



# April 24, 2023 Meeting Backup Materials

## Contents:

- Presentation: *Waterway Quality* {Todd Hiteshew, Environmental Compliance Manager}



# Waterway Quality

Todd Hiteshew

Environmental Compliance Manager

**Sustainability Advisory Board – April 24, 2023**

# WHAT IS WATERWAY QUALITY?

- **Physical component**
  - Color
  - Temperature
  - Water Clarity
- **Biological component**
  - Algae
  - Bacteria
- **Chemical component**
  - Oxygen
  - Nutrients
  - Chlorophyll



## LAUDERTRAC

WATERWAY QUALITY UPDATE FORT LAUDERDALE  
Tracking Progress on Commission Priorities for 2020

October/November 2020

### UNDERSTANDING AND ADDRESSING WATERWAY QUALITY



**Algae bloom**

#### What is Waterway Quality?

The term water quality in the context of the City of Fort Lauderdale waterways means different things to different audiences. Water quality has chemical, physical, and biological components. Nutrients, like the nitrogen and phosphorus found in fertilizers, are an example of a chemical aspect of water quality. Temperature, clarity, and color are physical attributes of water quality. Fecal indicator bacteria represent a biological component of water quality. The navigable waterways in the City of Fort Lauderdale are designated by the Florida Department of Environmental Protection (FDEP) as [Class III with water quality criteria](#) established to protect fish consumption, recreation, and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife.



**Turbidity plume caused by an illicit discharge**

#### What Influences Waterway Quality?

A typical water sample from our waterways is iced tea-colored from the tannins the water picks up as it travels through Everglades peat soils. This water also has a slightly basic pH due to exposure to our limestone geology, as well as elevated nutrients and bacteria from urban runoff – especially after a rain event.

Local waterway quality is primarily influenced by stormwater runoff, discharges into our waterways from the drainage canals to our west, the tides, and a variety of human and wildlife

activities. Most of the waterways throughout Broward County are considered impaired due to levels of bacteria exceeding the FDEP's Class III water standard. The source of this type of bacteria is generally considered non-point. This means that a variety of inputs (not a single point source) contributes bacteria to the waterway including urban runoff, pet waste, landscaping debris such as lawn clippings, septic tanks, boat discharges, and wildlife.

#### Who Monitors Waterway Quality?

Waterway quality is monitored by a number of different agencies. [Broward County](#) has an extensive network of sampling sites throughout its jurisdiction where water is collected and monitored for a broad spectrum of quality parameters on a quarterly basis. FDEP standards are applied to these urban waterways.

The City has historically conducted limited sampling at George English Park, a popular boat launch site, and in other areas in response to point source discharges of pollution where the source of the discharge and the type of pollutant is known, such as in the event of a broken sewer pipe. The [Florida Department of Health](#) monitors bacteria in the ocean twice a week and applies a stricter United States Environmental Protection Agency standard that reflects the potential risk of ingesting the water while swimming. Not-for-profit groups like the Surfrider Foundation's [Blue Water Task Force](#) also monitor the beaches for bacteria.

#### How is Fort Lauderdale Protecting Waterway Quality?

The City of Fort Lauderdale has taken aggressive action over time to address and reduce both point and non-point source discharges. The Waterworks 2011 Program eliminated septic systems in the City, especially near waterways. Pumpout stations were installed at all City marinas to provide convenient sewage disposal facilities for the boating community. Zoning district requirements were established compelling property owners renting to live-aboard boats to have pumpout facilities. The City has an ordinance for the control of pet waste and has installed pet waste stations in public spaces. The City Commission recently passed an ordinance prohibiting the application of fertilizers during the rainy season (June 1 to September 30) to reduce nutrient loading and prevent algal blooms.



