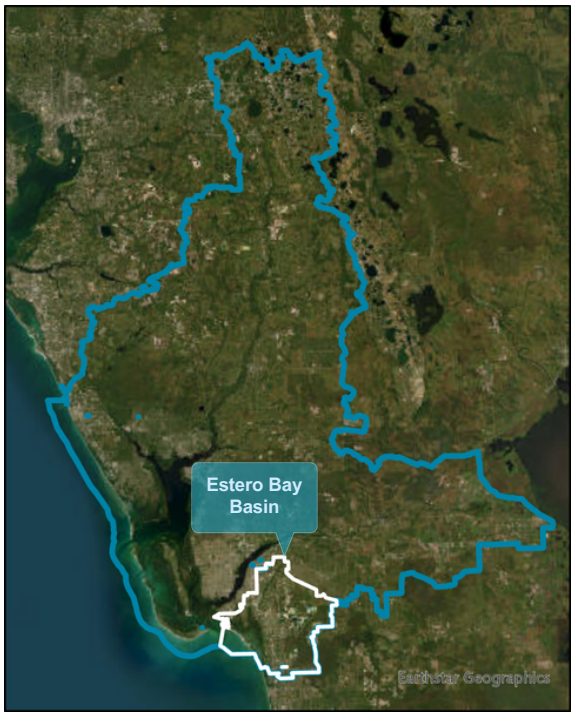
Estero Bay Basin Water Quality Status Report

WATER QUALITY IMPROVEMENT

Summary

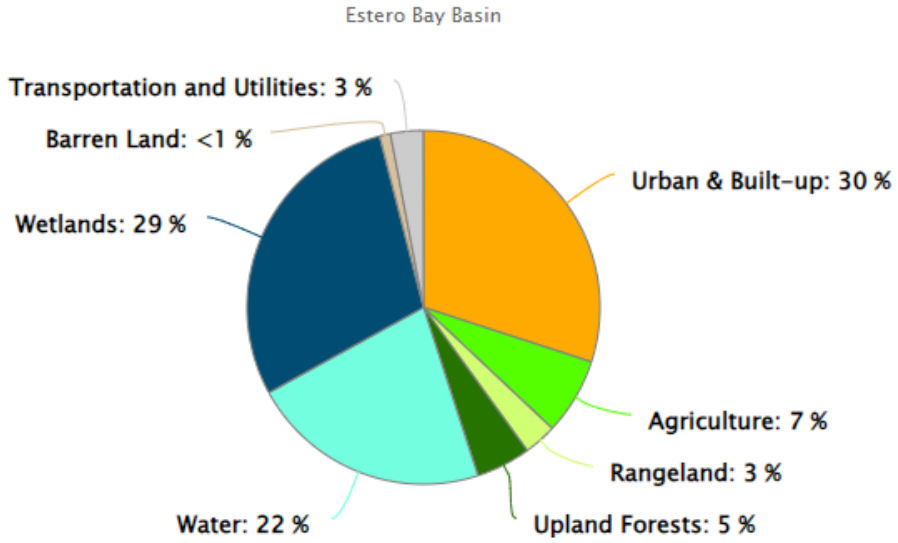
Estero Bay basin spans 360 square miles. The Bay is protected on the west by a barrier island chain including the Town of Fort Myers Beach and Bonita Beach. The Estero River is the largest river at 8.5 miles long, however the estuary stretches southeast to the mouth of the Imperial River, a 7.8 mile stream. Extensive seagrass beds support young fish and crabs in the shallow bays, and mangroves support large bird rookeries on the numerous islands. Estero Bay is surrounded by wetlands, mangrove forests and salt marshes.

The Estero Bay Aquatic Preserve was dedicated in December 1966 — Florida's first aquatic preserve. The state also protects tributaries in the Estero Bay watershed by the "Outstanding Florida Water" designation. The Estero Bay watershed is currently subject to significant growth and development, including around Florida Gulf Coast University.



