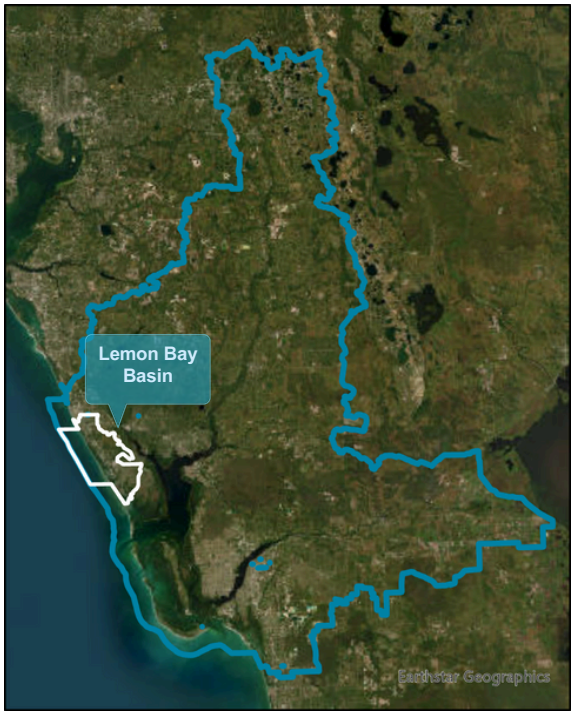
Lemon Bay Basin Water Quality Status Report

WATER QUALITY IMPROVEMENT

Summary

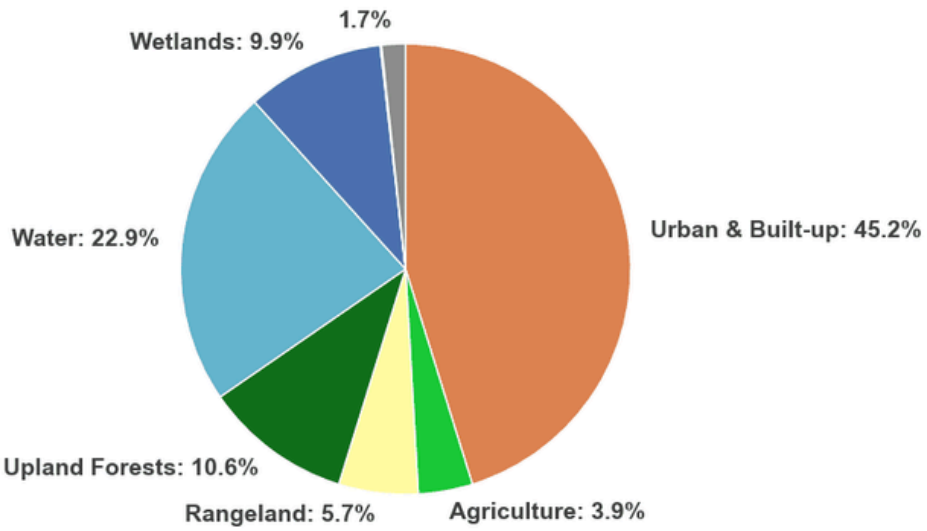
The 132 square mile Lemon Bay Basin extends from South Venice to the Gasparilla Island Causeway and contains Upper and Lower Lemon Bays. Upper Lemon Bay has freshwater inputs from the artificial waterway 'Venice Canal' connecting it to Dona and Roberts Bays and nearby Alligator Creek, whereas Lower Lemon Bay receives tidal flushing from Stump Pass. The bays flow to Venice Inlets, Stump Pass, Gasparilla Pass, and even sometimes to Charlotte Harbor. Due to high amounts of urban land use, the watershed has been significantly 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. Lemon Bay has degraded water quality, with its most pervasive problems being metals, specifically mercury in fish tissue, followed by dissolved oxygen (DO), bacteria, and nutrients.



