

Seagrass in Pine Island Sound-Matlacha Pass

Fish, Wildlife, & Habitat Protection

Summary

The Pine Island Sound basin also encompasses Matlacha Pass and San Carlos Bay. This area is known for its extensive seagrass beds. Pine Island Sound receives tidal flushing from nearby Boca Grande, Captiva, and Redfish Pass, and contains Pine Island Sound Aquatic Preserve. Matlacha Pass and Aquatic Preserve (divided from Pine Island Sound by Pine Island itself) and San Carlos Bay are influenced by inputs from the Caloosahatchee River and Punta Rassa Pass to the south.

Seagrass Measures Water Quality & Improves Estuary Health

Seagrass beds provide many benefits. It is nursery habitat for fish and shellfish and it contributes to better water quality by trapping sediments, storing carbon, and filtering nutrients from stormwater runoff. Seagrass requires clean water and ample sunlight to grow, and therefore it is used by agencies and local governments as a way to measure water quality. This is documented in two ways:

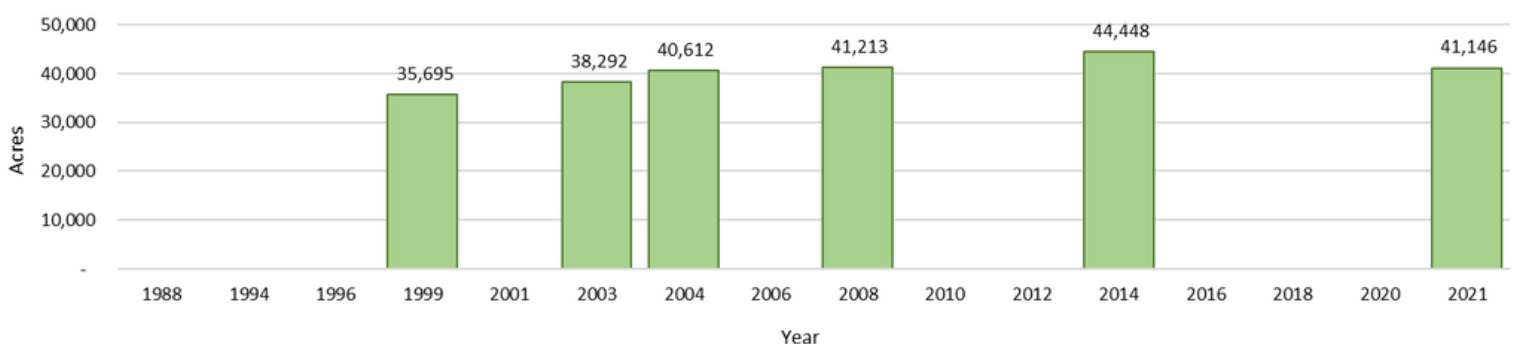
- Mapping changes in seagrass acreage and location over time with aerial photography (spatial coverage). This is valuable for estimating seagrass locations, acres and broad changes over time.
- On-the-ground monitoring of changes in species composition, estimation of bottom cover in a seagrass bed (abundance), 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 graphs below depict results from seagrass mapping in Pine Island Sound, Matlacha Pass, and San Carlos Bay from 1999–2021. Due to tidal flushing in Pine Island Sound, which hosts the majority of the region’s seagrass, acreages in this area have remained relatively stable over time since monitoring began. It is important to note, consistent mapping of acreage and locations with aerial photography is needed at least every 3-4 years in order to evaluate trends in seagrass acreage. Between 2014 and 2021, Pine Island Sound/Matlacha Pass lost 3,302 acres of seagrass, representing a 7% loss overall. The reason for this decline is complex and likely involves several factors. This includes impacts from recent storm events such as Hurricane Irma, increased temperatures and rainfall, additional nutrient runoff from land, as well as prolonged red tide and algae blooms in the region. The CHNEP continues to work with our partners to better understand causes and investigate solutions. Learn more about what the Partnership is doing protect and improve water quality in Pine Island Sound/Matlacha Pass (CHNEP.org).