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): South Florida Water Management District

CHNEP WATER ATLAS

ESTERO BAY BASIN PAGE

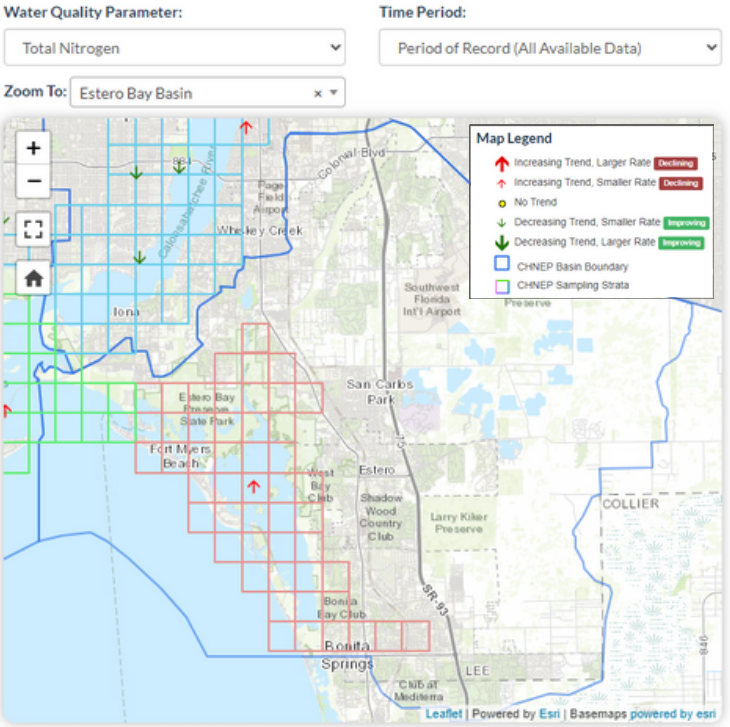
Nutrients

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 from air pollution
- Septic systems improperly placed or maintained
- Groundwater pollution
- Fertilizers in residential and agricultural runoff

The top graphic shows the trends for Nitrogen at long-term monitoring stations in the Estero Bay Basin.



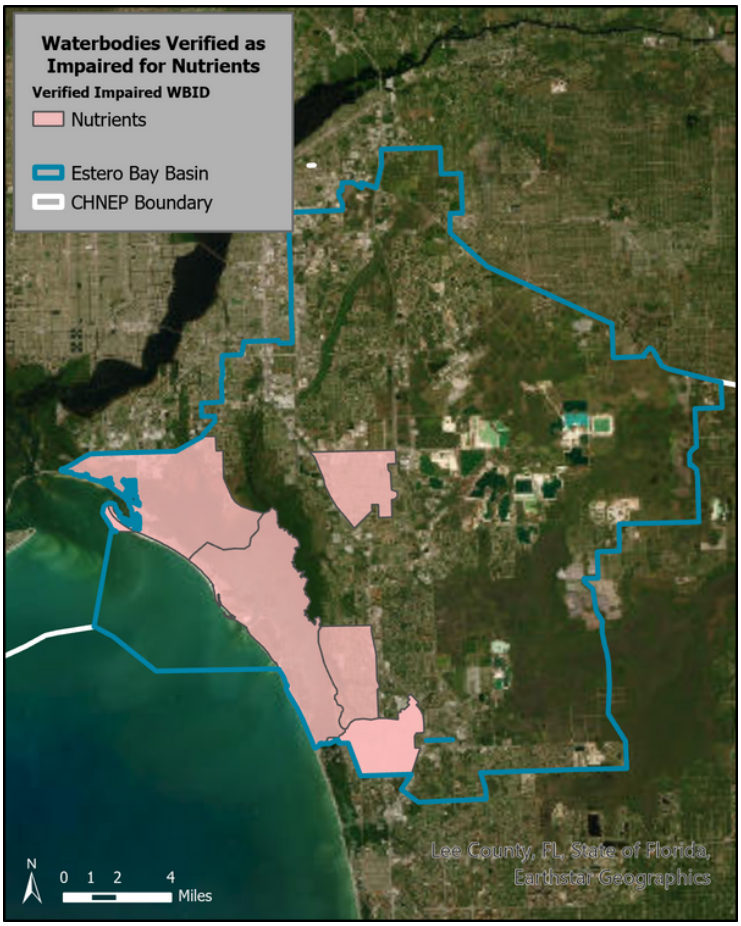
Note: Trends were prepared on October 9, 2023 using the latest available data. Results presented replace all previous editions.

