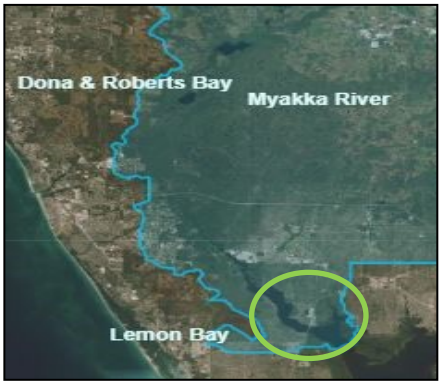
Seagrass in Tidal Myakka River

FISH, WILDLIFE, & HABITAT PROTECTION

Summary

The Myakka River is Florida's only federally designated Wild and Scenic River. It lies between Tampa Bay and Port Charlotte. The Myakka River is 68 miles long with the lowest 20 miles being brackish water with tidal influence. The watershed is fairly undeveloped so the riverine ecosystem is about as intact as in the southern half of the state. Seagrasses within the Myakka River Basin primarily consist of Shoalgrass (*Halodule wrightii*) followed by Widgeongrass (*Ruppia maritima*)[1]. Note that Tidal Myakka River seagrass meadows comprise a small portion of the total acreage for Charlotte Harbor area and are mainly influenced by freshwater flows from the river.



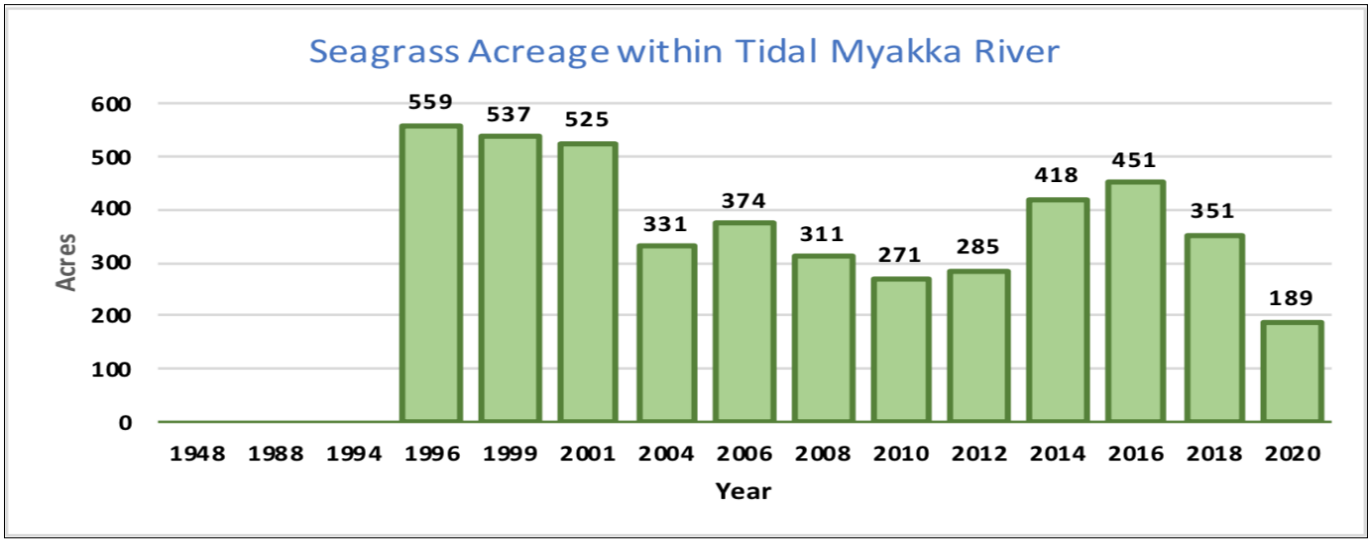
Seagrass as a Way to Track Water Quality and Estuary Health

Over 2.2 million acres of seagrass have been mapped in estuarine and nearshore Florida waters. Many economically important fish and shellfish species depend on seagrass beds during critical stages of their life. Seagrass beds also contribute to better water quality by trapping sediments, storing carbon, and filtering nutrients from stormwater runoff. Florida had historical declines in seagrass acreage during the 20th century. Seagrass requires clean water and ample sunlight to grow. Because seagrass thrives in clean and clear water- it is used by agencies and local governments as a way to measure water quality. This is done in two ways:

- Mapping changes in seagrass acreage and location over time with aerial photography (spatial coverage). This is valuable for estimating seagrass locations, acres and broad changes over time.
- On-the-ground monitoring of changes in species composition, estimation of bottom cover in a seagrass bed (abundance), and maximum depth in which seagrass can grow due to light availability and water clarity (deep edge). This monitoring works to characterize the density, complexity, and stability of those seagrass meadows.

Seagrass Acreage

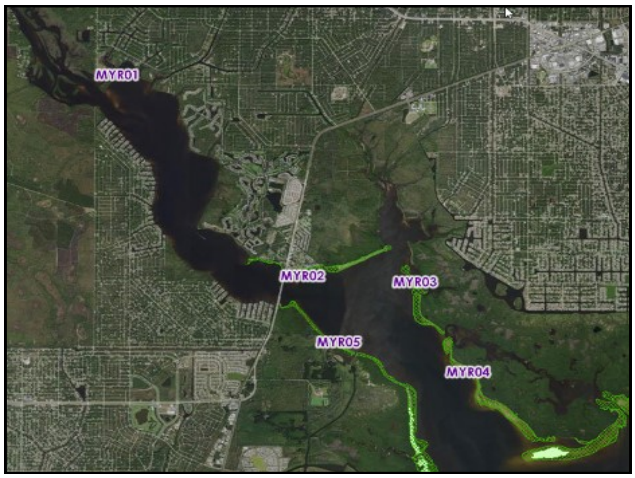
The below graphic depicts results from seagrass mapping in the tidal portion of the Myakka River from 1996-2020. Although seagrass acreage was increasing from 2010-2016, it began to decline in 2018 and demonstrated more losses from 2018 and 2020. The cause of this decline is complex and involves several likely factors including red tide, increasing nutrient loads, hurricanes, rainfall pattern and others. The CHNEP continues to work with our partners to investigate causes.



