Charlotte Harbor Basin Water Quality Status Report

WATER QUALITY IMPROVEMENT

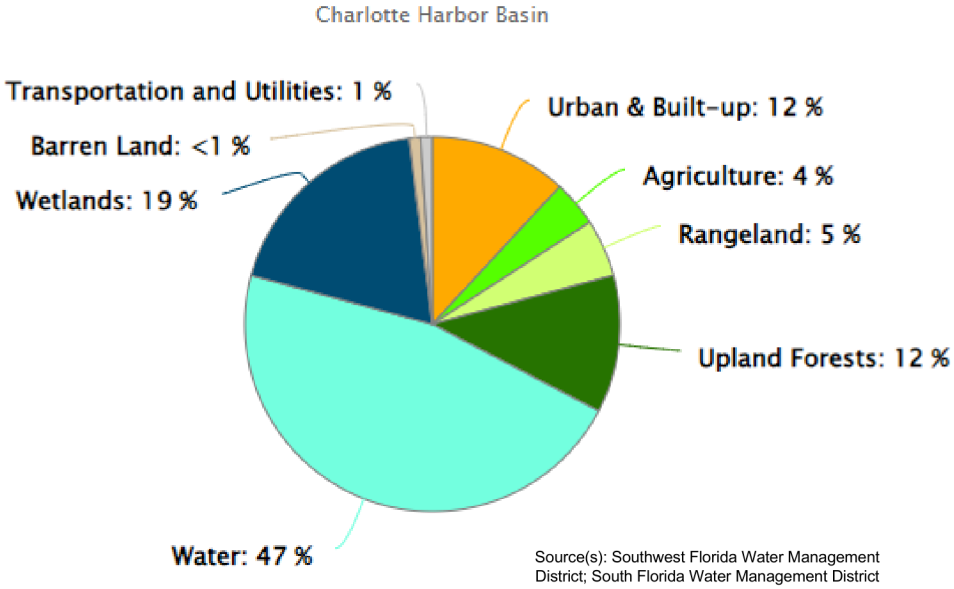
Summary

Charlotte Harbor lies primarily in Charlotte County and connects to the Gulf of Mexico through Boca Grande Pass. Although the Harbor has an area of about 130 square miles, much of it is very shallow. Areas of deep water extend up into the lower Myakka and Peace rivers. Sandy shelves make up the Harbor "walls," including Cape Haze on the west and Punta Gorda/Cape Coral on the east. These east and west walls have been historically covered by seagrass beds—essential habitat for young fish and other wildlife.

As people continue to move to the communities in the Peace River basin and around Charlotte Harbor, the impacts of man-made canals, septic systems, mangrove trimming and loss of upland habitats are affecting the downstream Harbor. This is evident in recent widespread seagrass losses and increase of undesirable macroalgae.

The Coastal & Heartland National Estuary Partnership (CHNEP) and its partners conduct water quality monitoring in this area, which is available on the CHNEP Water Atlas (www.chnep.wateratlas.usf.edu). This report describes waterbodies that are not currently meeting water quality standards pursuant to the Impaired Waters Rule (IWR 62-303 F.A.C.).

Land Use / Land Cover Categories as a Percentage of Basin Area



Source(s): Southwest Florida Water Management District; South Florida Water Management District