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:

- Estero Bay
- Estero Bay Wetlands
- Imperial River (Marine Segment)
- Mullock Creek
- San Carlos Bay
- Spring Creek (Marine Segment)

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 Estero Bay Basin.



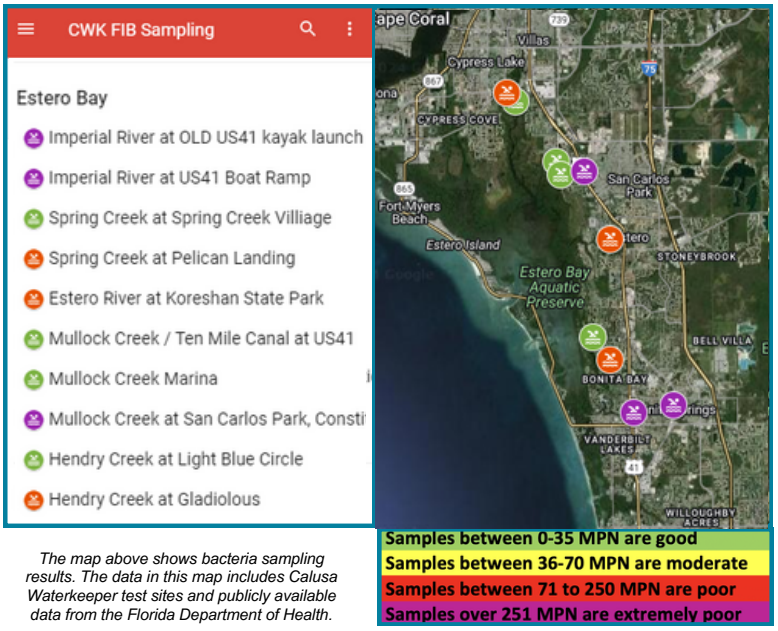
Bacteria

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

Top graphic shows recent results for Bacteria (Entercocci) at monitoring stations in the Basin.



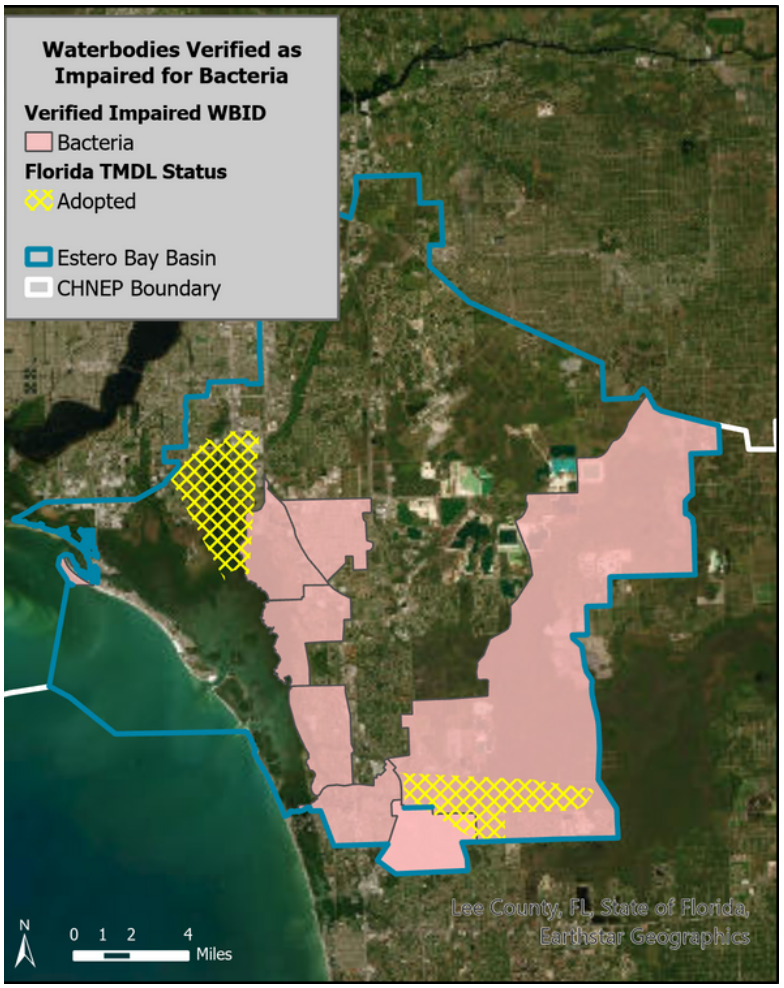
The map above shows bacteria sampling results. The data in this map includes Calusa Waterkeeper test sites and publicly available data from the Florida Department of Health.