**The City prohibits fertilizing in the summer (June 1 - September 30)**

# WATERWAY QUALITY (WQ) WAS A COMMISSION TOP PRIORITY IN 2020-2021 AND NAMED PRIORITY FOR 2022



**LAUDERTRAC** WATERWAY QUALITY UPDATE FORT LAUDERDALE  
Tracking Progress on Commission Priorities for 2020  
December 2020  
IMPROVING OUR WATERWAYS



**Protecting Waterways from Pollutants**  
The City of Fort Lauderdale has taken great strides to improve our waterways and protect and preserve our natural environment. One of our primary goals is to prevent pollution and algal blooms through education and enforcement. The City participates in the National Pollutant Discharge Elimination System (NPDES) permit program and operates an aggressive erosion and sediment control program. Some of the actions taken include regular inspections of construction sites for compliance with erosion and sediment control best management practices and prohibiting the use of fertilizer from June 1st to September 30th each year. Neighbors are also educated to never dispose of or blow trash, litter, yard, or lawn clippings in streets, storm drains, or waterways to prevent nutrients that feed the algal blooms from entering waterways. In addition, the City is reviewing a pilot study plan for algae prevention that will help find innovative ways to keep our waterways clean.

**Stormwater Improvements**  
The City of Fort Lauderdale is implementing a stormwater management program through the stormwater master planning effort to address chronic flooding and other stormwater management issues including water quality. Over the past year, the City's Stormwater Operations team took proactive steps to keep our waterways clean by reducing nonpoint-source (NPS) pollution from stormwater runoff. Catch basin cleaning and street sweeping prevented more than 1,000 tons of debris from entering our waterways. Over 30 tons of waste were collected from our waterways and disposed of properly through the City's canal cleaning program. Furthermore, a new initiative was implemented to install 57 SNOUT® pollution prevention devices. The SNOUT® devices act as a filter for trash, sediment, leaves, and other debris in the existing catch basins. The devices keep oil and trash on the surface of the water while heavy sediment sinks to the bottom, letting cleaner water flow through the outlet. They remove up to 75 percent of stormwater pollutants and prevent them from entering the waterways.

**New Water Monitoring Program**  
The City established a bacteria monitoring program to ensure waterways are safe for neighbors and visitors enjoying recreational activities. A monitoring service agreement with Miami Waterkeeper will provide the City with weekly water quality testing results across key waterway recreational areas over a 12-month period. Monitoring is scheduled to begin in January 2021. The up-to-date water quality status will be available to the public on [www.theswimguide.org](http://www.theswimguide.org) or the program's mobile device app "Swim Guide" that is available to download from the App Store or Google Play.

Additionally, environmental assessments of George English Lake and Tarpon River have been completed in response to the sewer main breaks that occurred starting in December 2019. Sediment removal plans and permits are in process and work is expected to begin in 2021. An environmental assessment is also occurring on the Himmanshee Canal which should be completed in early 2021. The quality of our 165 miles of waterways is critical to our way of life with its beautiful views, marine commerce, habitat for wildlife, and recreational opportunities. The City is dedicated to protecting its waterways as it is the "Venice of America".

## 2020 Accomplishments

- Initiated recreational WQ monitoring
- Adopted a restriction on fertilizing during the rainy season
- Prevented 1,000 tons of debris from entering the waterway through catch basin cleaning and street sweeping
- Installed 57 pollution control baffles

# WATERWAY QUALITY (WQ) WAS A COMMISSION TOP PRIORITY IN 2020-2021 AND NAMED PRIORITY FOR 2022



The image shows the cover of a report titled "LAUDERTRAC WATERWAY QUALITY UPDATE". The header includes the LAUDERTRAC logo and icons for water, a fish, and a boat. Below the title, it says "Tracking Progress on Fort Lauderdale Commission Priorities for 2021" and "March 2021". The main heading is "IMPROVING OUR WATERWAYS". The content includes a section titled "Waterway Quality Continues To Be a Top Priority" with a photo of a hand holding a globe, and a list of "Waterway Quality Initiatives".