CHNEP WATER ATLAS

CHHARLOTTE HARBOR BASIN PAGE

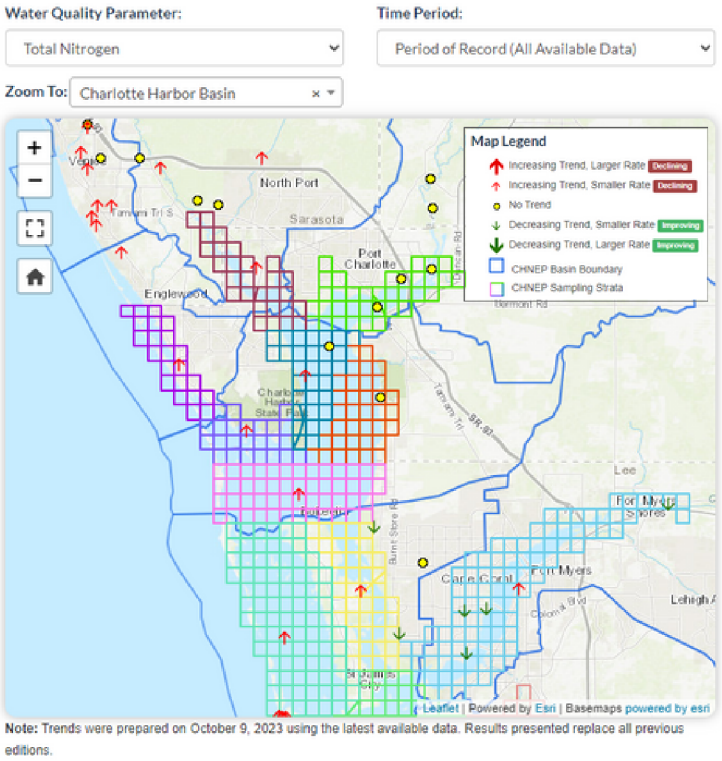
Nutrients

Nutrient pollution in waterbodies is one of the most widespread water quality problems, caused by excess nitrogen and phosphorus. Too much nitrogen and phosphorus in the water can cause algae to grow excessively, degrading aquatic habitat and decreasing the dissolved oxygen that fish and other aquatic life need to survive.

Below are some examples of sources of nutrients:

- Sewage treatment plants/domestic point sources
- Industrial/mining sources
- Atmospheric deposition of air pollutants
- Septic systems improperly placed or maintained
- Groundwater pollution
- Fertilizers in residential and agricultural runoff

The graphic above shows the trends for Nitrogen at long-term monitoring stations spread throughout the Charlotte Harbor Basin.



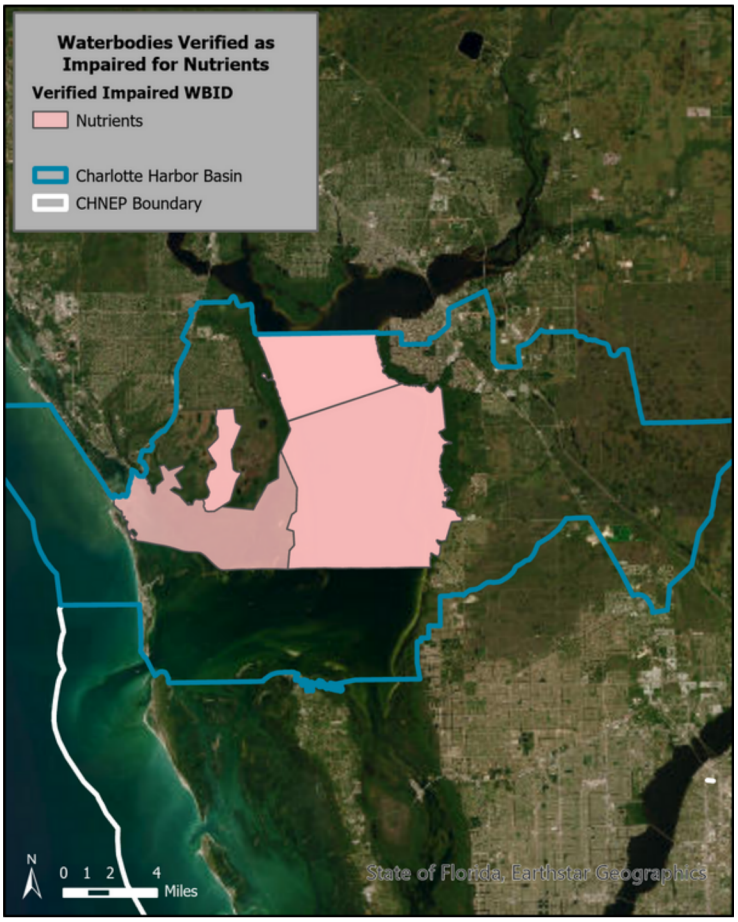
Note: Trends were prepared on October 9, 2023 using the latest available data. Results presented replace all previous editions.

The Florida Department of Environmental Protection (FDEP) uses water quality data that meets its quality control standards to identify waterbodies and water segments "WBIDs" that are not meeting the applicable water quality standards and designated uses based on the IWR 62-303 and 62-302, F.A.C. Once a WBID is verified impaired, it is to be placed on a schedule for TMDL development. TMDLs are waterbody-specific pollutant limits aimed at restoring attainment of water quality standards.

