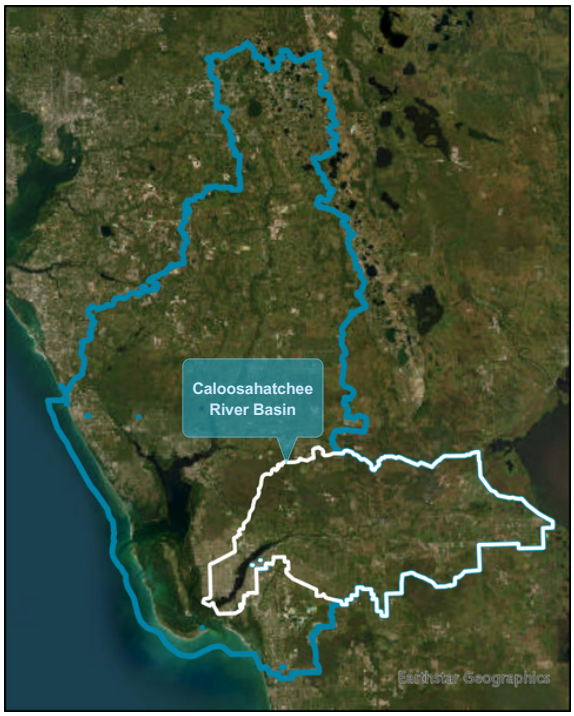
Caloosahatchee River Basin Water Quality Status Report

WATER QUALITY IMPROVEMENT

Summary

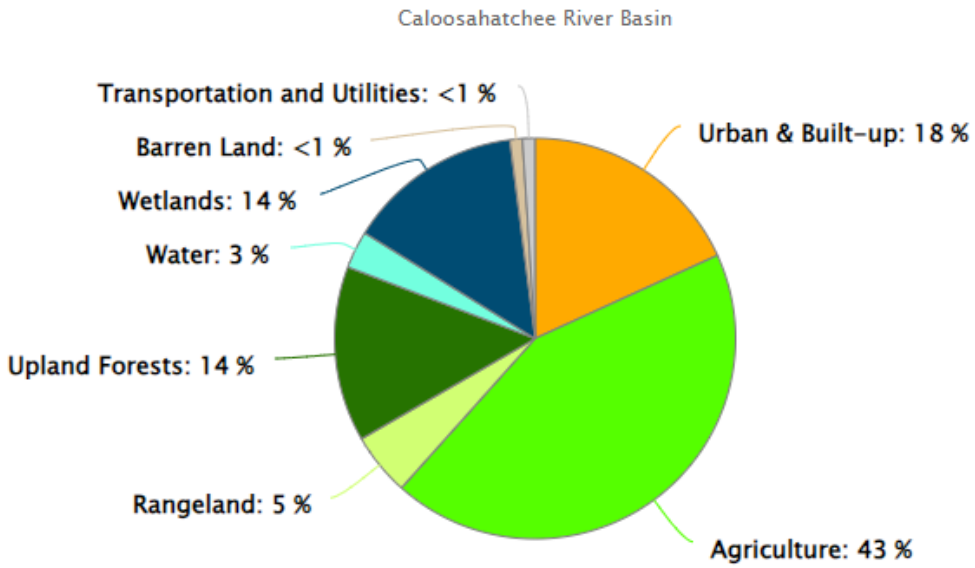
The 67-mile Caloosahatchee River originated as overland flow through marshlands and swamp forest from Lake Hicpochee, until 1881 when it was connected to Lake Okeechobee by a man-made channel. The upper river was converted into a canal (the C-43) and the tidal portion has since periodically received excess and insufficient flows from Lake Okeechobee through a series of water management structures and locks. The Franklin Lock in Lee County separates the freshwater portion of the river from its tidal mouth and estuary. The current Caloosahatchee basin is 425 square miles in size and extends from Lake Okeechobee to the Gulf of Mexico.

The estuary provides critical habitat for endangered species as well as for a multitude of varieties of aquatic life. Its water quality and health are tied to the restoration and management of the Kissimmee River Basin and Lake Okeechobee upstream, as well as to Everglades restoration.