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

Lemon Bay Basin, 2020



Source(s): Southwest Florida Water Management District

CHNEP WATER ATLAS

LEMON BAY 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
- Atmospheric deposition of air pollutants
- Septic systems improperly placed or not properly functioning
- Groundwater pollution
- Fertilizers in residential and agricultural runoff

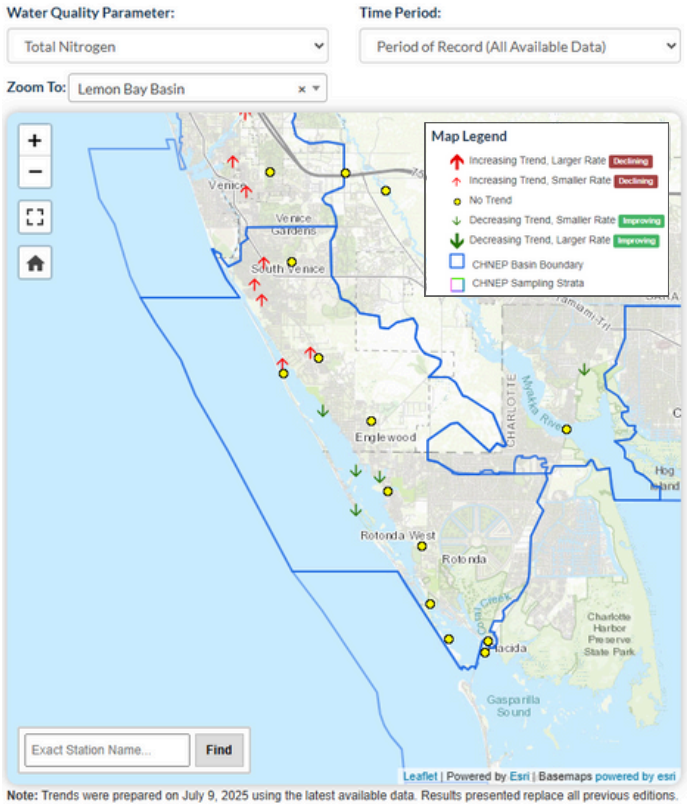
The graphic above shows the trend for Total Nitrogen at the long-term monitoring stations spread throughout Lemon Bay Basin.

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.

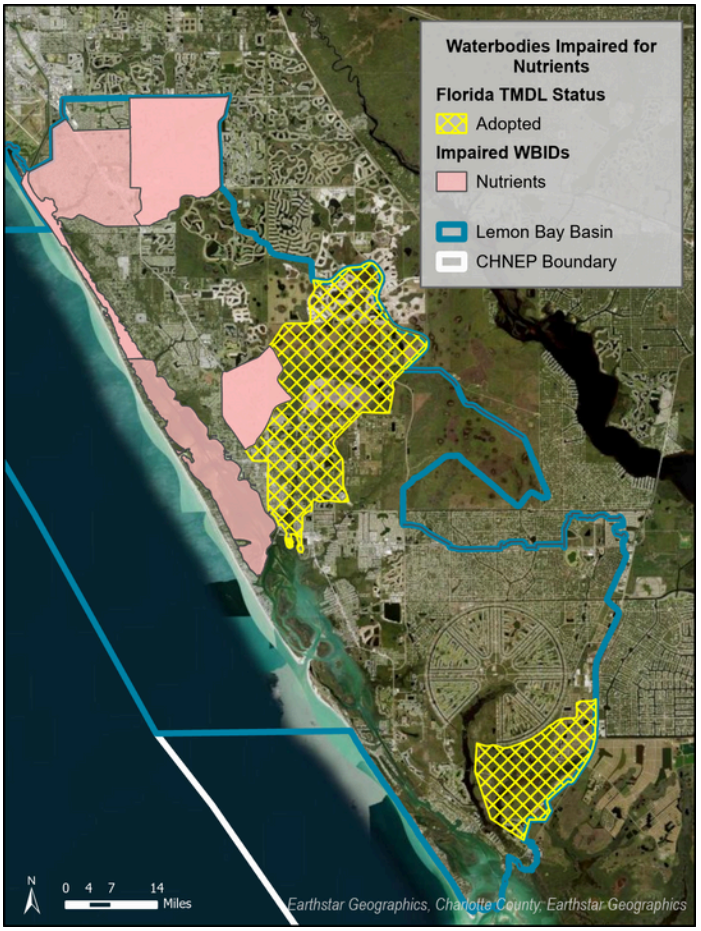
The following WBIDs are currently not meeting water quality standards for nutrients:

- Coral Creek (West Branch)
- Lemon Bay (North Segment)
- Upper Lemon Bay
- Alligator Creek
- Alligator Creek (Tidal Segment)
- Tributary to Gottfried Creek

Pink areas are verified impaired for nutrients on the map to the right. No TMDL development to date has occurred at the state level for nutrients within Lemon Bay Basin.