The following WBIDs are currently not meeting water quality standards for nutrients:

- Charlotte Harbor (Middle Segment 1)
- Charlotte Harbor (Middle Segment 2)
- Charlotte Harbor (Upper Segment)
- Whidden Creek

Pink areas are verified impaired for nutrients on the map to the right. No TMDL development has yet occurred at the state level for nutrients within the Charlotte Harbor Basin.



Bacteria

Bacteria in the water affect our ability to use the water for drinking, swimming, and shellfishing. The state water standards establish bacteria limits for different types of uses. The most stringent standards are for shellfishing areas, followed by drinking water and water used for recreation such as swimming and fishing.

Bacteria come from a variety of sources, but those of most human health concern come from fecal waste of animals and people. Sources of fecal bacteria include:

- Malfunctioning septic systems
- Leaking sanitary sewers
- Confined animal feedlots / overgrazing
- Wastewater plant overflows
- Urban pet waste
- Stormwater

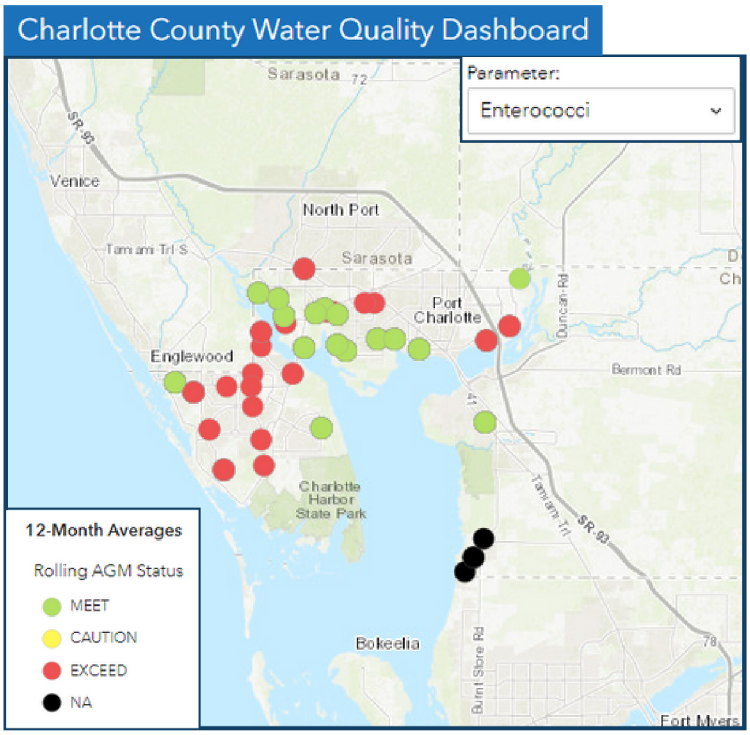
The map above shows the trend for Bacteria (Entercocci) at monitoring stations spread throughout the Charlotte Harbor Basin.