For more information, please visit the CHNEP Water Atlas at chnep.wateratlas.usf.edu

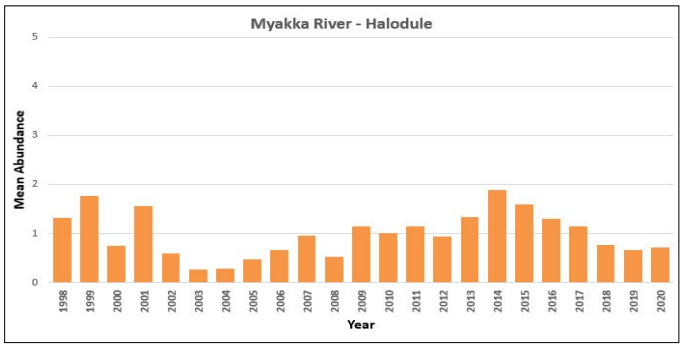
Monitoring Sites

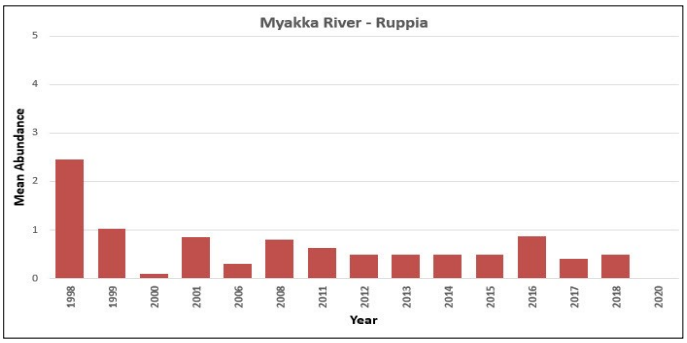
Monitoring is the repeated observation of a system to detect localized changes in a specific seagrass meadow over time in response to environmental conditions and light availability as well as measure overall health. The map to the right shows locations of monitoring sites in selected meadows in Tidal Myakka River by the Florida Department of Environmental Protection Aquatic Preserve staff. Annual seagrass monitoring in the Harbor examines species types, density, distribution, and how deep the grass will grow (this is dependent on light availability).

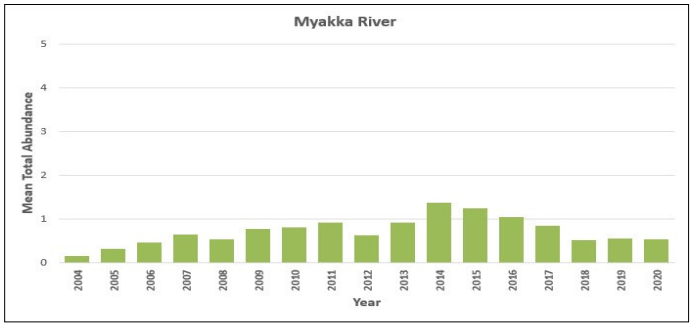


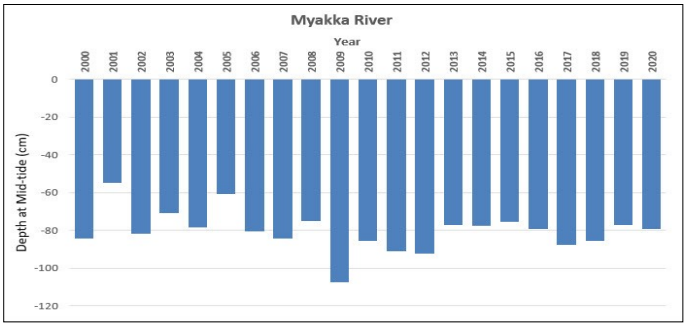
Seagrass Diversity and Health

The bar graphs below show the total abundance for two seagrass species Shoalgrass (*Halodule wrightii*) and Widgeongrass (*Ruppia maritima*), total amount of grass, and depth at which the grass was growing at selected monitoring locations in Tidal Myakka area for the years 1998-2020[3]. They demonstrate that overall density of seagrass, Shoalgrass (*Halodule wrightii*), and Widgeongrass (*Ruppia maritima*) have seen declines in abundance at multiple monitoring locations starting as far back as 2017 preceding the to the decline in overall acreage observed between 2018 and 2020[3]. However, data collected in 2020 demonstrates modest gains from 2019-2020 for Shoalgrass (*Halodule wrightii*) in the area. Note that a diverse seagrass species composition is an important indicator of a healthy seagrass meadow and serves as more complex habitat for fish and shellfish.









[1]Yarbro, L. A., and P. R. Carlson, Jr., eds. 2016. Seagrass Integrated Mapping and Monitoring Program: Mapping and Monitoring Report No. 2. Fish and Wildlife Research Institute Technical Report TR-17 version 2. vi + 281 p.
[2]Southwest Florida Water Management District (2008, 2016) and South Florida Water Management District (2008, 2014)
[3]Brown, Melynda. 2017. Charlotte Harbor Aquatic Preserves: 18-Year Results of the Seagrass Transect Monitoring Program 1999-2016. Florida Department of Environmental Protection.

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