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

CALOOSAHATCHEE RIVER BASIN PAGE

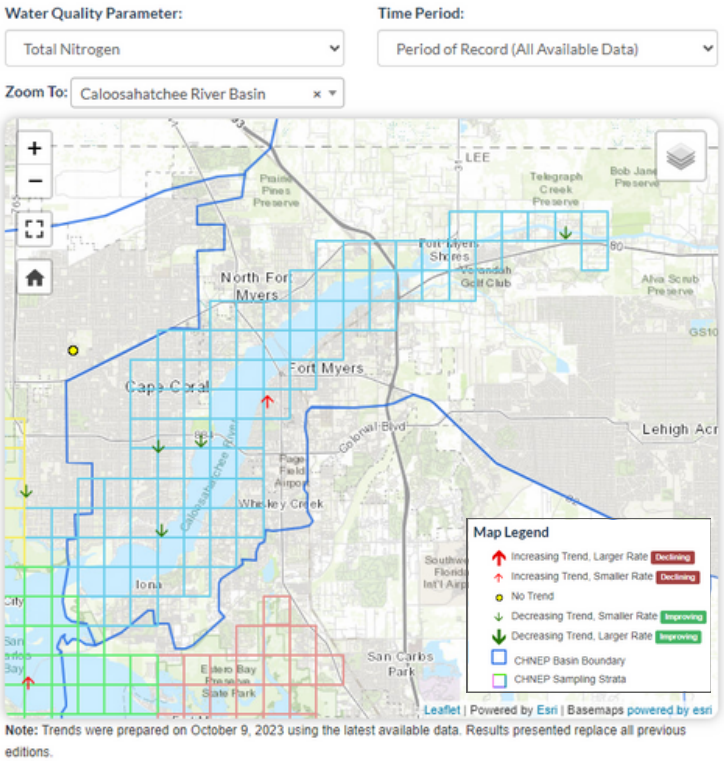
Nutrients

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
- Lake Okeechobee water releases
- Atmospheric deposition of air pollutants
- Septic systems improperly placed or maintained
- Groundwater pollution
- Fertilizers in residential and agricultural runoff

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



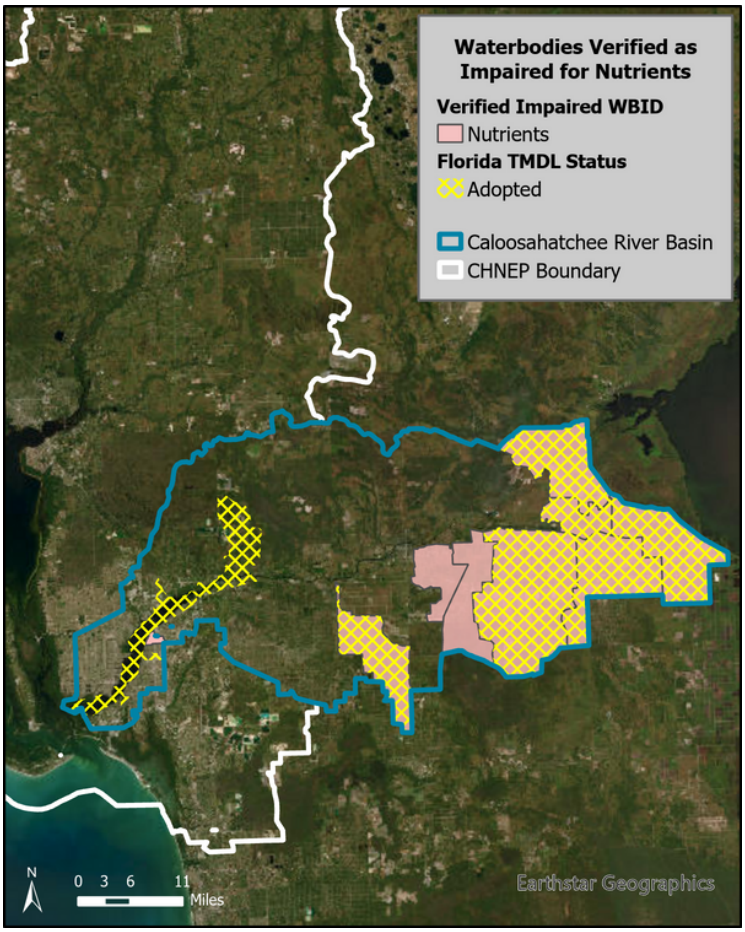
Note: Trends were prepared on October 9, 2023 using the latest available data. Results presented replace all previous editions.

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:

- C-19 Canal
- Flaghole Canal
- Goodno Canal
- Lake Hicpochee
- Long Hammock Creek
- Manuel Branch
- Okaloacoochee Branch
- S-4 Basin
- Townsend Canal

On the map to the right, pink areas are verified impaired for nutrients and yellow striped areas designate areas under TMDL or TMDL development.



