Seagrass Abundance and Diversity in Lake Worth Cove: Trends from 2010-22

Thomas C. Chesnes, Ph.D. – Department of Biology, Palm Beach Atlantic University

PBA BIOLOGY

Lake Worth Cove is located within the boundaries of John D. MacArthur Beach State Park in northern Lake Worth Lagoon

Biannual benthic sampling has occurred since 2010, typically in February and August.

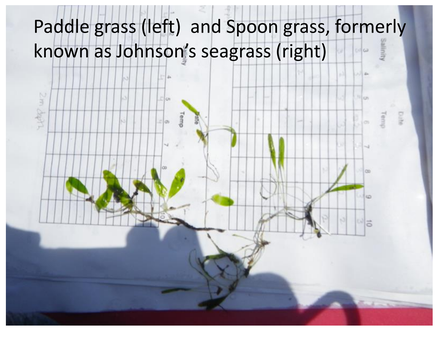
The Cove was divided into 50 approximate 1 hectare zones along a north-south gradient. Ten haphazardly chosen samples were taken in each zone using a modified Braun-Blanquet cover abundance scale within a quarter meter square quadrat. All benthic macrophytes were documented.

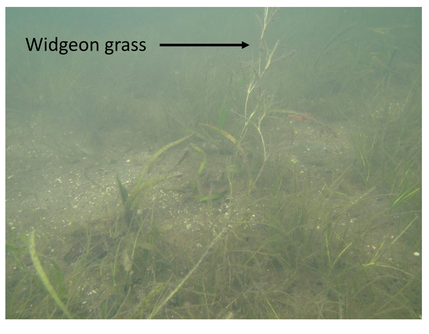
All seven Florida seagrasses (pictured below) have been found in the Cove, designating it as one of the most biodiverse seagrass communities in the western hemisphere (Chesnes, et al. 2011, *Biodiversity* 12:90-96)


Turtlegrass (wide blades) and Shoal grass


Turtlegrass (wide blades) and Manatee grass


Star grass

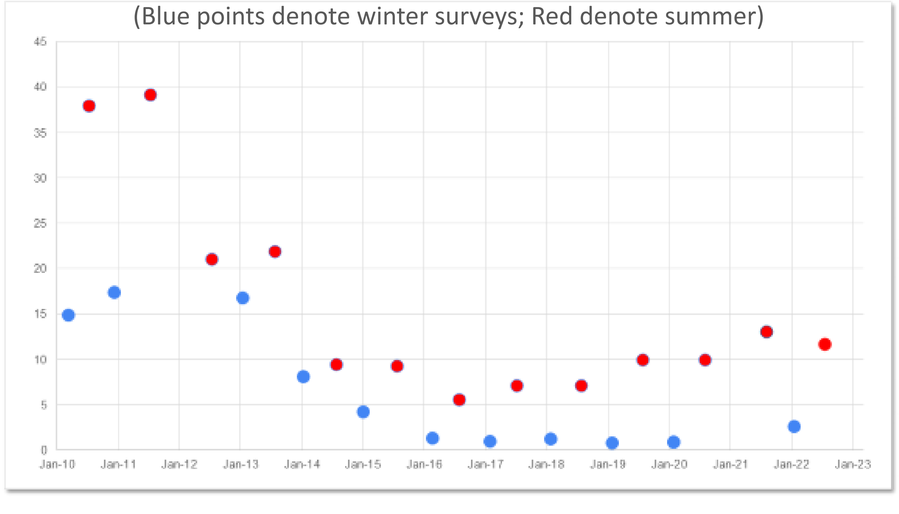

Paddle grass (left) and Spoon grass, formerly known as Johnson's seagrass (right)


Widgeon grass

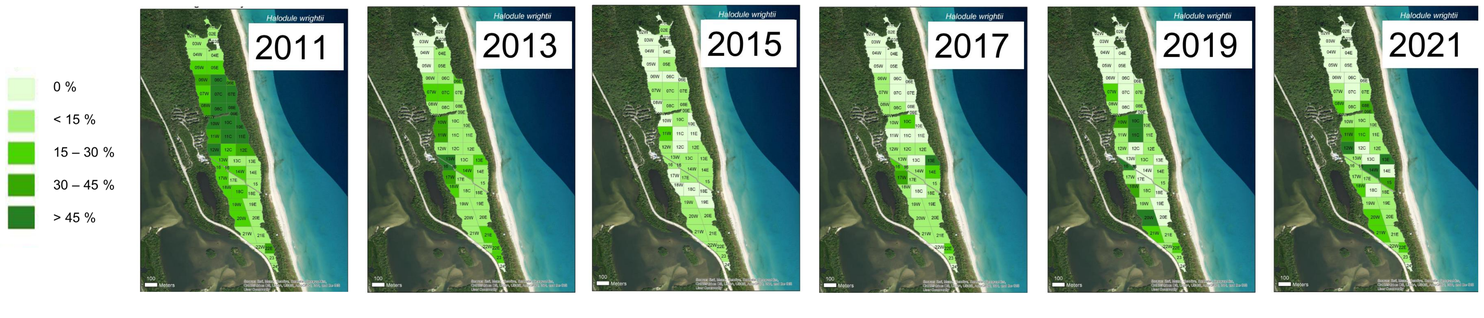
As documented throughout eastern Florida, declines in seagrass abundance have been observed in Lake Worth Cove over the decade, though minor increases and stabilization have been measured since 2019.

Seagrass Cover Abundance (%): Lake Worth Cove 2010-2022

(Blue points denote winter surveys; Red denote summer)



Preliminary spatial analyses are determining locations within the Cove that have experienced loss and recruitment of seagrasses, and to determine the influence of sediment, flow, and depth. Shoal grass (*Halodule wrightii*) data are shown.



ACKNOWLEDGMENTS

This project was funded by grants from the Community Foundation for Palm Beach and Martin Counties and the Palm Beach Atlantic University Quality Initiative Research program. MacArthur Beach State Park, Florida Park Service, Palm Beach County Department of Environmental Resource Management and the PBA Department of Biology provided logistical support. Numerous students, citizen scientists, State Park employees and volunteers participated in various stages of this project. Jessica Wharton completed the spatial analysis as part of her Senior Research Project at PBAU.