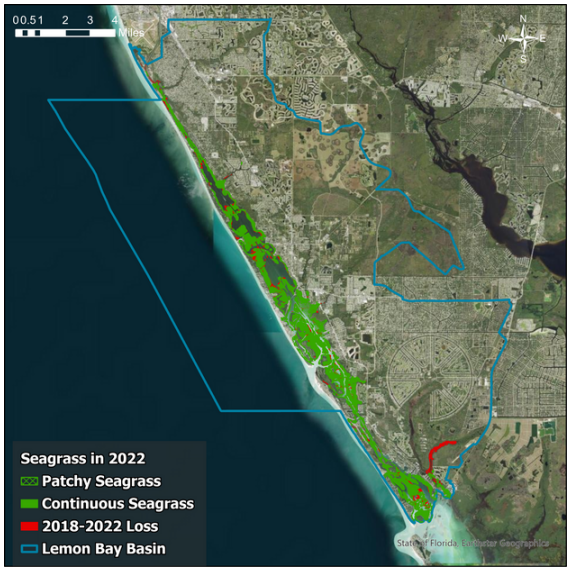
Seagrass in Lemon Bay

Fish, Wildlife, & Habitat Protection

Summary

Lemon Bay Basin extends from South Venice to the Gasparilla Island Causeway. Due to high amounts of urban land use, the watershed has been impacted by stormwater runoff, channelization of natural streams, increase of impervious surfaces, and conversion of natural habitat to other land uses. The tributaries to the estuary have also been transformed by ditching for mosquito control and development activities.



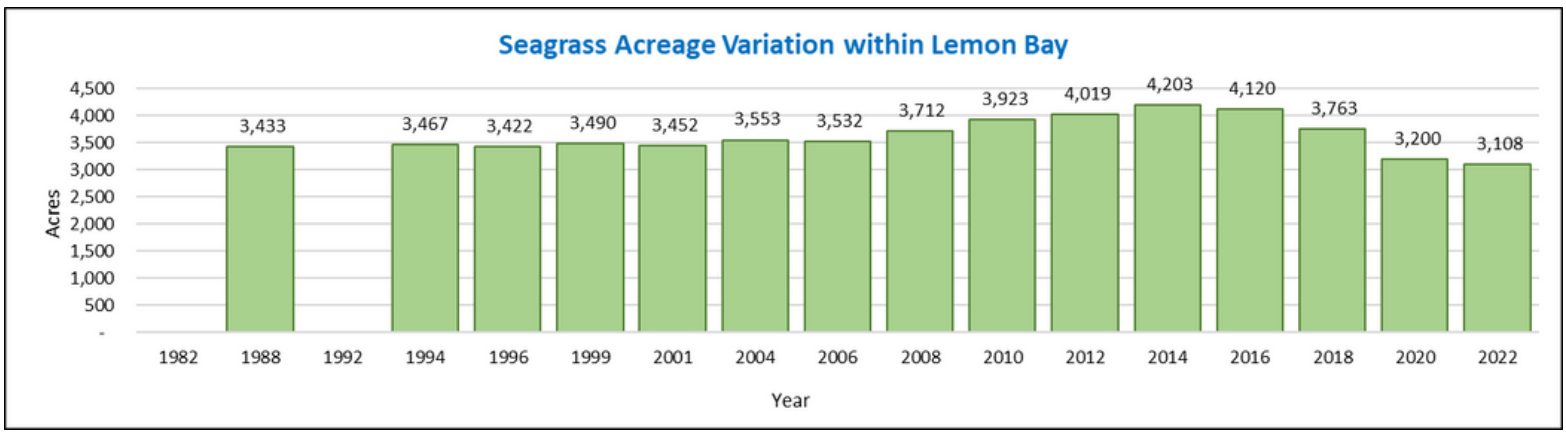
Seagrass Measures Water Quality & Improves Estuary Health

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.

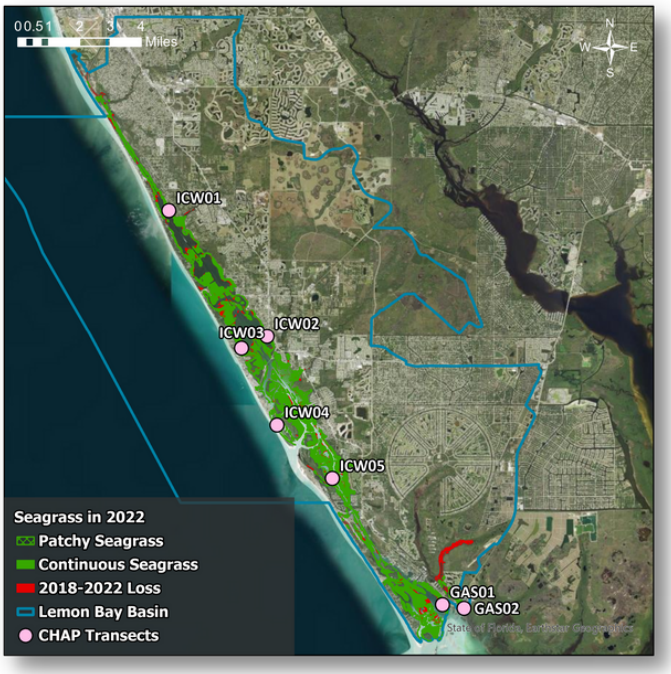
Seagrass Acreage

The table below shows results from seagrass mapping, done once every two years, in Lemon Bay from 1988-2022. Seagrass in this area has increased since the 1990's and since then remained relatively stable over time. However, acreages began to decline in between 2016 and 2018 and demonstrated more loss between 2018 and 2022. Between 2018 and 2022, Lemon Bay lost 655 acres of seagrass, representing a 17% loss overall. This is the third straight loss since 2016 with seagrass in Lemon Bay reaching an all-time historic low. 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 Lemon Bay (CHNEP.org).