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.

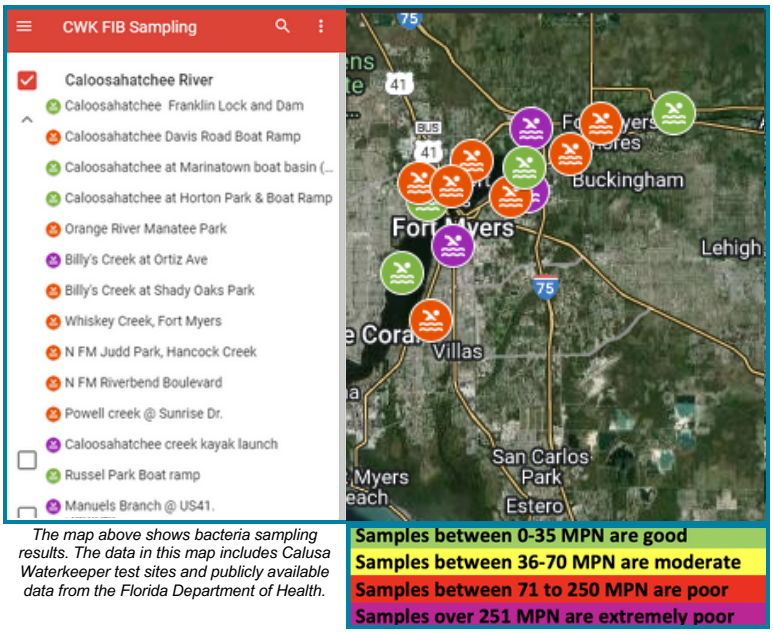
Bacteria come from a variety of sources, but those of most human health concern come from fecal waste of animals and people. Sources of fecal bacteria include:

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

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.

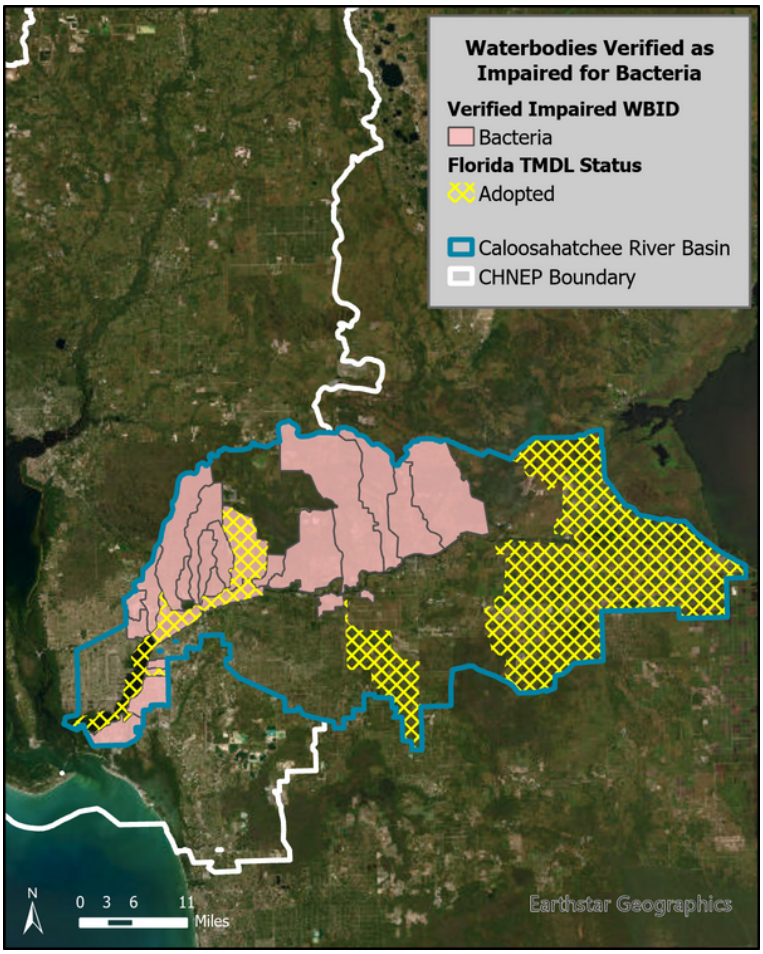
The following WBIDs are currently not meeting water quality standards for bacteria:

- Bedman Creek
- Bee Branch
- Caloosahatchee Estuary (Tidal Segment 2)
- Caloosahatchee Estuary (Tidal Segment 3)
- Carrell Canal
- Chapel Creek / Bayshore Creek
- Cypress Branch
- Cypress Creek
- Daughtrey Creek
- Deep Lagoon Canal
- Fort Simmons Branch
- Hancock Creek
- Jacks Branch
- Owl Creek
- Palm Creek
- Pollywog Creek
- Popash Creek
- Powell Creek
- Stroud Creek
- Telegraph Creek
- Trout Creek
- Whiskey Creek (Wyoua)
- Winkler Canal
- Yellow Fever Creek



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.

