



LAUDERTRAC



WATERWAY QUALITY UPDATE

Tracking Progress on Fort Lauderdale Commission Priorities for 2021

Commission Conference Presentation

January 18, 2022

Public Works Department



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 algae 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 algae 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 water were collected from our waterways and disposed of properly through the City's canal cleaning program. Furthermore, a new initiative was implemented to install 37 "SNOT" pollution prevention devices. The "SNOT" 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.fortlauderdale.gov 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 Tropic 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 Himmahshee Canal which should be completed in early 2021. The quality of our 140 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".

WATERWAY QUALITY (WQ) IS A COMMISSION TOP PRIORITY

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 devices

WATERWAY QUALITY IS A COMMISSION TOP PRIORITY



Waterway Quality Continues To Be a Top Priority

The City Commission met on January 25, 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 First Five Year 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 waste 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 \$24,780 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 Homestead Canal will require additional funding. Tarpon River is in the permitting stages with regulatory agencies for sediment removal and a report on the Homestead 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 Mivva, Cliff Lake, Tarpon River, and the Homestead 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 remediation of water bodies impacted by 2019-2020 wastewater discharges
- Initiated installation of aerator at four (4) sites
- Initiated algal bloom prevention pilot


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ROLE OF WATERSHED ASSET MANAGEMENT PLAN IN ADDRESSING WATERWAY QUALITY

Goals

- 1) Reduce flooding and adapt to sea level rise
- 2) Improve water quality and our natural resources
- 3) Proactively maintain the City stormwater infrastructure
- 4) Maintain and improve the community's rating system (CRS) score
- 5) Collaborate with stakeholders to mutually understand and address our community's flood risk

Figure 1.2: Mission, Vision, and Goals



City of Fort Lauderdale Flood Resilience and Environmental Vision, Mission, and Goals

VISION
To provide flood protection and waterway pollution control through efficient and sustainable management of the City's stormwater and related natural assets

MISSION
Proactively manage our stormwater and environmental resources through best asset management practices

- GOAL 1**
Reduce flooding and adapt to sea level rise
- GOAL 2**
Improve water quality and our natural resources
- GOAL 3**
Proactively maintain the City stormwater infrastructure
- GOAL 4**
Maintain and improve the community's rating system (CRS) score
- GOAL 5**
Collaborate with stakeholders to mutually understand and address our community's flooding risks

Flood Resilience
 Environmental

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FY 2021 STORMWATER OPERATIONS POLLUTION PREVENTION ACTIVITIES




- ▶ Proactive maintenance of the stormwater system helps prevent pollutants from being discharged into waterways.
- ▶ **15,604** Proactive Inspections:
 - ▶ Generates repair work orders
 - ▶ Generates catch basin cleaning work orders
- ▶ **5,488** Catch basins cleaned and **22,782** miles of curbed streets swept:
 - ▶ **1,489** tons of debris captured
- ▶ Four (4) Pollution control devices cleaned

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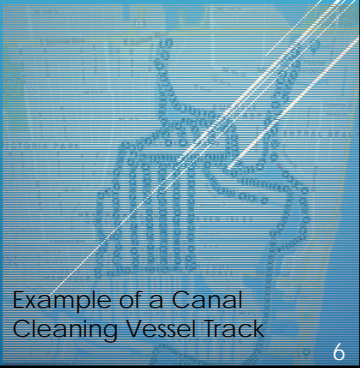
CANAL CLEANING

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



Canal Cleaning Disposal Tonnage

Fiscal Year	Disposal Tonnage
FY 18	15.41
FY 19	6.13
FY 20	68.6
FY 21	116.89



Example of a Canal Cleaning Vessel Track

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EDUCATION AND AWARENESS



- ▶ NPDES Outreach
 - ▶ Pesticides, herbicides, and fertilizer
 - ▶ Illicit discharges and improper disposal
- ▶ Algal Blooms
- ▶ Outreach on Florida Friendly Fertilizer Use on Urban Landscapes





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IMPLEMENTATION OF AMENDED FLORIDA-FRIENDLY FERTILIZER USE ON URBAN LANDSCAPES



