAV plants and disturbs sediments that increase water turbidity and clouds the water.

With the decline in water quality, the DRP is reducing stress on the river, by moving the Upper Ichetucknee's 750 visitor tubing capacity to Midpoint Launch. This action will have a significant positive effect on the health of the upper river by eliminating direct impacts on the plants and will reduce turbidity that blocks sunlight that is necessary for SAV growth.

The long record of ecological data collected by the Florida Park Service indicates that the Lower Ichetucknee River is better able to sustain recreational activity because it is deeper and contains fewer areas where vegetation is vulnerable to trampling and where sediments are easily disturbed. Protection of the lower river will require an increased focus on groundwater protection outside the park to reverse the declines in water quality and quantity to preserve this crown jewel of Florida's State Park System.