ARE CHANGES IN ECOLOGICAL DRIVERS INHIBITING SUBMERGED AQUATIC VEGETATION RESTORATION IN FLORIDA SPRING SYSTEMS?

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Special Session; Nathan Reaver. Submerged aquatic vegetation (SAV) communities are major structural and functional components of many Florida spring systems. High water clarity and relatively stable hydrology and temperature have historically allowed SAV communities to flourish in these springs, with primary production rates comparable to Earth's most productive ecosystems. Over recent decades substantial changes have been observed in spring SAV communities. Filamentous macroalgae have become more abundant and appear to be displacing strap-leaf sagittaria (*Sagittaria kurziana*), eelgrass (*Vallisneria americana*), and other native SAV species characteristic of springs. The increase in macroalgae, decline in SAV, and corresponding ecological degradation have drawn the attention of the public, elected officials, water resource managers, and scientists. Despite considerable investment in scientific research to determine the causes of SAV community changes, scientific consensus is currently lacking regarding a specific causal mechanism. SAV community changes have been largely attributed to nutrient enrichment and declining flows, but closer inspection has revealed that these drivers cannot fully explain observed changes. The role of episodic disturbance events, such as flood pulses from adjacent blackwater rivers and storm surges in coastal spring systems, has recently emerged as a strong driver of SAV communities and may be exacerbated by climate change. Although uncertainties remain regarding the causes of SAV community changes, efforts to replant SAV have been attempted in several spring systems. These SAV replanting efforts have employed a variety of techniques in different settings, which has led to new information regarding drivers of SAV communities and potential opportunities to improve restoration outcomes. This presentation will provide a statewide overview of the status and trends of SAV communities and their drivers and discuss the lessons learned from SAV restoration efforts in Florida springs.

PRESENTER BIO: Dr. King is a senior engineer with more than 10 years of experience planning, designing, and implementing projects to better understand and improve Florida water resources. Recent projects include ecological assessment and restoration of springs, wetlands, and coastal systems; and innovative stormwater and wastewater infrastructure improvements focused on water quality.