- ▶ Prohibits application of nitrogen and phosphorus during the rainy season (July 1 – September 30)
- ▶ Retailers must post a sign notifying customers of the limitations on fertilizer
- ▶ Retailers must make available a surface and groundwater protection brochure
- ▶ City staff visited 5 retailers, placed 7 signs, and provided 250 brochures

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MOBILE PUMP OUTS



The City continues to improve its waterways by identifying root causes of poor waterway quality. One such cause is the illegal discharge of sewage from vessels. City staff has conducted a feasibility and cost effectiveness study to reduce or eliminate illegal discharges by increasing the availability of mobile pumpouts within the City. As a part of the study, staff researched other municipalities' sewage pumped programs, assessed the cost benefits of a Public-Private Partnership (P3) with pumpout vessel vendors in Fort Lauderdale, and contacted the Florida Department of Environmental Protection (FDEP) about state and federal grant programs. Below are the findings and some of the options that are under consideration for implementation in Fort Lauderdale.

Option 1: City-operated mobile vessel pumpout service

Monroe County offers disposal services to boaters five days a week at no charge. Their program has two staff members and two boats and averages 21 pumpouts per day totaling 180,000 gallons of sewage discharge per year. The program is supplemented and supported by FDEP Clean Vessel Act (CVA) grants.

Under this model, the City could operate on-demand or by appointment for "same day" mobile pumpout service. The goal would be to increase boaters' compliance by offering a convenient and cost-effective solution for proper sewage disposal and thereby improve waterway quality. The City may be eligible for a CVA grant to cover a portion of the vessel purchase price as well as some operational costs. However, the grant would restrict City service hours to a maximum 55 per pumpout regardless of the volume collected. If the City does not receive grant funding, boaters could be charged at the current market rate that would be significantly higher.

Option 2: Vendor-operated pumpout service



Since 2009, most of the Florida Keys in Monroe County and the City of Naples National Park are designated as "No Discharge Zones," as approved by the United States Environmental Protection Agency for having adequate pumpout facilities. Monroe County requires anchored vessels to have proof of compliance with a minimum of one pumpout per month. The County offers one free pumpout per week to visiting anchored vessels that are registered. Unregistered and non-anchored vessels are required to use fixed shore side pumpouts and maintain service receipts. The County funds the free service through the Monroe County Boating Improvement Program, CVA Grants, and State legislative allocations to use a private contractor. Monroe County designates zones of service and provides a quota of the maximum number of pumpouts for each zone. The contractor provides service at a contracted and reduced rate to each zone depending on the day of the week. The contractor also offers a premium pickup service on non-anchored days at a higher rate.

Should the Fort Lauderdale determine this model as most feasible and effective, the City would seek designation as a "No Discharge Zone" and could benefit from a more efficient program with no capital outlay, no City staff/off or fixed annual cost required, and potentially receive outside funding support. It would decrease illegal sewage disposal and improve opportunities to monitor abandoned vessels, fuel discharges with stronger enforcement, and provide opportunities to market the City's clean waterways.

In addition to the two options mentioned, the City is continuing to research additional options such as creating a P3 program or maintaining current operations. Learn more about the City of Fort Lauderdale's existing program at go.fortlauderdale.gov/waterway or www.fortlauderdale.gov/waterway

If you would like the publication in an alternate format, please call 954-828-4753 or email strategiccommunications@fortlauderdale.gov.

- ▶ Researching options for providing mobile pump out services
- ▶ Pursuing grants

Marine Boat Builders Co. 23' 460-gallon capacity pumpout vessel used in Charleston, South Carolina

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ALGAL BLOOM MONITORING PLAN AND PILOT PROJECT



- ▶ Monitoring
 - ▶ Conduct monthly wet season inspections at 15 sites
 - ▶ FDEP maintains an algal bloom dashboard and generates weekly reports
- ▶ Consultant reviewed algae bloom mitigation technologies and proposed a pilot project
 - ▶ Bubble curtain in Citrus Isles (FY2022)
- ▶ Contracts in place for mitigation if there is a bloom severe enough to require a response