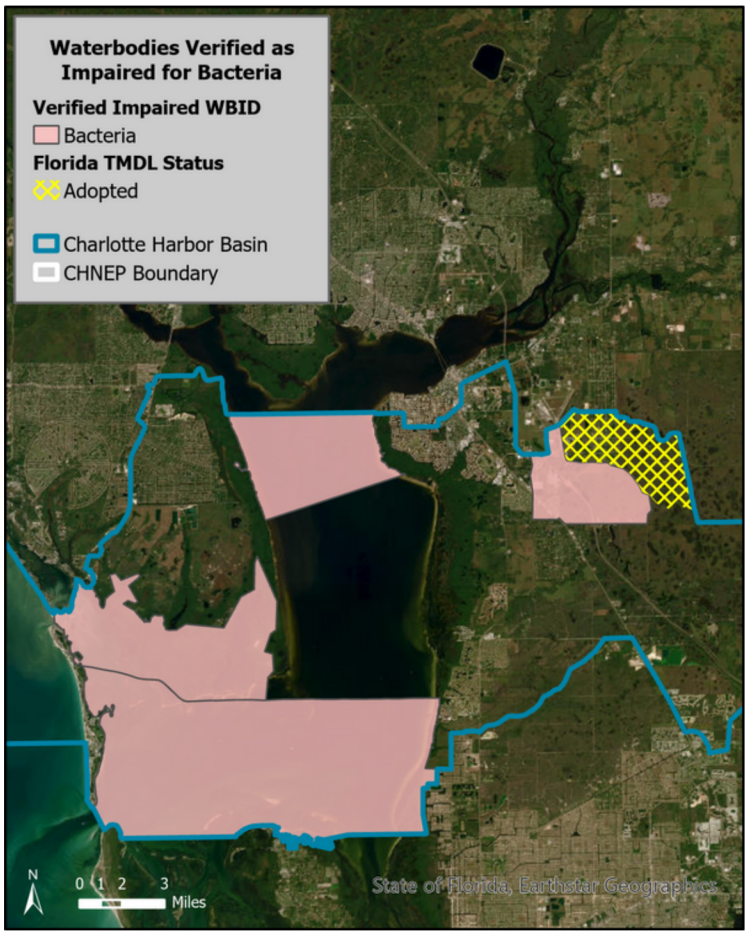
Bacteria impairment is determined by FDEP using the same processes as nutrients. In addition, TMDLs are developed for impaired waters to identify the waterbody-specific pollutant target needed for attaining applicable water quality standards.

The following WBIDs are currently not meeting water quality standards for bacteria:

- Alligator Creek
- Charlotte Harbor (Lower Segment 1)
- Charlotte Harbor (Middle Segment 2)
- Charlotte Harbor (Upper Segment)

Pink areas are verified impaired for bacteria and yellow striped areas designate areas under TMDL or TMDL development.





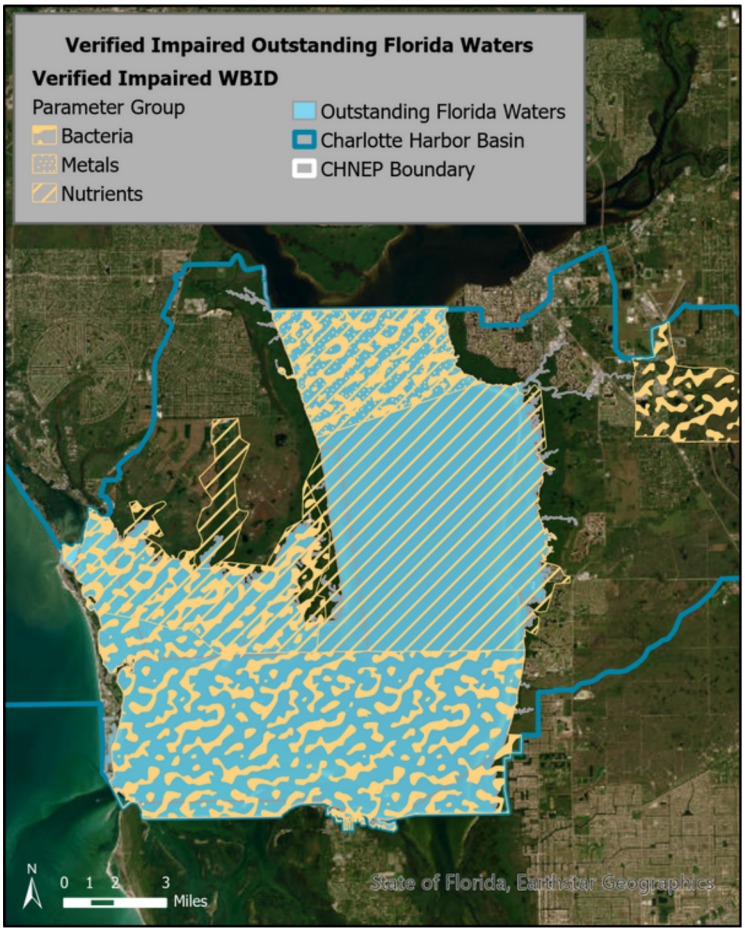
Outstanding Florida Waters

An Outstanding Florida Water (OFW) is a water designated worthy of special protection because of its natural attributes. This special designation is applied to certain waters and is intended to protect existing good water quality.