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:

- Estero River (Marine Segment)
- Imperial River
- Imperial River (Marine Segment)
- Mullock Creek
- Mullock Creek (Marine Segment)
- Oak Creek
- San Carlos Bay
- Spring Creek (Marine Segment)

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

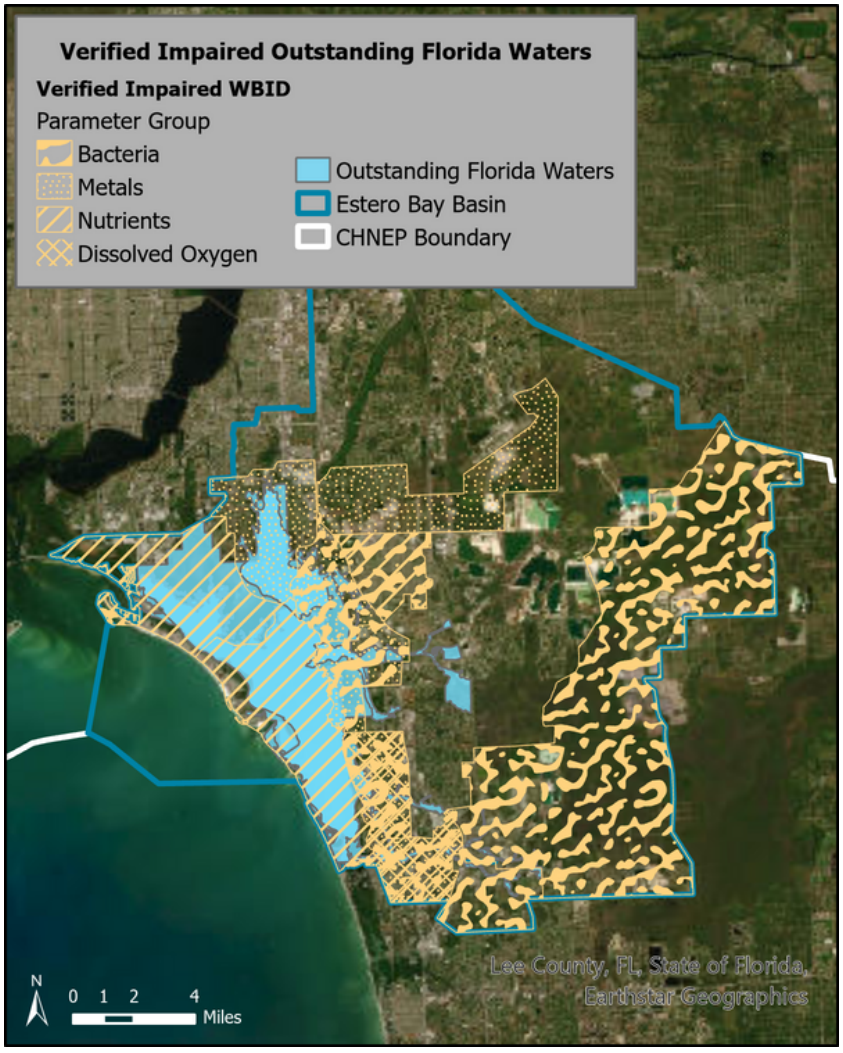
An Outstanding Florida Water (OFW) is a water designated worthy of special protection because of its natural attributes. This special designation is applied to certain waters and is intended to protect existing good water quality.

