Seagrass in Estero Bay

Fish, Wildlife, & Habitat Protection

Summary

Estero Bay is the first Aquatic Preserve in Florida. The western border consists of a chain of barrier islands. The estuary has significant freshwater inputs from small rivers and weak tidal exchange due to the restricted size of the four main inlets. Although the estuary is separated from the Charlotte Harbor estuary, it does receive water indirectly from the Caloosahatchee River through San Carlos Bay.

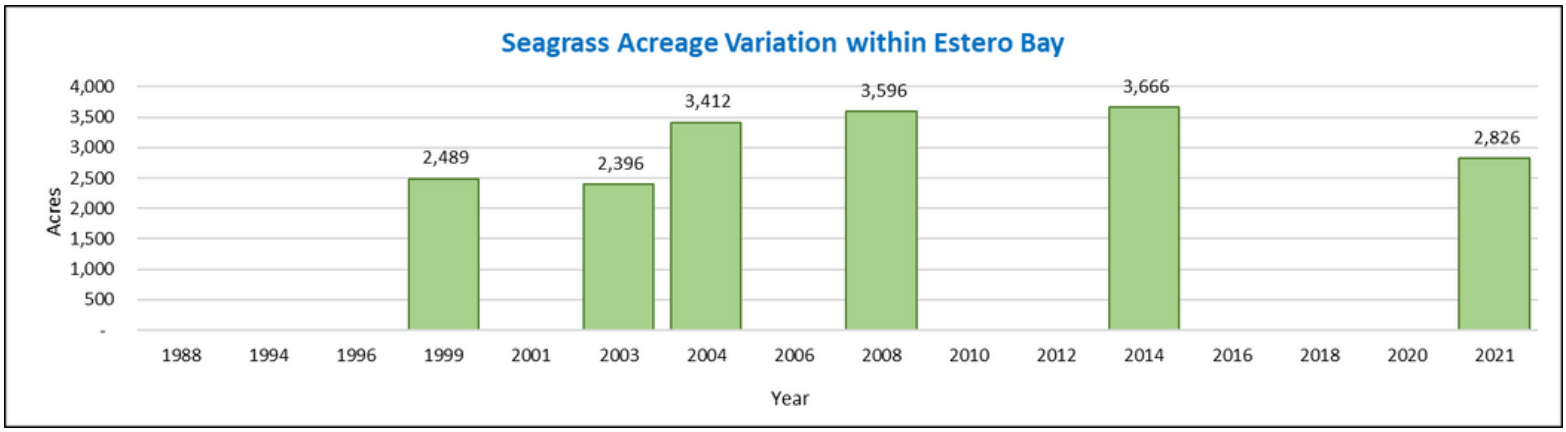
Seagrass Measures Water Quality & Improves Estuary Health

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.

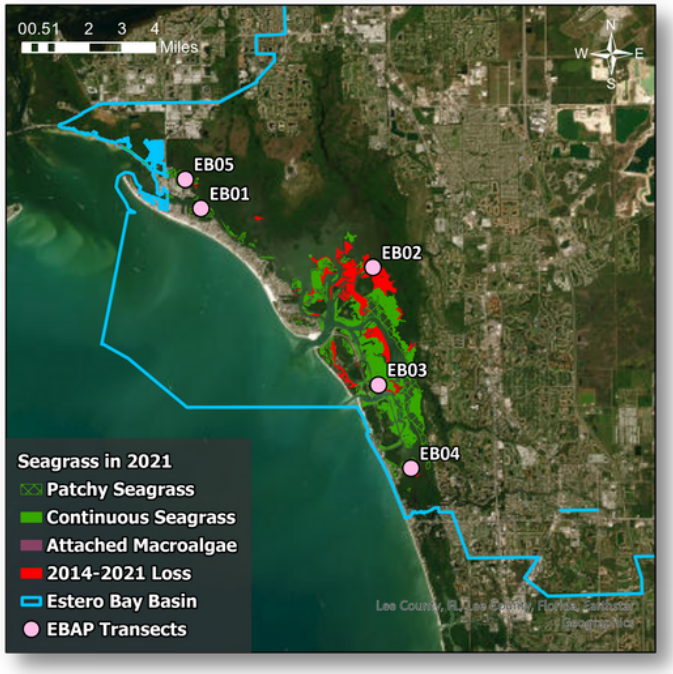
Seagrass Acreage

The graph below depicts results from seagrass mapping in Estero Bay from 1999-2021. From 2004 to 2021, seagrass acreage in the Estero Bay basin has remained relatively stable. However, it is important to note that these numbers do not reflect potential changes in seagrass bed abundance from ‘continuous’ to ‘patchy’, which may affect habitat value. Additionally, 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, Estero Bay lost 840 acres of seagrass, representing a 23% 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 Estero Bay (CHNEP.org).