Recent monthly results for Bacteria (Entercocci) at monitoring stations in the Caloosahatchee Basin.



Pink areas are verified impaired for nutrients 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 or preserves.

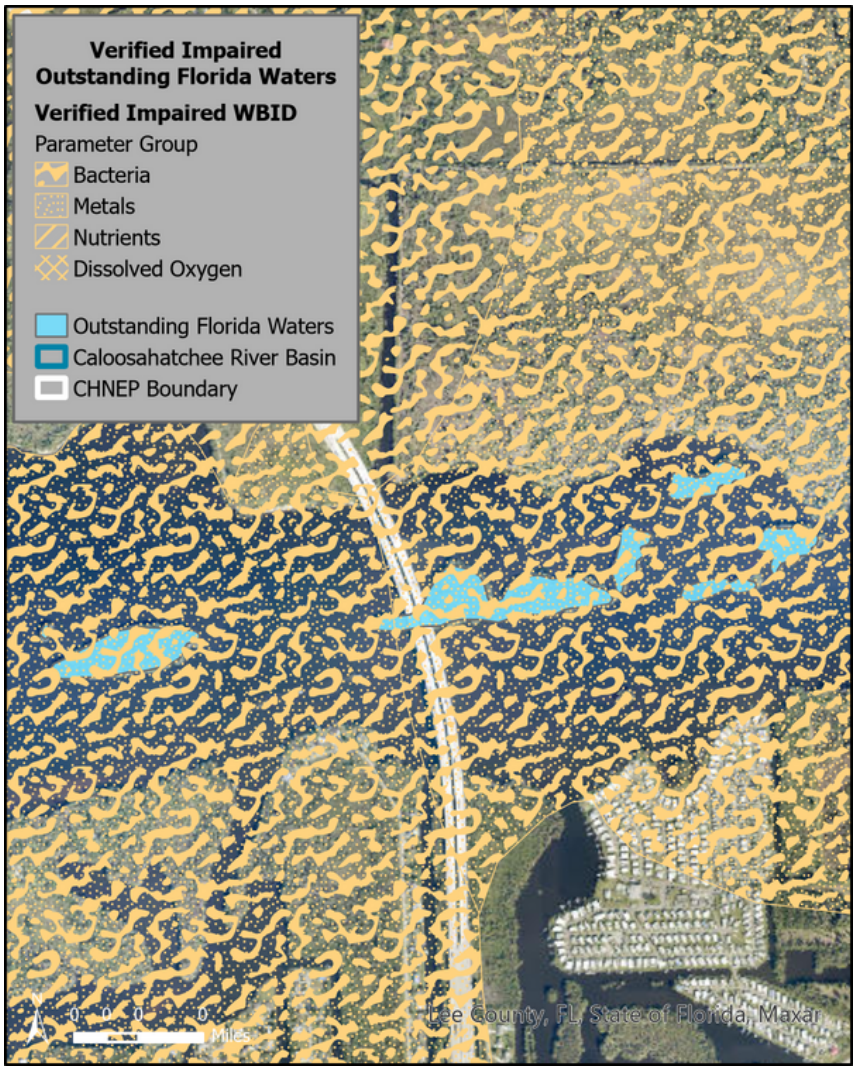
Generally, the waters within these managed areas are OFWs because the managing agency has requested this special protection.

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:

- Caloosahatchee National Wildlife Refuge

For more information on Lake Okeechobee levels and flows, visit https://chnep.wateratlas.usf.edu/waterbodies/lakes/1002667/lake-okeechobee/release-levels-tracker.