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, many of these OFWs are currently 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:

- Estero Bay
- Estero Bay Aquatic Preserve
- Estero Bay Tributaries
- Koreshan State Historic Site
- Lovers Key State Recreation Area



WBID	Waterbody Name	Impairment(s)	Status	WBID	Waterbody Name	Impairment(s)	Status
3258I	Estero Bay	Fish Tissue	TMDL Complete	3258EB	Imperial River (Marine Segment)	Metals	Impaired
3258I	Estero Bay	Nutrients	Impaired	3258EB	Imperial River (Marine Segment)	Bacteria	Impaired
3258A1	Estero Bay Wetlands	Nutrients	Impaired	3258EB	Imperial River (Marine Segment)	Dissolved Oxygen	Impaired
3258A1	Estero Bay Wetlands	Fish Tissue	TMDL Complete	3258EB	Imperial River (Marine Segment)	Fish Tissue	TMDL Complete
3258D1	Estero River (Marine Segment)	Metals	Impaired	3258C2	Mullock Creek	Nutrients	Impaired
3258D1	Estero River (Marine Segment)	Bacteria	Impaired	3258C2	Mullock Creek	Bacteria	Impaired
3258D1	Estero River (Marine Segment)	Fish Tissue	TMDL Complete	3258C4	Mullock Creek (Marine Segment)	Metals	Impaired
3258D1	Estero River (Marine Segment)	Dissolved Oxygen	Study List	3258C4	Mullock Creek (Marine Segment)	Bacteria	Impaired
3258C5	Fiddlesticks Canal	Metals	Impaired	3258C4	Mullock Creek (Marine Segment)	Fish Tissue	TMDL Complete
3258C5	Fiddlesticks Canal	Dissolved Oxygen	Study List	3258C4	Mullock Creek (Marine Segment)	Other	Impaired
3258B2	Hendry Creek	Metals	Impaired	3258F	Oak Creek	Bacteria	Impaired
3258B2	Hendry Creek	Bacteria	Impaired	3258H3	Spring Creek	Dissolved Oxygen	Study List
3258B2	Hendry Creek	Dissolved Oxygen	TMDL Complete	3258H2	Spring Creek (Marine Segment)	Metals	Impaired
3258B2	Hendry Creek	Fish Tissue	TMDL Complete	3258H2	Spring Creek (Marine Segment)	Nutrients	Impaired
3258EA	Imperial River	Biology	Study List	3258H2	Spring Creek (Marine Segment)	Dissolved Oxygen	Impaired
3258EA	Imperial River	Dissolved Oxygen	TMDL Complete	3258H2	Spring Creek (Marine Segment)	Bacteria	Impaired
3258EB	Imperial River (Marine Segment)	Nutrients	Impaired	3258H2	Spring Creek (Marine Segment)	Fish Tissue	TMDL Complete

Source(s): Florida Department of Environmental Protection

CONTACT INFORMATION

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Seagrass in Estero Bay Basin