Note: Trends were prepared on July 9, 2025 using the latest available data. Results presented replace all previous editions.



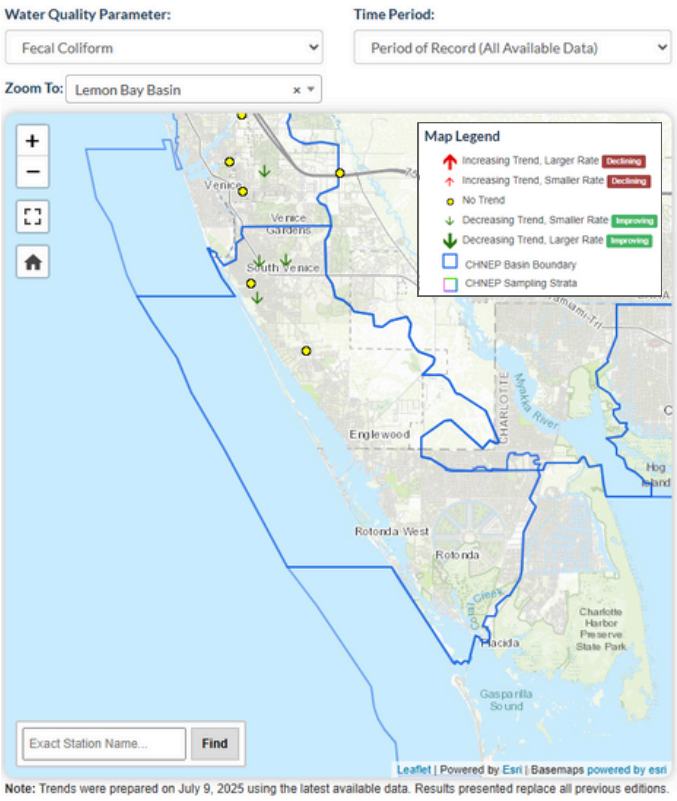
Bacteria

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 (Fecal coliform) at long-term monitoring stations throughout Lemon Bay.



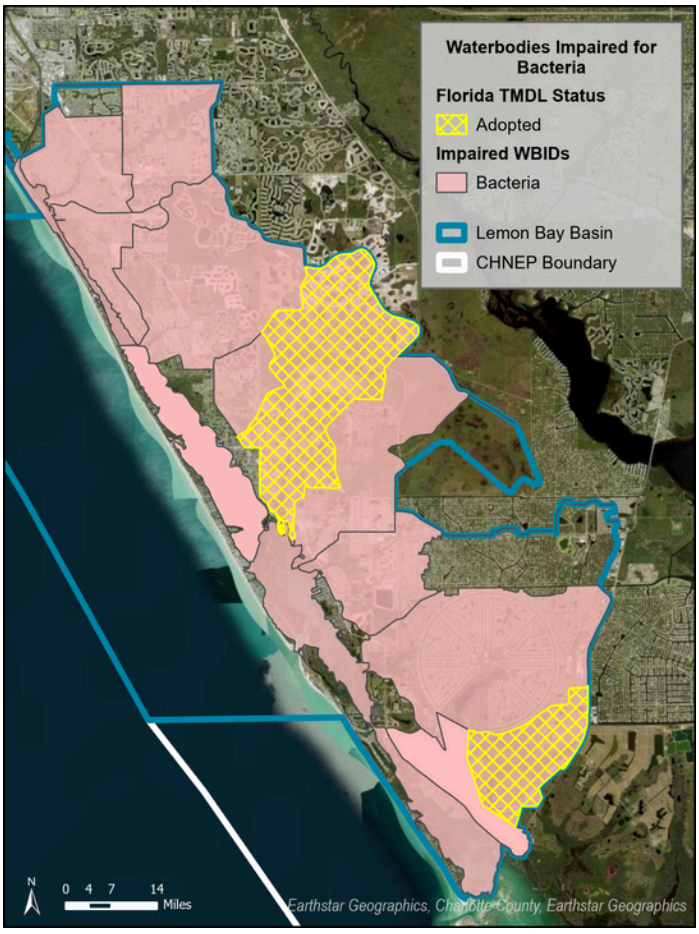
Note: Trends were prepared on July 9, 2025 using the latest available data. Results presented replace all previous editions.