Seagrass Acreage Variation within Pine Island Sound-Matlacha Pass



Monitoring Sites

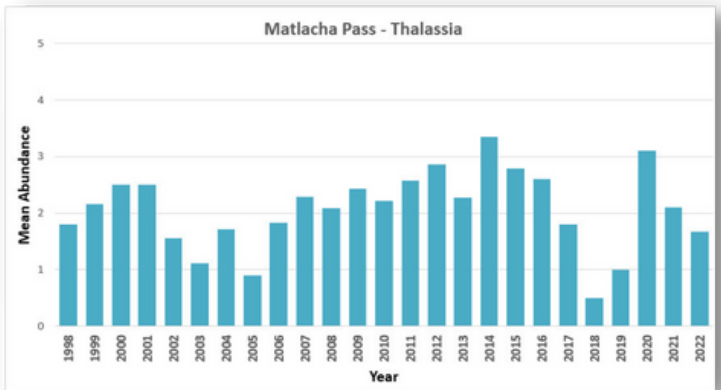
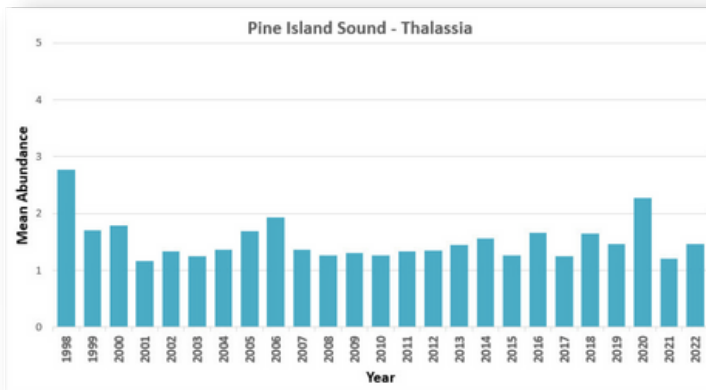
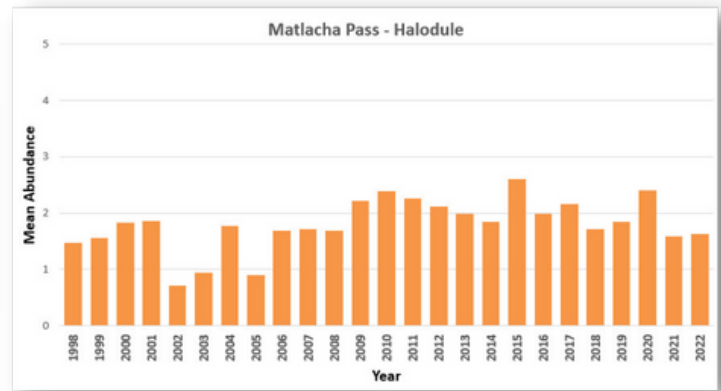
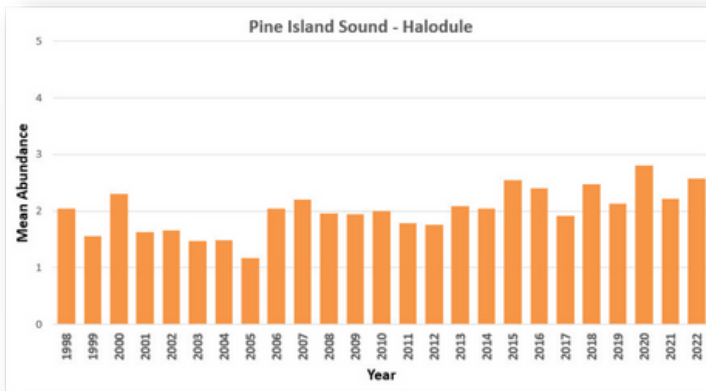
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in Pine Island Sound-Matlacha Pass by the Florida Department of Environmental Protection Aquatic Preserve staff. Annual seagrass monitoring in the Harbor examines species types, density, distribution and how deep the grass will grow (this is dependent on light availability).



Seagrass Diversity and Health

The bar graphs here depict the changes in presence of different species of seagrass found at monitored locations in the region. Since this region is so large, data shared in the graphs below are divided by two seagrass species at different monitoring locations in Pine Island Sound and Matlacha Pass for the years 1998–2021. Other types of seagrass are only found infrequently at these locations; there are not enough data to be graphed here.

Although both types of seagrass species experienced some declines at multiple monitoring locations starting as far back as 2016, numbers are relatively more stable in Pine Island Sound, which is mostly influenced by seawater from the nearby passes. Matlacha Pass (which receives freshwater flows from the Caloosahatchee River) has experienced more notable declines in seagrass in recent years due to a macroalgae issue (*Caulerpa fastigiata*). However, Data collected in 2020 showed modest gains (though not full recovery) throughout Matlacha Pass, however, data collected in 2021 demonstrate significant losses in overall seagrass abundance.



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