FISH, WILDLIFE & HABITAT PROTECTION

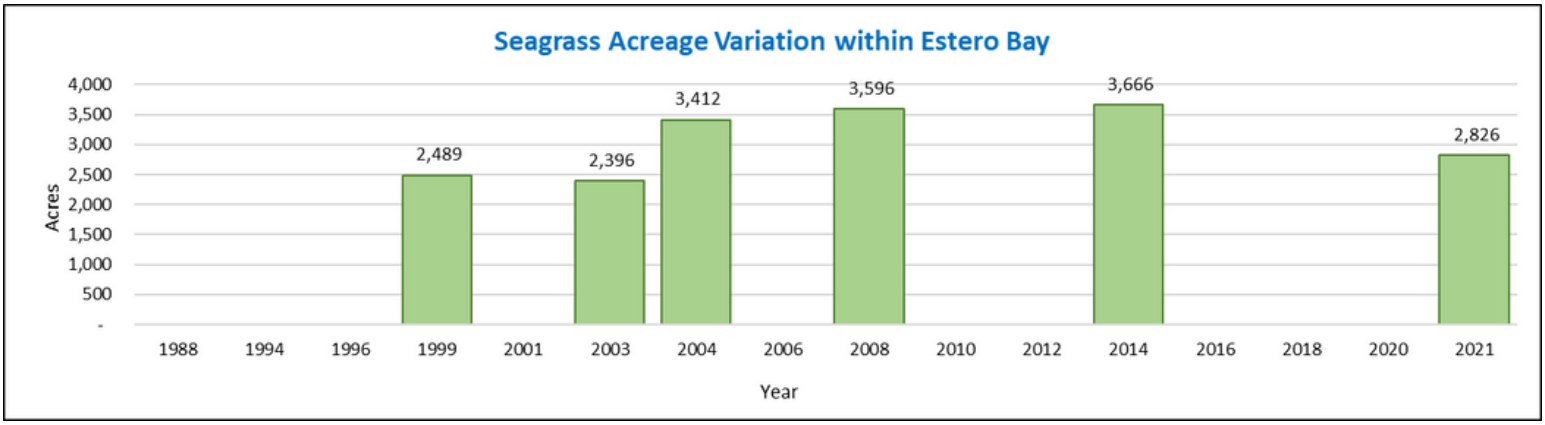
Seagrass Measures Water Quality & Improves Estuary Health

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. 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

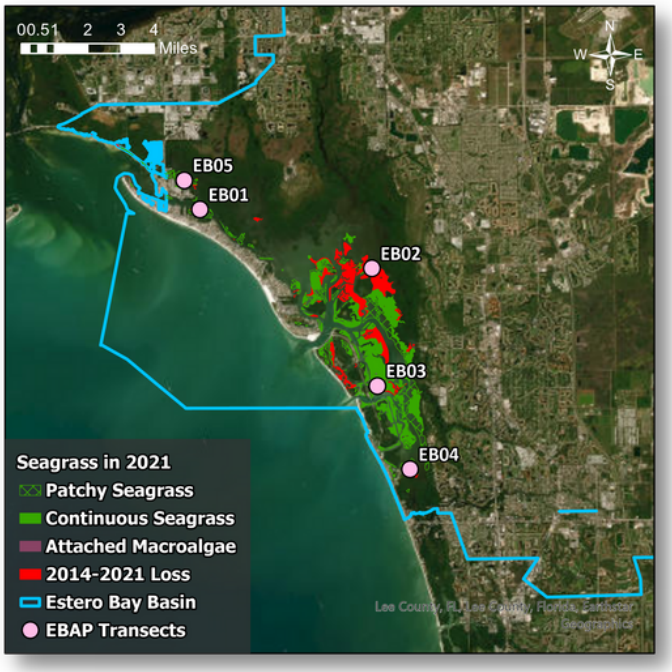
The graph below depicts results from seagrass mapping in Estero Bay from 1999-2021. From 2004 to 2021, seagrass acreage has remained relatively stable. However, it is important to note that these numbers do not reflect potential changes in seagrass bed abundance from 'continuous' to 'patchy', which may 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 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.