Monitoring Sites

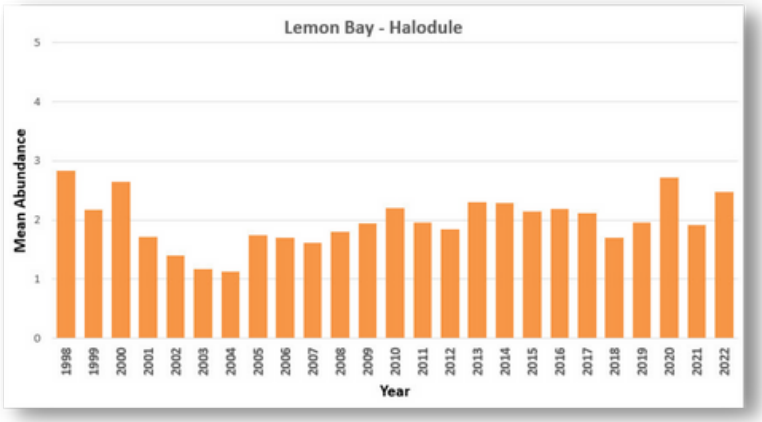
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in Lemon Bay by the Florida Department of Environmental Protection Aquatic Preserve staff. Annual seagrass monitoring in the Bay examines species types, density, distribution and how deep the grass will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

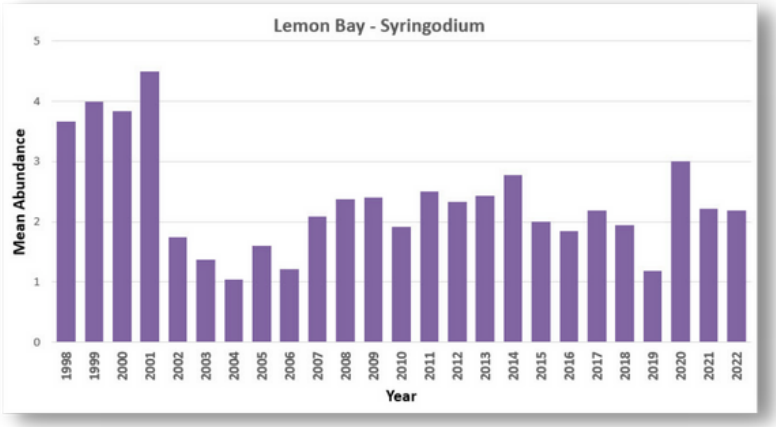


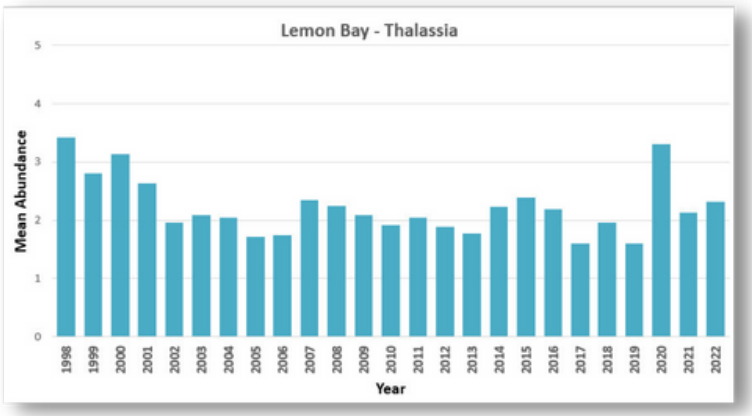
Seagrass Diversity and Health

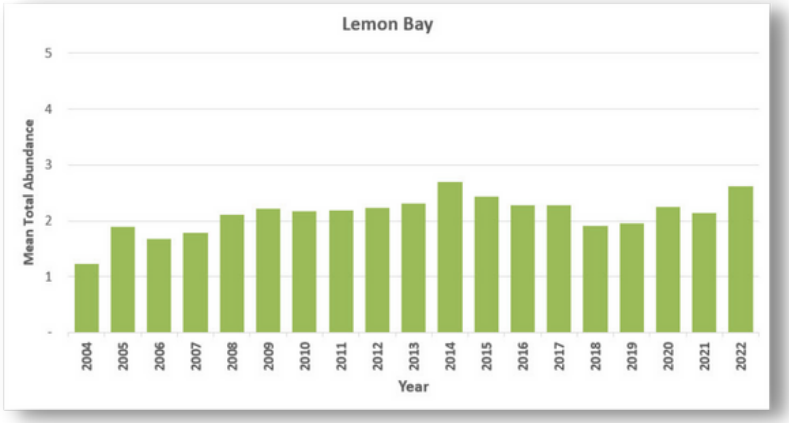
The bar graphs here depict the changes in presence of different species of seagrass found at monitored locations in the region. Note that a stable meadow with diverse seagrass species composition is an important indicator of a healthy seagrass meadow and serves as more complex habitat for fish and shellfish. In Lemon Bay this includes Shoal grass (*Halodule wrightii*), Turtle grass (*Thalassia testudinum*), and Manatee grass (*Syringodium filiforme*) for the years 1998–2021.

They demonstrate that all three types of seagrass experienced declines at multiple monitoring locations starting around 2018, preceding the decline in overall acreage observed between 2018 and 2020. Data collected in 2020 showed modest gains (though not full recovery) throughout the area, however, data collected in 2021 demonstrate large losses for all three species.









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