Most OFWs are areas managed by the state or federal government as parks, including wildlife refuges, preserves, and marine sanctuaries. However, many of these OFWs are currently impaired (*as indicated by light blue with peach fill pattern on the map on the right*).

The following OFWs are currently not meeting water quality standards:

- Cape Haze Aquatic Preserve
- Charlotte Harbor Preserve State Park
- Gasparilla-Sound Charlotte Harbor Aquatic Preserve
- Gasparilla Island state Recreation Area
- Island Bay National Wildlife Refuge



WBID	Waterbody Name	Impairment(s)	Status
2074	Alligator Creek	Bacteria	Impaired
2065D	Charlotte Harbor (Lower Segment 1)	Bacteria	Impaired
2065D	Charlotte Harbor (Lower Segment 1)	Fish Tissue	TMDL Complete
2065B	Charlotte Harbor (Middle Segment 1)	Fish Tissue	TMDL Complete
2065B	Charlotte Harbor (Middle Segment 1)	Nutrients	Impaired
2065C	Charlotte Harbor (Middle Segment 2)	Bacteria	Impaired
2065C	Charlotte Harbor (Middle Segment 2)	Nutrients	Impaired
2065C	Charlotte Harbor (Middle Segment 2)	Fish Tissue	TMDL Complete
2065A	Charlotte Harbor (Upper Segment)	Nutrients	Impaired
2065A	Charlotte Harbor (Upper Segment)	Fish Tissue	TMDL Complete
2065A	Charlotte Harbor (Upper Segment)	Metals	Impaired
2065A	Charlotte Harbor (Upper Segment)	Bacteria	Impaired
2079	Whidden Creek	Nutrients	Impaired
2079	Whidden Creek	Fish Tissue	TMDL Complete

Source(s): Florida Department of Environmental Protection

CONTACT INFORMATION

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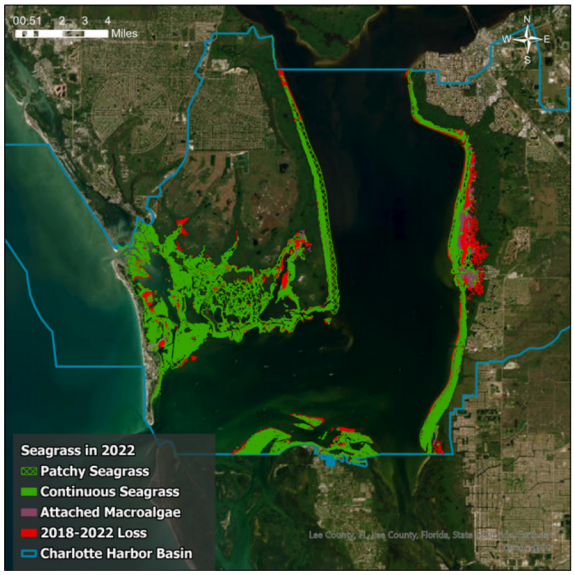
Seagrass in Charlotte Harbor Basin