WBID	Waterbody Name	Impairment(s)	Status	WBID	Waterbody Name	Impairment(s)	Status	WBID	Waterbody Name	Impairment(s)	Status
3235I	Bedman Creek	Bacteria	Impaired	3235C	Cypress Creek	Bacteria	Impaired	3235O	Okaloacoochee Branch	Nutrients	Impaired
3235E	**Bee Branch**	**Bacteria**	**Impaired**	**3235C**	**Cypress Creek**	**Dissolved Oxygen**	**Impaired (Natural Condition)**	**3240N**	**Owl Creek**	**Bacteria**	**Impaired**
3235E	Bee Branch	Dissolved Oxygen	Study List	3240F	Daughtrey Creek	Bacteria	Impaired	3240C1	Palm Creek	Bacteria	Impaired
3235E	**Bee Branch**	**Nutrients**	**Study List**	**3240F**	**Daughtrey Creek**	**Fish Tissue**	**TMDL Complete**	**3240C1**	**Palm Creek**	**Dissolved Oxygen**	**Study List**
3240J	Billy Creek	Metals	Impaired	3240A4	Deep Lagoon Canal	Metals	Impaired	3235F	Pollywog Creek	Bacteria	Impaired
3237E	**C-19 Canal**	**Nutrients (Macrophytes)**	**Impaired**	**3240A4**	**Deep Lagoon Canal**	**Bacteria**	**Impaired**	**3235F**	**Pollywog Creek**	**Nutrients**	**Study List**
3237E	C-19 Canal	Dissolved Oxygen	TMDL Complete	3240A4	Deep Lagoon Canal	Dissolved Oxygen	Study List	3235F	Pollywog Creek	Metals	Impaired (Natural Condition)
3237E	**C-19 Canal**	**Nutrients (Total Nitrogen)**	**TMDL Complete**	**3240A4**	**Deep Lagoon Canal**	**Fish Tissue**	**TMDL Complete**	**3240Q**	**Popash Creek**	**Bacteria**	**Impaired**
3237E	C-19 Canal	Nutrients (Chlorophyll-a)	Ongoing Restoration Activities	3237D	Flaghole Canal	Dissolved Oxygen	Impaired	3240L	Powell Creek	Bacteria	Impaired
3240A	**Caloosahatchee Estuary (Tidal Segment 1)**	**Metals**	**Impaired**	**3237D**	**Flaghole Canal**	**Nutrients**	**Impaired**	**3246**	**S-4 Basin**	**Nutrients (Macrophytes)**	**Impaired**
3240A	Caloosahatchee Estuary (Tidal Segment 1)	Fish Tissue	TMDL Complete	3235K1	Fort Simmons Branch	Bacteria	Impaired	3246	S-4 Basin	Nutrients (Chlorophyll-a)	Ongoing Restoration Activities
3240A	**Caloosahatchee Estuary (Tidal Segment 1)**	**Nutrients (Total Nitrogen)**	**TMDL Complete**	**3235M**	**Goodno Canal**	**Nutrients**	**Impaired**	**3246**	**S-4 Basin**	**Nutrients (Total Phosphorus)**	**TMDL Complete**
3240A	Caloosahatchee Estuary (Tidal Segment 1)	Nutrients (Total Phosphorus)	Ongoing Restoration Activities	3240E1	Hancock Creek	Bacteria	Impaired	3246	S-4 Basin	Nutrients (Total Nitrogen)	TMDL Complete
3240B	**Caloosahatchee Estuary (Tidal Segment 2)**	**Metals**	**Impaired**	**3240E1**	**Hancock Creek**	**Metals**	**Impaired**	**3240M**	**Stroud Creek**	**Bacteria**	**Impaired**