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PROACTIVE WATERWAY QUALITY SAMPLING PROGRAM



- ▶ Broward County NPDES Monitoring Report
 - ▶ Two sites in Fort Lauderdale: C-13/North Fork Middle River and New River/Coastal
 - ▶ 5 parameters at 15-minute intervals, 24/7
- ▶ Contract with Miami Waterkeepers – 10 sites weekly bacterial sampling
- ▶ City proactively monitoring certain areas since March 2020 around Middle River, George English Park, and Tarpon River

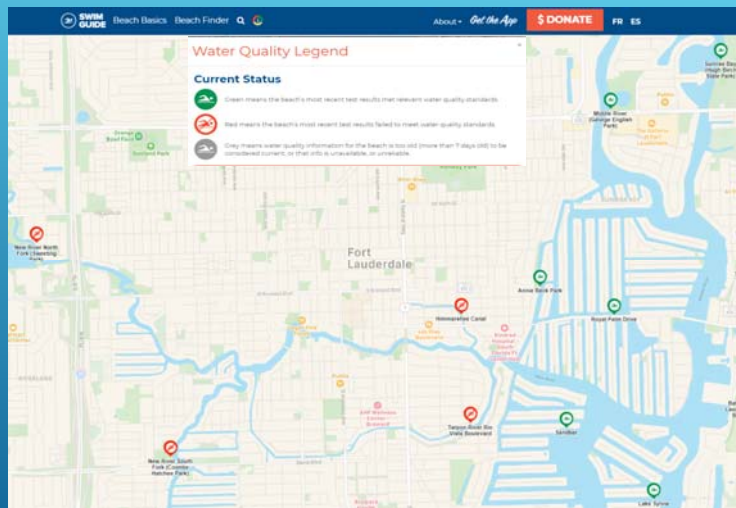
WEEKLY WATERWAY QUALITY MONITORING MIAMI WATERKEEPER

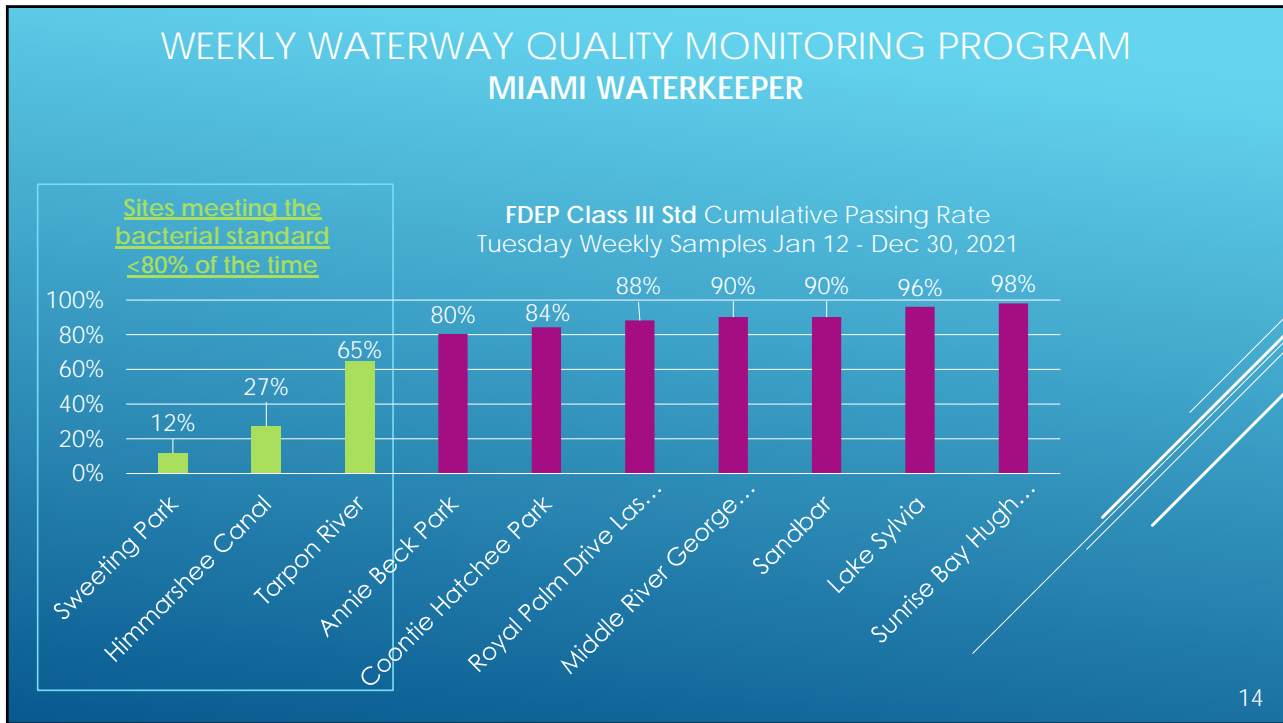
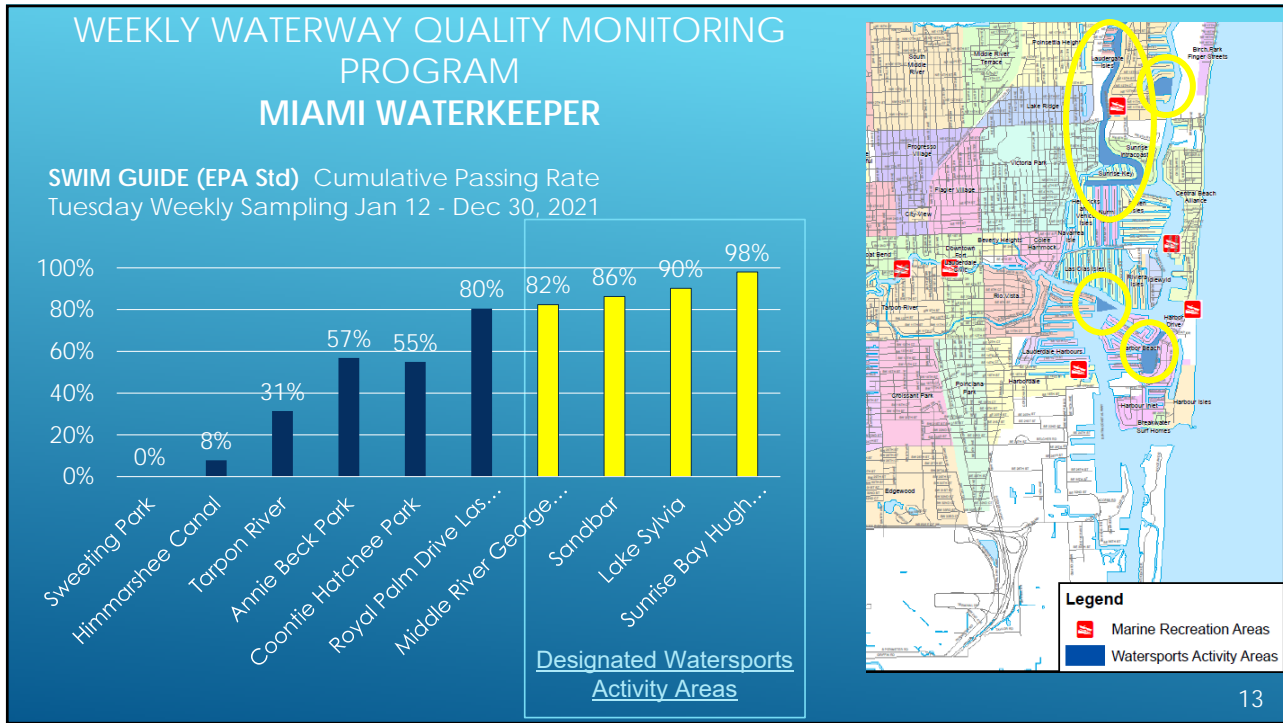
Intent of Program

1. Provide transparent near real time bacteriological data through Swim Guide
2. Monitor waterway areas used for recreation (10 sites)
3. Target areas of concern for WO mitigation