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
- Alligator Creek (Tidal Segment)
- Buck Creek
- Coral Creek (East Branch)
- Coral Creek (West Branch)
- Forked Creek
- Gottfried Creek
- Lemon Bay (North Segment)
- Lower Lemon Bay
- Oyster Creek
- Rock Creek
- Tributary to Gottfried Creek
- Upper Lemon Bay
- Woodmere Creek

On the map to the right, 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, refuges, or preserves.

Generally, the waters within these managed areas are OFWs because the managing agency has requested this special protection. However, some of these OFWs are now impaired *(as indicated by light blue with peach fill pattern on the map to the right*).

The following OFWs are currently not meeting water quality standards:

- Lemon Bay Estuarine System
- Lemon Bay Aquatic Preserve
- Port Charlotte Beach State Recreation Area
- Don Pedro Island State Recreation Area
- Gasparilla Sound-Charlotte Harbor Aquatic Preserve

WBID	Waterbody Name	Impairment(s)	Status
2030A	Alligator Creek	Nutrients (Macrophytes)	Ongoing Restoration Activities
2030A	Alligator Creek	Dissolved Oxygen (Percent Saturation)	Ongoing Restoration Activities
2039	Forked Creek	Copper	Impaired
2039	Forked Creek	Mercury (in fish tissue)	TMDL Complete
2039	Forked Creek	Enterococci	Impaired
2039	Forked Creek	Dissolved Oxygen (Percent Saturation)	Study List
2042	Woodmere Creek	Dissolved Oxygen (Percent Saturation)	Study List
2042	Woodmere Creek	Escherichia coli	Impaired
2049	Gottfried Creek	Mercury (in fish tissue)	TMDL Complete
2049	Gottfried Creek	Enterococci	Impaired
2049	Gottfried Creek	Dissolved Oxygen (Percent Saturation)	Study List
2050	Tributary to Gottfried Creek	Dissolved Oxygen (Percent Saturation)	Study List
2050	Tributary to Gottfried Creek	Escherichia coli	Impaired
2050	Tributary to Gottfried Creek	Nutrients (Total Phosphorus)	Study List
2050	Tributary to Gottfried Creek	Nutrients (Chlorophyll-a)	Study List
2051	Englewood Coastal Drainage	Mercury (in fish tissue)	TMDL Complete
2052	Rock Creek	Mercury (in fish tissue)	TMDL Complete
2052	Rock Creek	Enterococci	Impaired
2052	Rock Creek	Dissolved Oxygen (Percent Saturation)	Study List
8054	Gulf of Mexico (Charlotte Cour	Mercury (in fish tissue)	TMDL Complete
2067	Oyster Creek	Dissolved Oxygen (Percent Saturation)	Study List
2067	Oyster Creek	Mercury (in fish tissue)	TMDL Complete
2067	Oyster Creek	Enterococci	Impaired
2068	Buck Creek	Mercury (in fish tissue)	TMDL Complete
2068	Buck Creek	Enterococci	Impaired
2068	Buck Creek	Dissolved Oxygen (Percent Saturation)	Study List
2072	Direct Runoff to Bay	Mercury (in fish tissue)	TMDL Complete
2075A	Little Gasparilla Island	Mercury (in fish tissue)	TMDL Complete
2075B	Don Pedro Island	Mercury (in fish tissue)	TMDL Complete
2075D	Manasota Key	Mercury (in fish tissue)	TMDL Complete
2076	Lemon Creek	Mercury (in fish tissue)	TMDL Complete
2078A	Coral Creek (West Branch)	Fecal Coliform (SEAS Classification)	Impaired
2078A	Coral Creek (West Branch)	Enterococci	Impaired
2078A	Coral Creek (West Branch)	Fecal Coliform (3)	Impaired
2078A	Coral Creek (West Branch)	Fecal Coliform	Impaired
2078A	Coral Creek (West Branch)	Mercury (in fish tissue)	TMDL Complete
2078A	Coral Creek (West Branch)	Dissolved Oxygen (Percent Saturation)	Delist (Study List)
2078B	Coral Creek (East Branch)	Fecal Coliform	Impaired
2078B	Coral Creek (East Branch)	Mercury (in fish tissue)	TMDL Complete