FISH, WILDLIFE & HABITAT PROTECTION

Seagrass Measures Water Quality & Improves Estuary Health

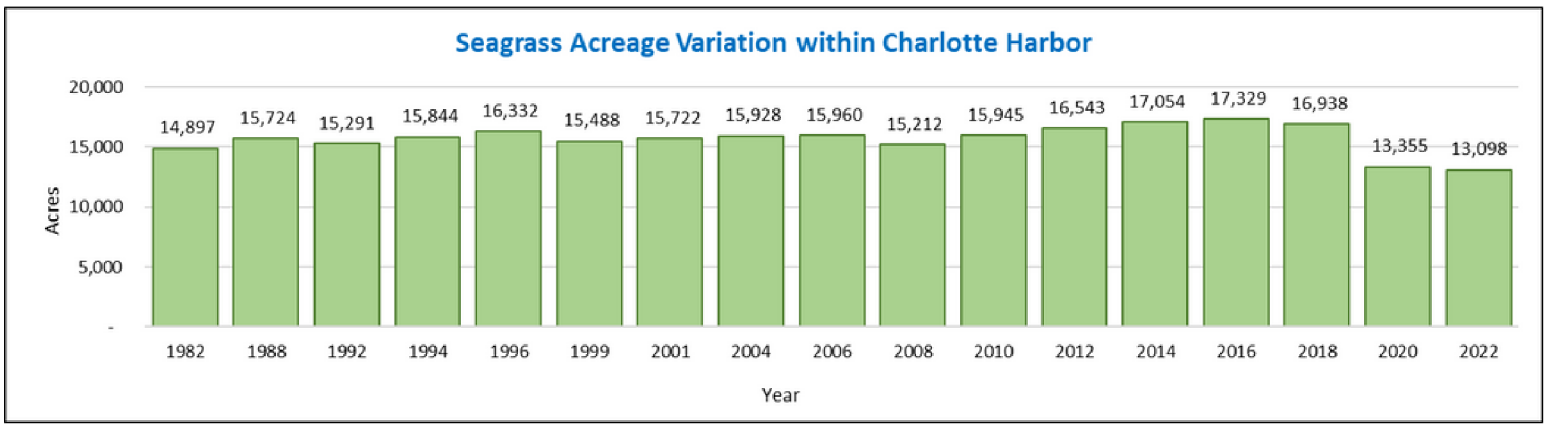
Seagrass beds provide many benefits. It is nursery habitat for fish and shellfish and it contributes to better water quality by trapping sediments, storing carbon, and filtering nutrients from stormwater runoff. Seagrass requires clean water and ample sunlight to grow, and therefore it is used by agencies 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. 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.



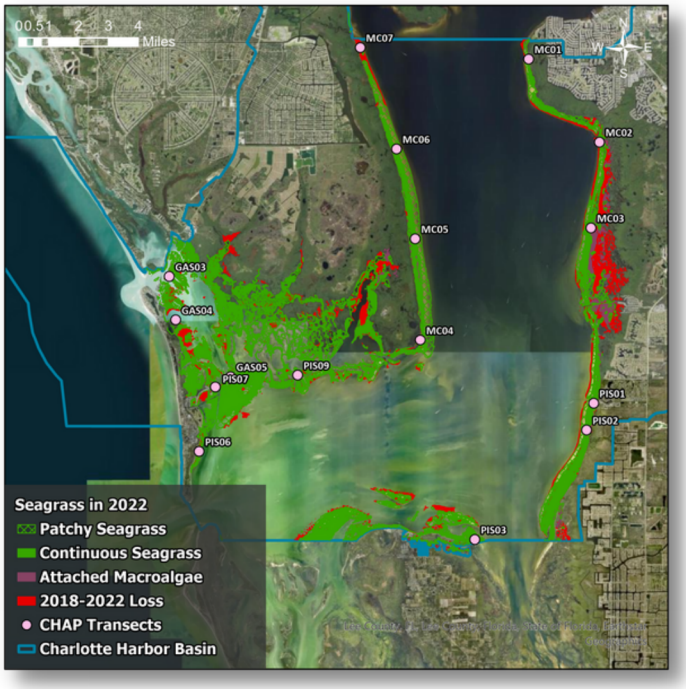
Seagrass Acreage

The graph below depicts results from seagrass mapping, done once every two years, in Charlotte Harbor from 1982-2022. Seagrass in this area has remained relatively stable over time since monitoring began, but acreage declined significantly in Charlotte Harbor between 2018 and 2020 when the region lost 3,648 acres of seagrass, representing a 21% loss overall. The reason for recent declines is complex and likely involves several factors, including 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. Minimal losses were seen in 2022 and numbers remained relatively stable with some seagrass beds even showing modest recovery. This demonstrates that the system has the potential to move toward recovery naturally given time and continued work to improve water quality conditions and flows. Note this data was collected in early 2022 and does not include any potential changes that may have occurred following Hurricane Ian.