**LAUDERTRAC** WATERWAY QUALITY UPDATE  
Tracking Progress on Fort Lauderdale Commission Priorities for 2021  
March 2021

**IMPROVING OUR WATERWAYS**

**Waterway Quality Continues To Be a Top Priority**  
The City Commission met on January 29, 2021 to prioritize the initiatives they would like the City to focus on for 2021. Waterway Quality was one of the identified Top Priorities continuing from 2020 that aligns with Goal 3 of the City's Press Play Fort Lauderdale 2024 Strategic Plan, which is to build a healthy and engaging community.

The primary focus of this initiative in 2021 will be to monitor and improve the quality of Fort Lauderdale's 165 miles of waterways. This goal will be achieved through education on preventing discharges, infrastructure improvements such as swale rehabilitation to improve the quality of stormwater reaching the waterways, and the implementation of pilot and restoration projects to directly address water quality in our waterways. Additional focus will be placed on continuing to monitor waterway quality, exploring options to increase the availability of mobile pumpouts, and collaborating with Broward County and the State of Florida.

**Waterway Quality Initiatives**  
Seven initiatives have been selected to meet the 2021 goal. These initiatives include:

- ▶ Educating and building awareness through National Pollutant Discharge Elimination System (NPDES) implementation.
- ▶ Continuing the Waterway Quality Monitoring Program.
- ▶ Implementing stormwater quality improvements.
- ▶ Remediating the impacted water bodies from the 2019 and 2020 wastewater discharges.
- ▶ Researching the feasibility of a program to increase the availability and cost-effectiveness of mobile pumpouts.
- ▶ Continuing the Canal Cleaning Program to remove floating debris.
- ▶ Implementing aeration and the pilot projects from the algal study.

The City has allocated \$214,780 to remove sediment in George English Lake that occurred in late 2019 and 2020 as a result of the sewer force main breaks. The City has contracted with Gator Dredging and work should begin in mid-to-late April.

The restoration of the Tarpon River and Himmarshee Canal will require additional funding. Tarpon River is in the permitting stages with regulatory agencies for sediment removal and a report on the Himmarshee Canal is expected in April once the assessment in this area is completed. The continuation of the Canal Cleaning Program has been fully funded in fiscal year 2021 for \$379,400.

Another initiative is to research the cost-effectiveness and feasibility of a new program to increase the availability of mobile pumpouts. Illicit discharges from pumpouts are a source of bacterial pollution and impairment in our waterways, and this research will explore ways to make it easier and more convenient to access those services.

The implementation of aeration and the pilot projects from the algal study are being considered. The new aeration technology initiative in Lake Melva, Cliff Lake, Tarpon River, and the Himmarshee Canal can increase oxygen concentrations in the water that will break down nutrients to reduce algal blooms and may help with bacterial pollution in our waterways.

## 2021 Accomplishments

- Completed National Pollutant Discharge and Elimination System (NPDES) Implementation and Reporting (Non-Point Source Pollution)
- Performed weekly WQ monitoring at 10 sites
- Piloted protein skimmer technology
- Initiated surface water enhancement projects of water bodies impacted by 2019-2020 wastewater discharges
- Completed dredging of George English Lagoon
- Initiated installation of aerator at four (4) sites
- Initiated algal bloom prevention pilot

## WATERWAY QUALITY (WQ) WAS A COMMISSION PRIORITY IN 2022 AND RECENTLY NAMED PRIORITY FOR 2022

### 2022 Accomplishments

- Completed National Pollutant Discharge and Elimination System (NPDES) Implementation and Reporting (Non-Point Source Pollution)
- Performed weekly WQ monitoring at 10 sites
- Dredged Tarpon River area impacted by 2019-2020 wastewater discharges
- Installed aerator at four(4) sites
- Installed algal bloom mitigation pilot
- Cleaned Himmarshee and Tarpon River Stormwater Basins
- Installed 10 water quality information signs at boat ramp locations



Bubble Curtain in  
Citrus Isles



Dredging in the  
eastern Tarpon River

# Aerator Projects

- Cliff Lake
- Himmarshee Canal
- Lake Melva
- Tarpon River





CITY OF FORT LAUDERDALE

# WELCOME TO OUR WATERWAYS!

Enjoy your day and stay safe.