Source(s): Florida Department of Environmental Protection

CONTACT INFORMATION

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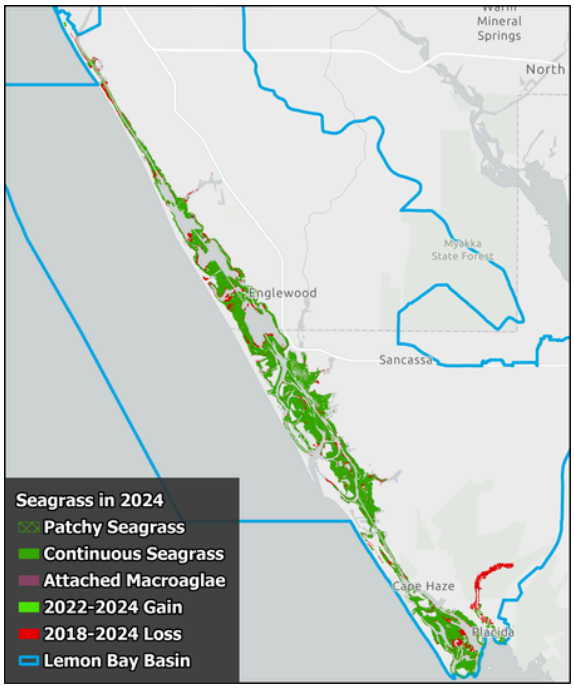
Seagrass in Lemon Bay Basin

FISH, WILDLIFE & HABITAT PROTECTION

Seagrass Measures Water Quality & Improves Estuary Health

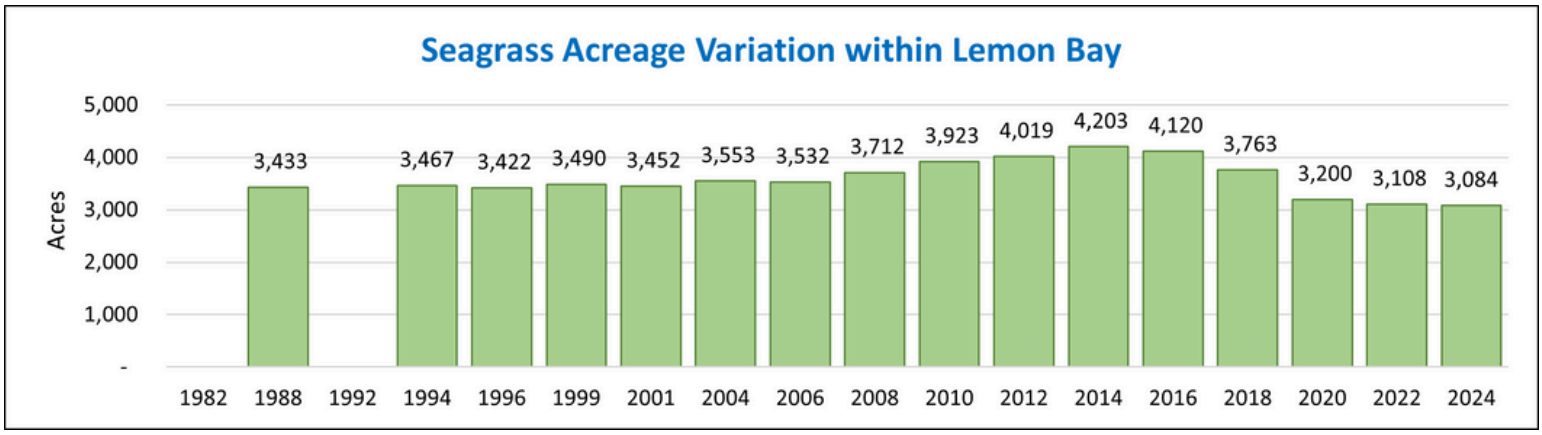
Seagrass beds provide many benefits. It is nursery habitat for fish and shellfish and it contributes to better water quality by trapping sediments, storing carbon, and filtering nutrients from stormwater runoff. Seagrass requires clean water and ample sunlight to grow, and therefore it is used by agencies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