3240B	Caloosahatchee Estuary (Tidal Segment 2)	Bacteria	Impaired	3240E1	Hancock Creek	Fish Tissue	TMDL Complete	3240M	Stroud Creek	Biology	Study List
3240B	**Caloosahatchee Estuary (Tidal Segment 2)**	**Fish Tissue**	**TMDL Complete**	**3235D**	**Jacks Branch**	**Bacteria**	**Impaired**	**3240M**	**Stroud Creek**	**Dissolved Oxygen**	**Study List**
3240B	Caloosahatchee Estuary (Tidal Segment 2)	Nutrients (Total Nitrogen)	TMDL Complete	3235D	Jacks Branch	Fish Tissue	TMDL Complete	3236A	Telegraph Creek	Bacteria	Impaired
3240B	**Caloosahatchee Estuary (Tidal Segment 2)**	**Nutrients (Total Phosphorus)**	**Ongoing Restoration Activities**	**3237C**	**Lake Hicpochee**	**Nutrients (Total Phosphorus)**	**TMDL Complete**	**3235L**	**Townsend Canal**	**Nutrients**	**Impaired**
3240C	Caloosahatchee Estuary (Tidal Segment 3)	Bacteria	Impaired	3237C	Lake Hicpochee	Nutrients (Chlorophyll-a)	Ongoing Restoration Activities	3240G	Trout Creek	Bacteria	Impaired
3240C	**Caloosahatchee Estuary (Tidal Segment 3)**	**Metals**	**Impaired**	**3237C**	**Lake Hicpochee**	**Nutrients (Macrophytes)**	**Impaired**	**3240H**	**Whiskey (Wyoua) Creek**	**Bacteria**	**Impaired**
3240C	Caloosahatchee Estuary (Tidal Segment 3)	Dissolved Oxygen	TMDL Complete	3237C	Lake Hicpochee	Nutrients (Total Nitrogen)	TMDL Complete	3240H	Whiskey (Wyoua) Creek	Metals	Impaired
3240C	**Caloosahatchee Estuary (Tidal Segment 3)**	**Fish Tissue**	**TMDL Complete**	**3237B**	**Long Hammock Creek**	**Nutrients**	**Impaired**	**3240H**	**Whiskey (Wyoua) Creek**	**Dissolved Oxygen**	**Study List**
3240W	Carrell Canal	Bacteria	Impaired	3237B	Long Hammock Creek	Dissolved Oxygen	TMDL Complete	3240U	Winkler Canal	Bacteria	Impaired
3240W	**Carrell Canal**	**Dissolved Oxygen**	**Study List**	**3240V**	**Manuel Branch**	**Nutrients**	**Impaired**	**3240U**	**Winkler Canal**	**Dissolved Oxygen**	**Study List**
3240B1	Chapel Creek / Bayshore Creek	Bacteria	Impaired	3240V	Manuel Branch	Dissolved Oxygen	Study List	3240E	Yellow Fever Creek	Bacteria	Ongoing Restoration Activities
3235G	**Cypress Branch**	**Bacteria**	**Impaired**	**3240V**	**Manuel Branch**	**Bacteria**	**Ongoing Restoration Activities**	**3240E**	**Yellow Fever Creek**	**Dissolved Oxygen**	**Impaired (Natural Condition)**
3235G	Cypress Branch	Metals	Impaired	3235O	Okaloacoochee Branch	Metals	Impaired (Natural Condition)	3240E	Yellow Fever Creek	Nutrients (Total Phosphorus)	Ongoing Restoration Activities
3235G	**Cypress Branch**	**Dissolved Oxygen**	**Impaired (Natural Condition)**								