*For water quality information, visit:*



[theswimguide.org](https://theswimguide.org)



[fortlauderdale.gov/beachconditions](https://fortlauderdale.gov/beachconditions)

- Riverland Woods
- Cooley's Landing
- George English Park
- Cox's Landing
- Annie Beck Park
- Sweeting Park
- Coontie Hatchee Park
- Coral Ridge Yacht Club
- Surf Club Marina



# Swimguide Analytics

	2022			Total (2021 – 2022)		
Location	Mobile Visits	Internet Visits	Total Visits	Mobile Visits	Internet Visits	Total Visits
<b>Annie Beck Park</b>	126	1,237	1,363	371	2,279	2,650
<b>Coontie Hatchee Park</b>	136	607	743	419	1,291	1,710
<b>Himmarshee Canal</b>	106	1,133	1,239	435	2,225	2,660
<b>Middle River/George English Park</b>	116	969	1,085	277	1,840	2,117
<b>Lake Sylvia</b>	60	1,141	1,201	206	2,336	2,542
<b>Royal Palm Drive Las Olas Blvd</b>	59	759	818	183	1,492	1,675
<b>Sandbar</b>	218	1,080	1,298	584	2,060	2,644
<b>Sunrise Bay Hugh Taylor Birch Park</b>	67	889	956	179	1,690	1,869
<b>Sweeting Park</b>	179	629	808	535	1,252	1,787
<b>Tarpon River</b>	146	995	1,141	530	1,977	2,507
		TOTAL	10,652		TOTAL	22,161

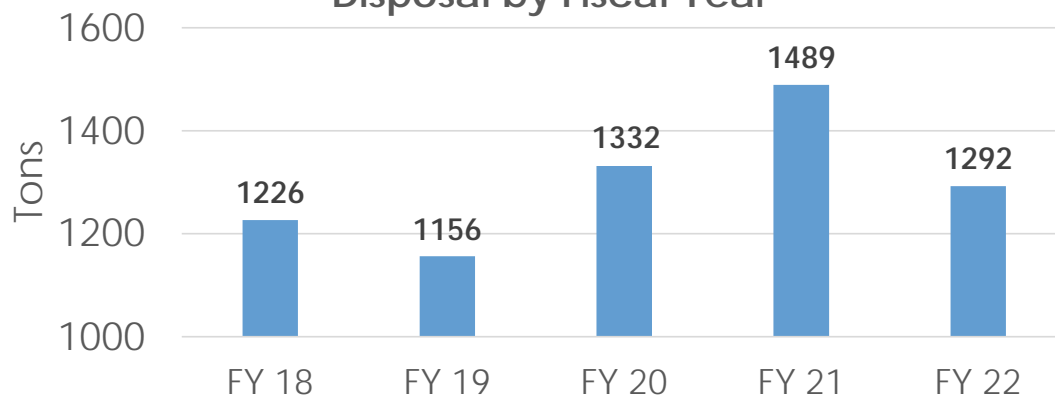


## FY 2022 Stormwater Operations Pollution Prevention Activities

Proactive maintenance of the stormwater system helps prevent pollutants from being discharged into waterways.

- ▶ **13,000+** Proactive Inspections:
  - ▶ Generates repair work orders
  - ▶ Generates catch basin cleaning work orders
- ▶ **>5,200** Catch basins cleaned and **24,000** miles of curbed streets swept:
  - ▶ **Nearly 1,300** tons of debris captured
- ▶ Four (4) cleanings of the City's Pollution Control Devices