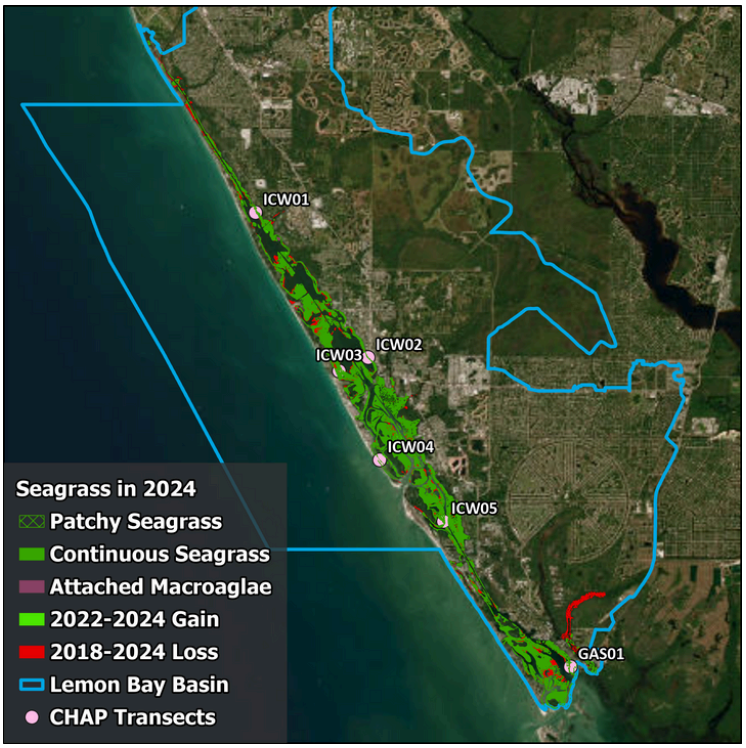
The table below shows results from seagrass mapping, done once every two years, in Lemon Bay from 1988-2024. Seagrass in this area has increased since the 1990's and since then remained relatively stable over time. However, acreages began to decline in 2018 and have continued to decline each year since then, reaching an all-time historic low in 2024. Between 2018 and 2024, Lemon Bay lost 679 acres of seagrass, representing a 18% 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.