Source(s): Florida Department of Environmental Protection

CONTACT INFORMATION

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CHNEP.org

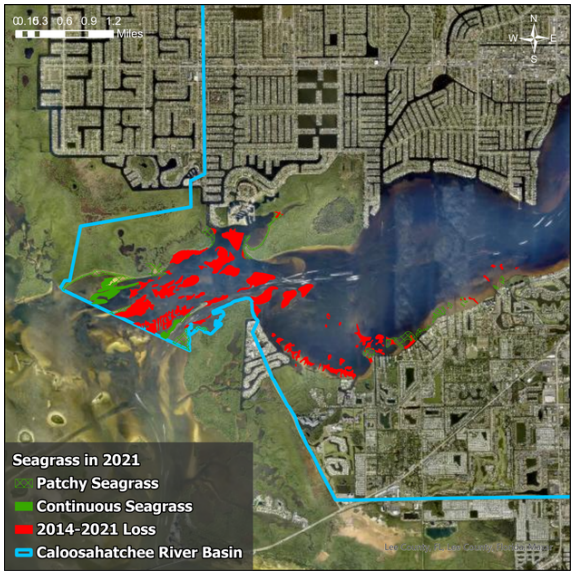
Seagrass in Caloosahatchee River Basin

FISH, WILDLIFE & HABITAT PROTECTION

Seagrass Measures Water Quality & Improves Estuary Health

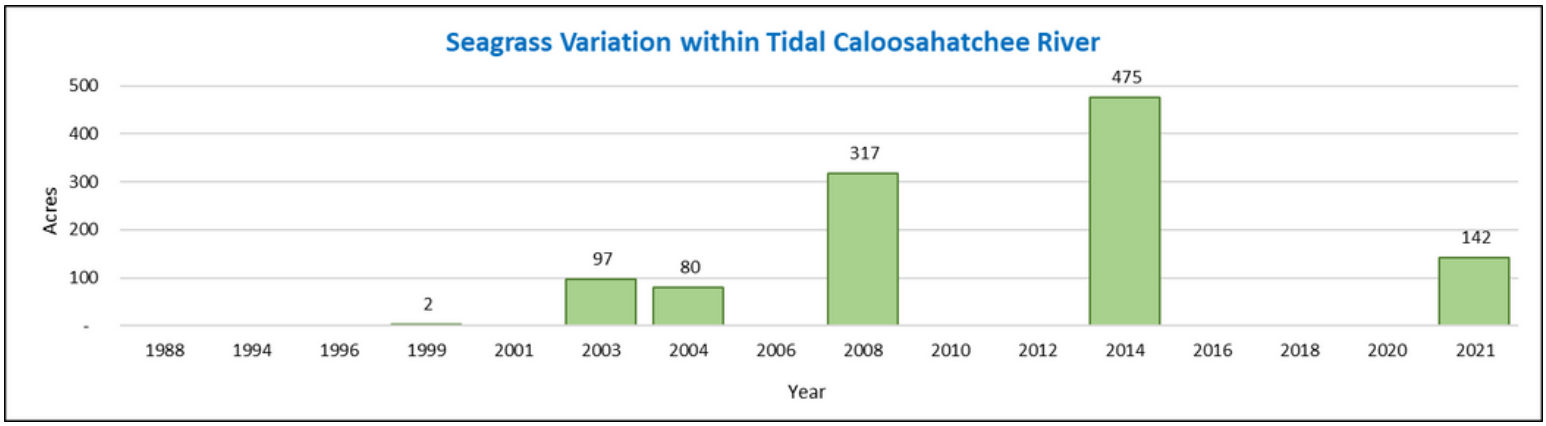
Seagrass beds provide many benefits. It is nursery habitat for fish and shellfish and it contributes to better water quality by trapping sediments, storing carbon, and filtering nutrients from stormwater runoff. Seagrass requires clean water and ample sunlight to grow, and therefore it is used by agencies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



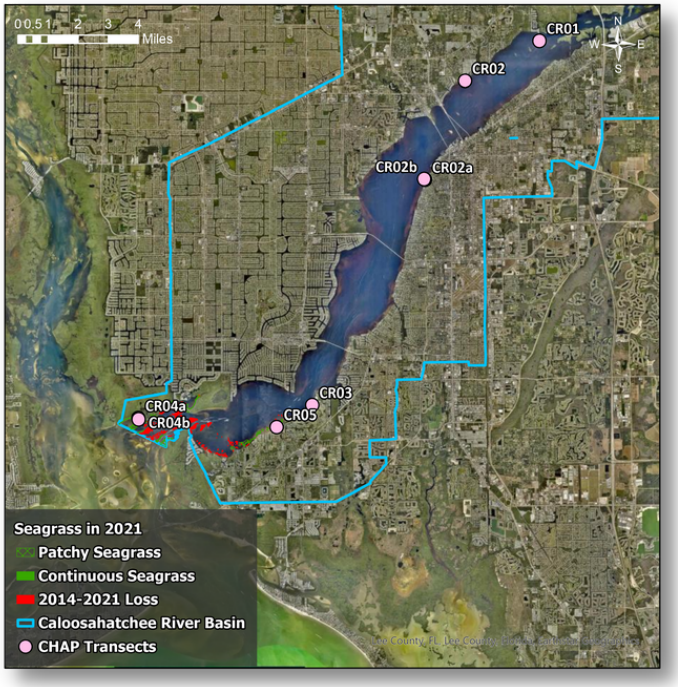
Seagrass Acreage

The graph below depicts results from seagrass mapping in the tidal portion of the Caloosahatchee River from 1999–2021. From 2006 to 2014, seagrass acreage in the Tidal Caloosahatchee River appears to have increased. However, it is important to note, 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, the Tidal Caloosahatchee River lost 333 acres of seagrass, representing a 70% 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. The CHNEP continues to work with our partners to better understand causes and investigate solutions.