Street Sweeping and Catch Basin Cleaning  
Disposal by Fiscal Year

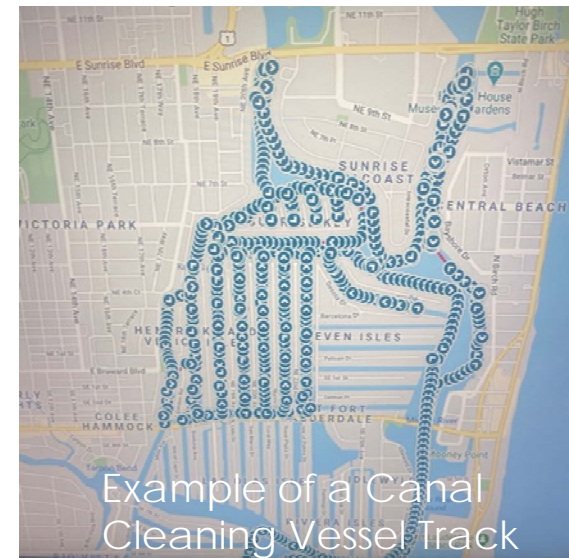
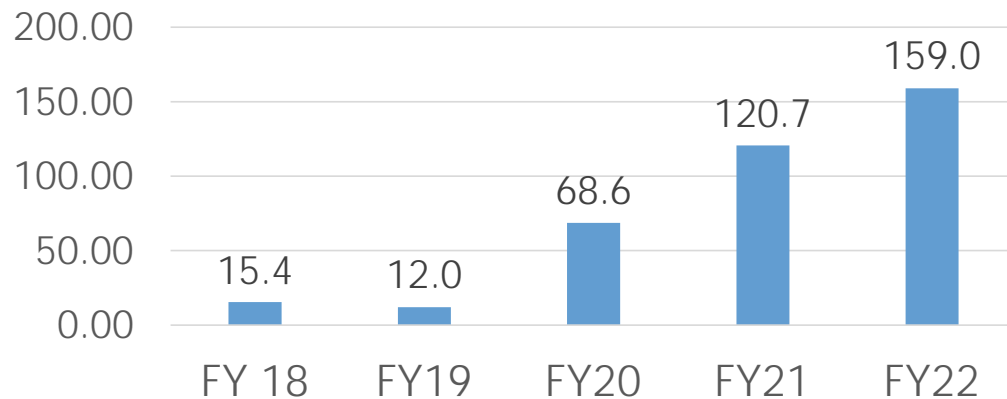