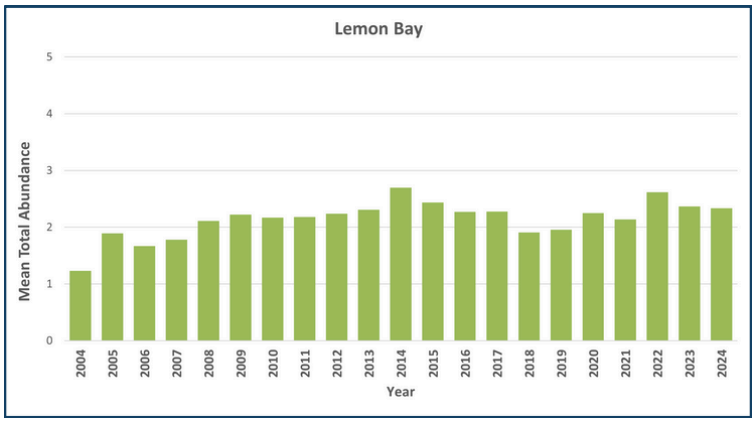


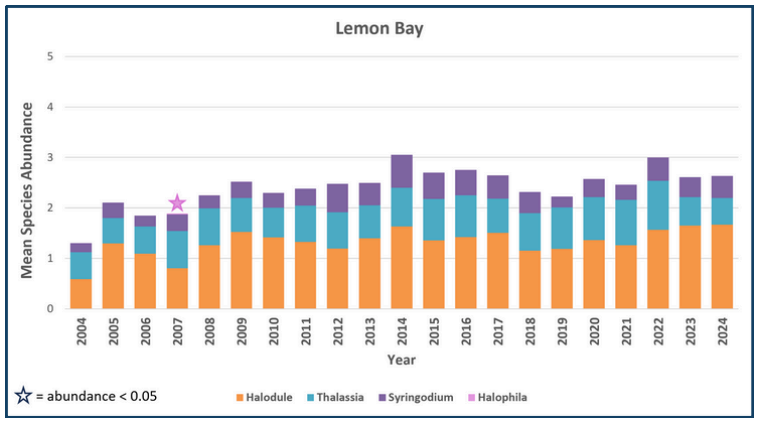
Seagrass Diversity and Health

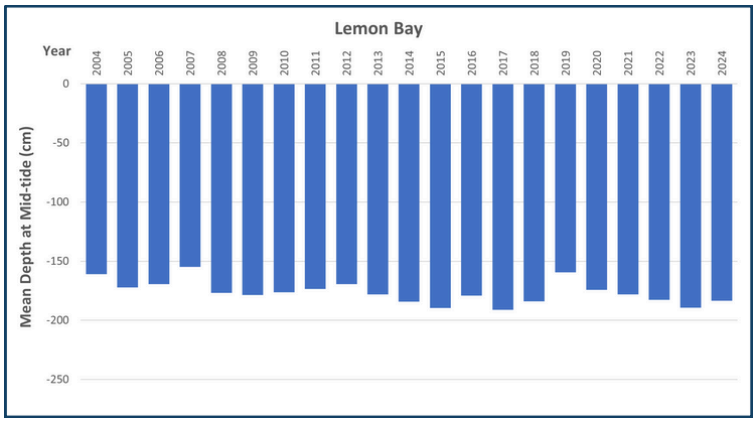
The bar graphs here depict the changes in presence of different species of seagrass found at monitored locations in the region. In Lemon Bay this includes Shoal grass (*Halodule wrightii*), Turtle grass (*Thalassia testudinum*), and Manatee grass (*Syringodium filiforme*) for the years 2004–2024.

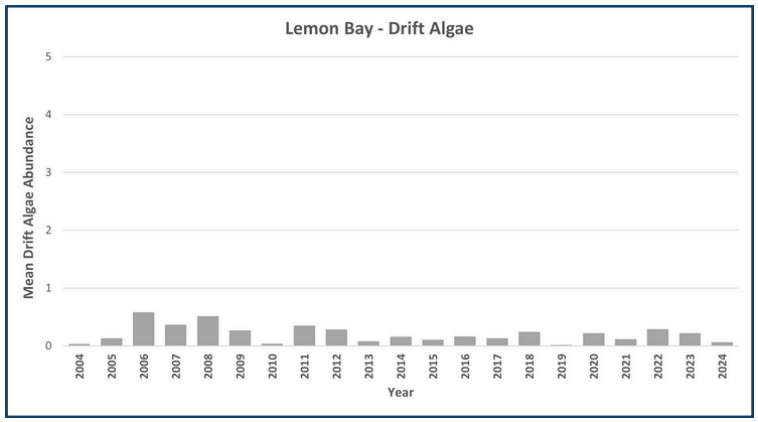
They demonstrate that all three types of seagrass experienced declines at multiple monitoring locations starting around 2018, preceding the decline in overall acreage observed between 2018 and 2020. Data collected in 2022 showed modest gains throughout the area, however, data collected in 2023 and 2024 demonstrate losses for *Thalassia* and *Syringodium*. This loss has been coupled with increased documentation of macroalgae and cyanobacteria blooms that agencies are working to catalogue through their existing monitoring programs.











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