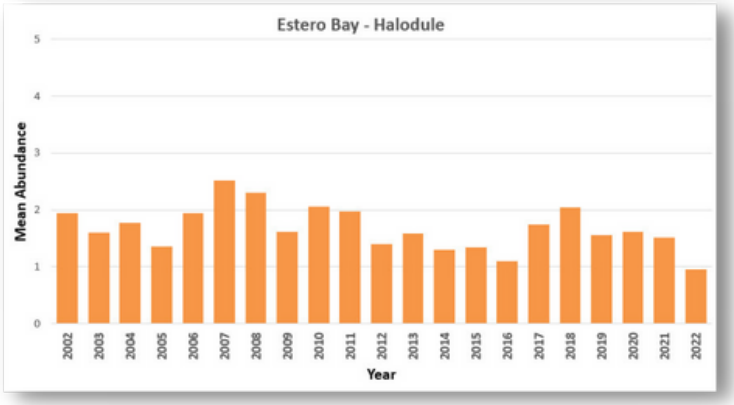
Monitoring Sites

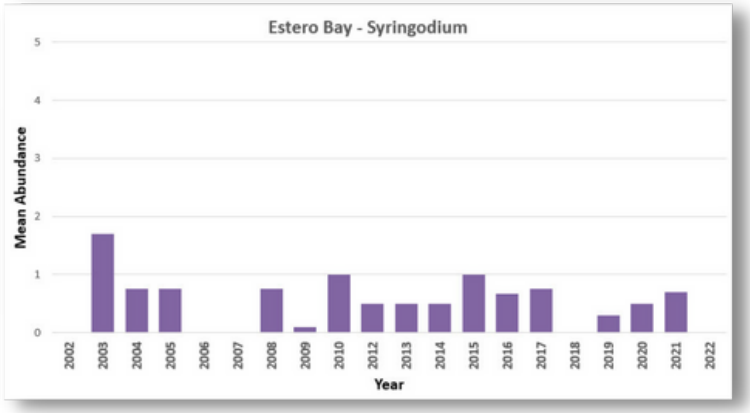
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in Estero Bay by the Florida Department of Environmental Protection Aquatic Preserve staff. Annual seagrass monitoring in the Harbor examines species types, density, distribution and how deep the grass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

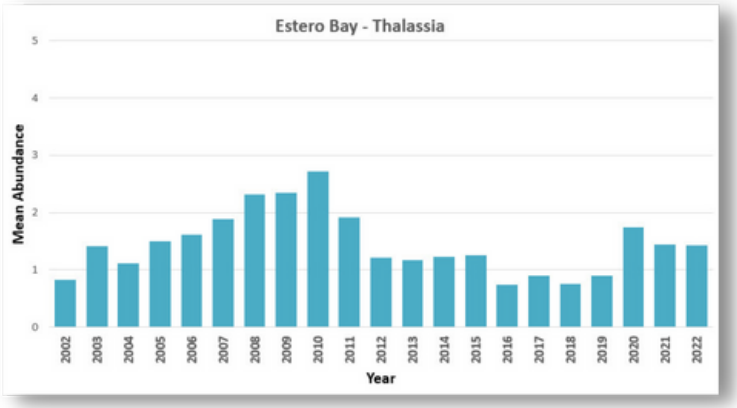


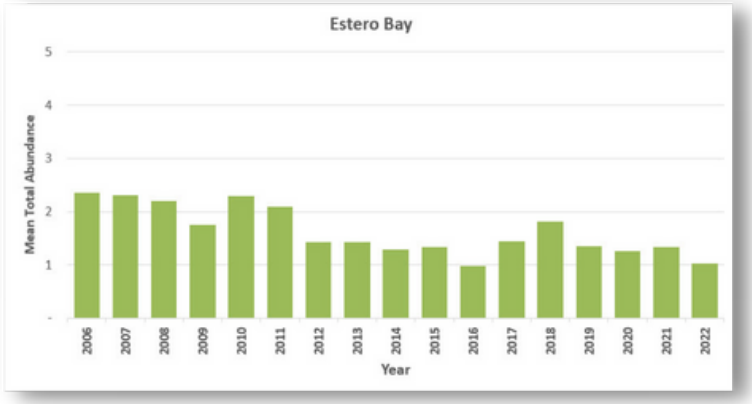
Seagrass Diversity and Health

The bar graphs here depict the changes in presence of different species of seagrass found at monitored locations in the region. Data shared in the graphs below are focused primarily on four seagrass species Shoal grass (Halodule wrightii) and Turtle grass (Thalassia testudinum), Widgeon grass (Ruppia maritima), and Manatee grass (Syringodium filiforme) for the years 2002–2021. Other types of seagrass are only found infrequently at these locations; there are not enough data to be graphed here. The presence of Shoal grass appears to have declined at monitoring sites since 2018. Turtle grass and Manatee grass show a declining trend starting as far back as 2012, and data collected in 2021 showed significant losses in Turtle grass despite modest gains seen in 2020.









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