# CANAL CLEANING

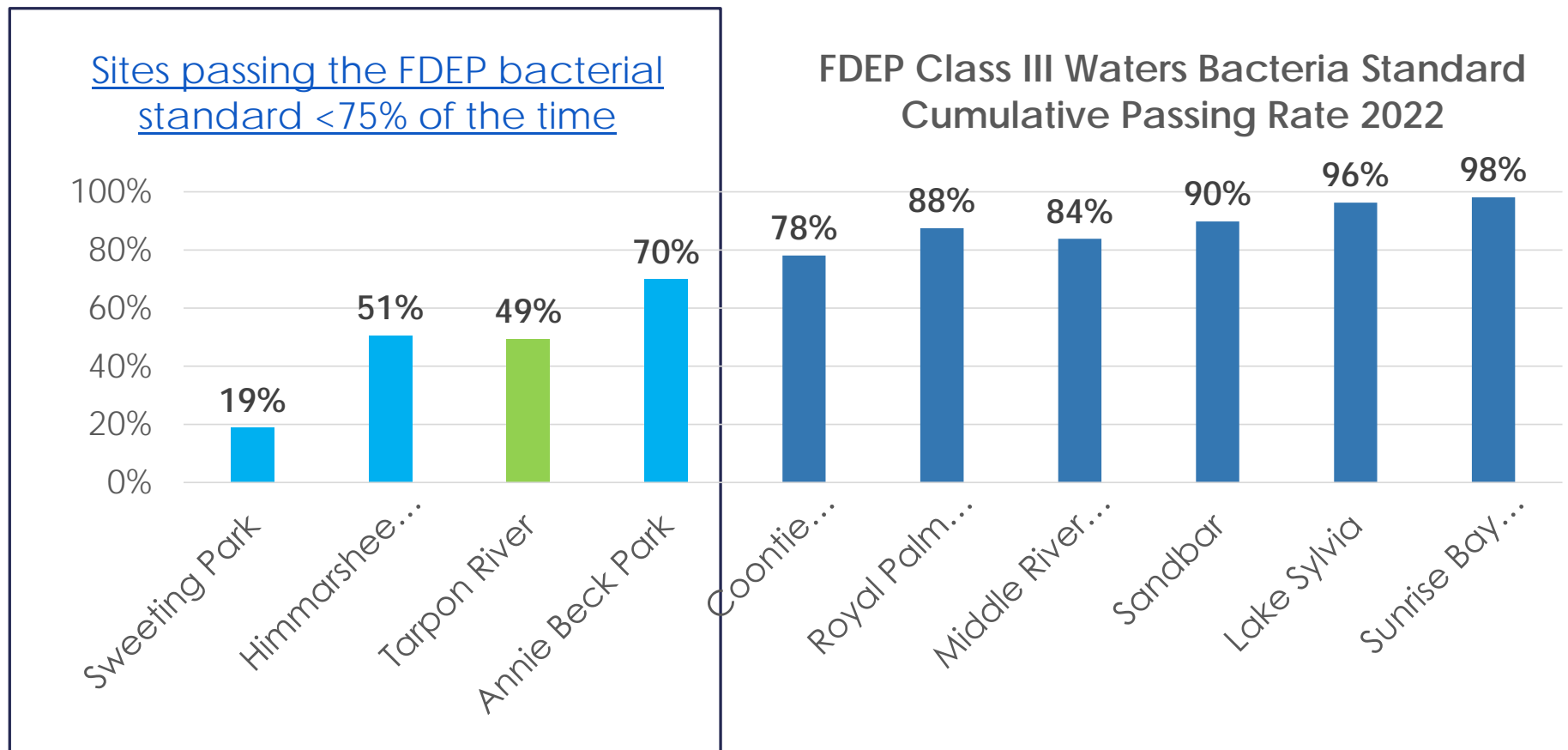
The City has substantially increased its effort to remove debris from our waterways.



### Canal Cleaning Disposal Tonnage (Fiscal Year)



# WEEKLY WATERWAY QUALITY MONITORING PROGRAM MIAMI WATERKEEPER





## Anticipated 2023 Accomplishments

- Renewal of the contract to perform weekly WQ monitoring at 10 sites
- Dredging of the Himmarshee Canal
- Initiating the Osceola Canal Restoration
- Monitoring the use of aerators to improve waterway quality
- Continued pro-active cleaning of stormwater basins and street sweeping
- Installation of water quality/pollution prevention structures in River Oaks



## Additional Initiatives

- City investing \$200M in new stormwater infrastructure including water quality structures permitted to meet current discharge standards for both quantity and quality
- Continue to meet the requirements of our NPDES permit to incrementally reduce non-point sources of pollution
- City's asset management program is identifying all stormwater assets and creating proactive inspection and cleaning programs
- City encourages the community and businesses to embrace environmental stewardship to prevent vegetated debris, pet waste, fertilizer and chemicals entering the waterways

# Questions?

To report pollution concerns



**LAUDER SERV**

**FOUR WAYS TO REACH US!**

**TAP**  
USE THE SMART PHONE APP  
[fortlauderdale.gov/lauderserv](http://fortlauderdale.gov/lauderserv)

**CLICK**  
SUBMIT A REQUEST ONLINE  
[fortlauderdale.gov/lauderserv](http://fortlauderdale.gov/lauderserv)

**CALL**  
CALL US ANYTIME  
954-828-8000

**EMAIL**  
[cservice@fortlauderdale.gov](mailto:cservice@fortlauderdale.gov)

**24-HOUR CUSTOMER SERVICE**

**954/828-8000**