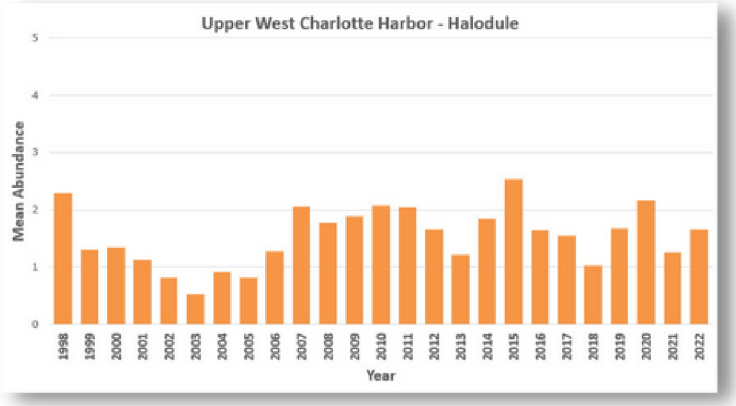
COASTAL & HEARTLAND NATIONAL ESTUARY PARTNERSHIP

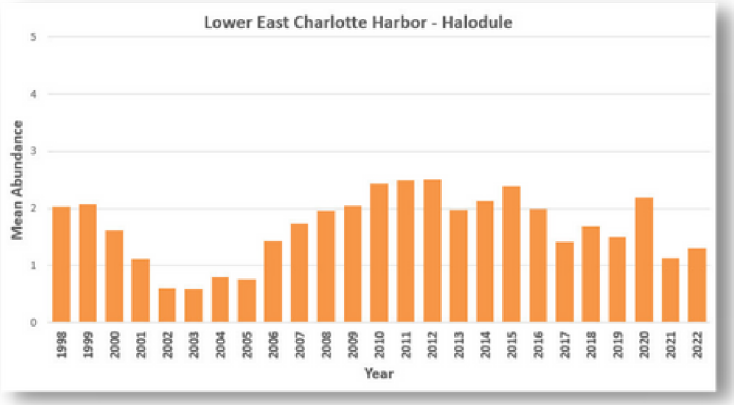
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in Charlotte Harbor by the Florida Department of Environmental Protection Aquatic Preserve staff.

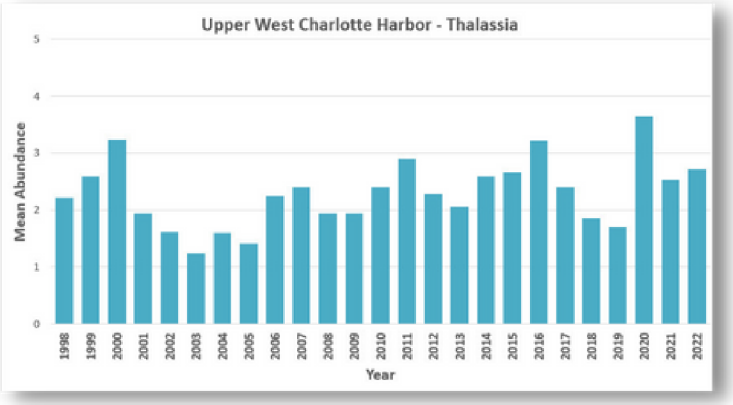


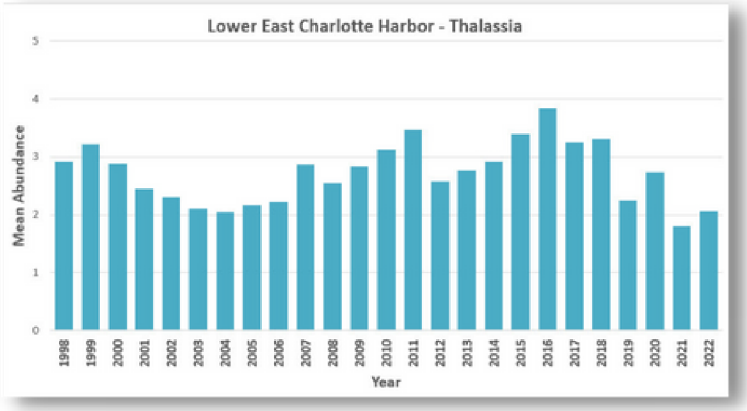
Seagrass Diversity and Health

Shoal grass (*Halodule wrightii*) and Turtle grass (*Thalassia testudinum*) were monitored on both the Upper West and Lower East side of the Harbor from 1998–2021. Other types of seagrass are only found infrequently at these locations; there are not enough data to be graphed here. Both types of seagrass species experienced declines at multiple monitoring locations starting as far back as 2016–2017, 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 both species and seagrass abundance overall.









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