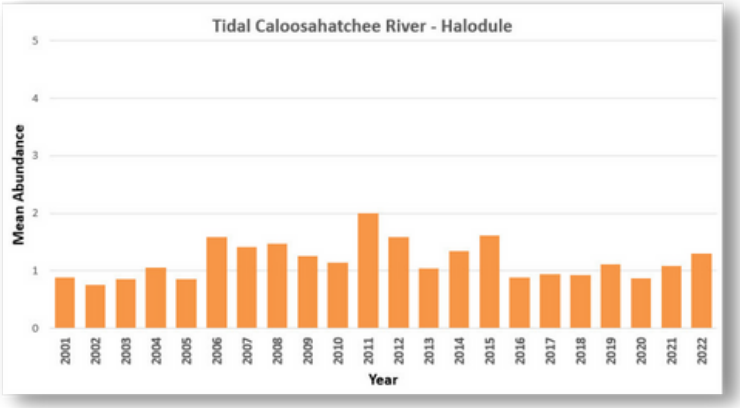
For more information, please visit the CHNEP Water Atlas at chnep.wateratlas.usf.edu.

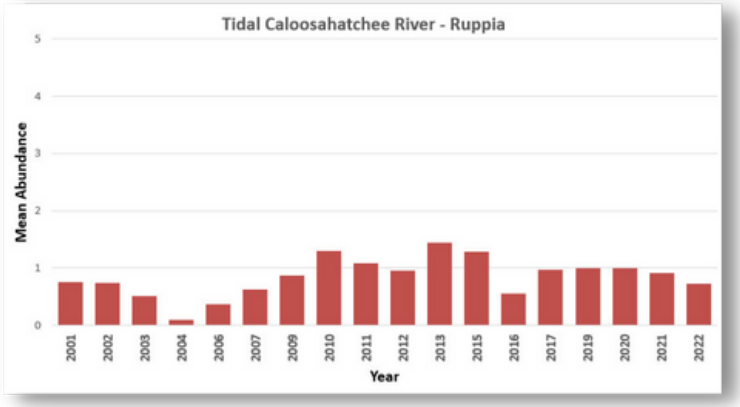
The map to the right shows locations of monitoring sites (highlighted in pink) in selected meadows in the Tidal Caloosahatchee River by the Florida Department of Environmental Protection Aquatic Preserve staff.

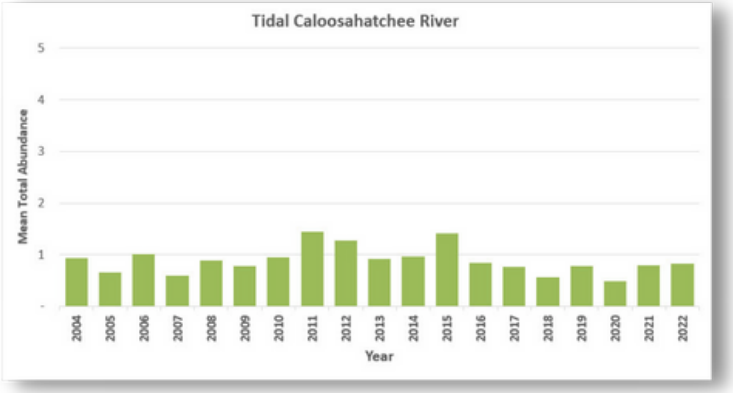


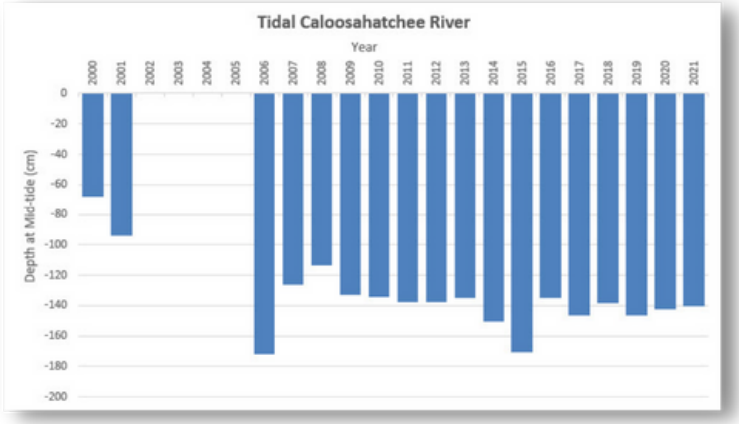
Seagrass Diversity and Health

The bar graphs here depict the changes in presence of different species of seagrass found at monitored locations in the region. The graphs below are focused primarily on two seagrass species Shoal grass (*Halodule wrightii*) and Widgeon grass (*Ruppia maritima*) for the years 2001–2021. 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 2015-2016. Data collected in 2021 demonstrate slight gains (though not full recovery) in Shoal grass and overall seagrass abundance throughout the region.









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