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

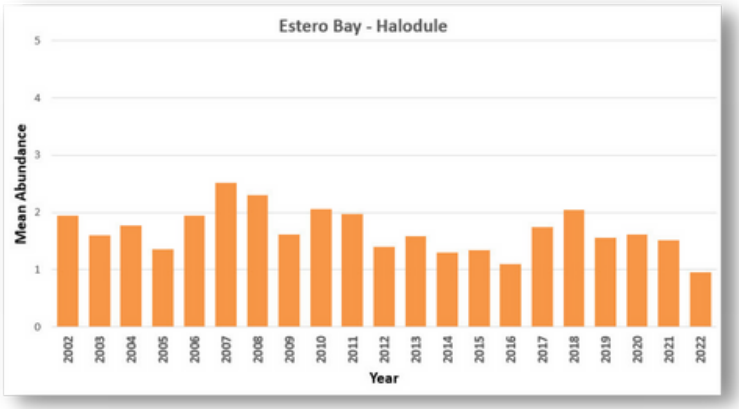
Monitoring Sites

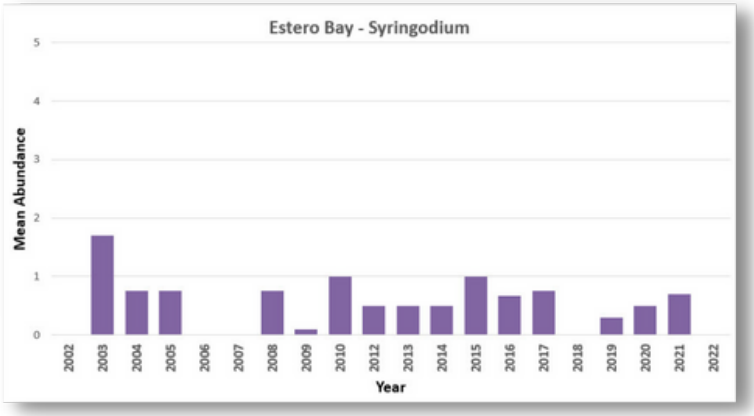
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in Estero Bay by the Florida Department of Environmental Protection Aquatic Preserve staff. Annual seagrass monitoring in the Harbor examines species types, density, distribution and how deep the grass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

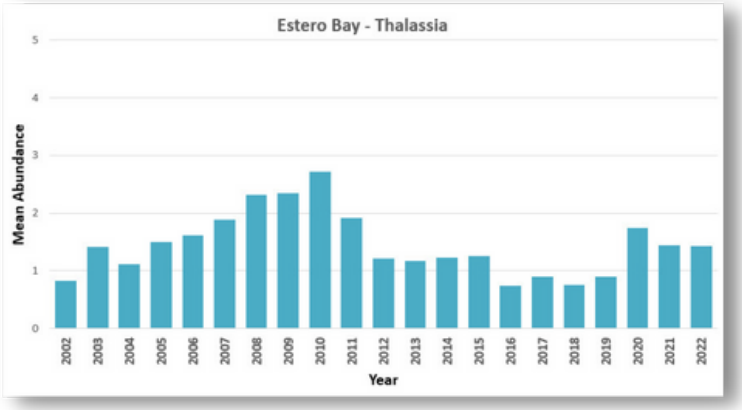


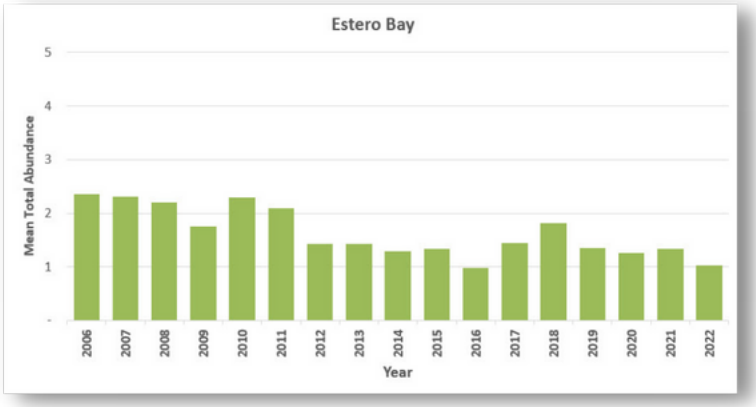
Seagrass Diversity and Health

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 2002–2022. Other types of seagrass are only found infrequently at these locations; there are not enough data to be graphed here.









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