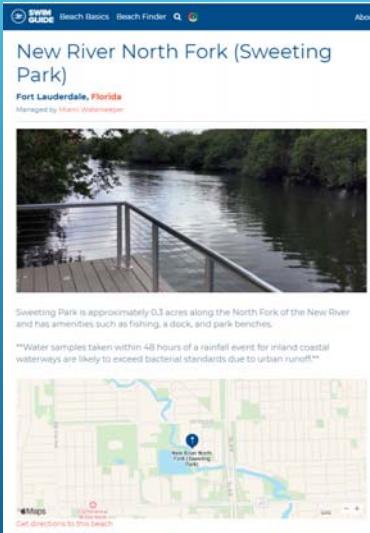


Photos of Miami Waterkeeper taking water samples at Lake Sylvia





ADDITIONAL ACTIVITIES TO IMPROVE WATERWAY QUALITY IN THE NORTH FORK BASIN



▶ Completed Initiatives

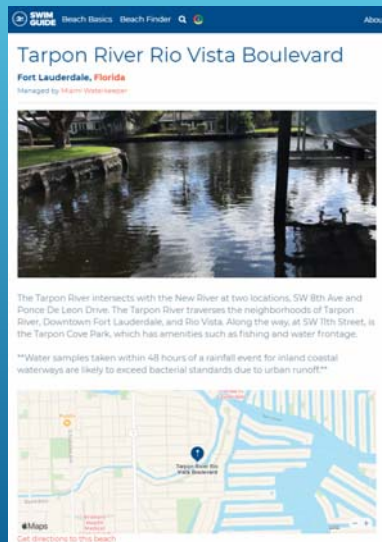
- ▶ Reviewed all discharge points (Walk the WBID)
- ▶ Submitted grant application to accelerate Durrs Stormwater Master Plan Improvements (SMP)
- ▶ Smoke-tested the A2 basin to look for sewer leaks

▶ Planned

- ▶ Clean City-owned drainage pipes
- ▶ Affect stormwater repairs on NW 21st Street
- ▶ Initiate construction of Durrs SMP including WQ structures
- ▶ Install addl pollutant retardant baffles
- ▶ Assess opportunities for pro-active swale replacement



ADDITIONAL ACTIVITIES TO IMPROVE WATERWAY QUALITY IN THE TARPON RIVER BASIN



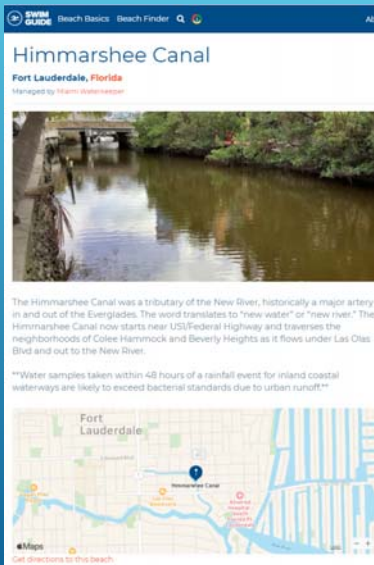
▶ Completed Initiatives

- ▶ Cleaned State and County drainage pipes with outfalls on the Tarpon River
- ▶ Installed new stormwater infrastructure in Rio Vista
- ▶ Initiated WQ monitoring in western Tarpon River
- ▶ Submitted request for state funds for dredging entire Tarpon River

▶ Planned

- ▶ Clean City-owned drainage pipes
- ▶ Perform remediation dredging of eastern Tarpon River
- ▶ Install permanent aeration

ADDITIONAL ACTIVITIES TO IMPROVE WATERWAY QUALITY IN THE HIMMARSHEE CANAL



▶ Completed Initiatives

- ▶ Protein skimmer pilot project
- ▶ Environmental Assessment and Permitting for remediation dredging

▶ Planned

- ▶ Clean City-owned stormwater system
- ▶ Perform remediation dredging
- ▶ Install permanent aeration

PROTEIN SKIMMER PILOT PROJECT



- ▶ Tested in the Himmarshee Canal at three sites for 12 weeks at a cost of **\$350,670**
- ▶ Operations resulted in waterway quality improvements in the immediate area near the barge but not over the spatial extent of the waterway
- ▶ Provided only temporary waterway quality improvements
- ▶ Waterway quality improvements were not demonstrated to meet water quality standards
- ▶ Technology worked better at the more saline end of the waterway



LAUDER SERV

FOUR WAYS TO REACH US!

TAP
USE THE SMART PHONE APP
fortlauderdale.gov/lauderserv

CLICK
SUBMIT A REQUEST ONLINE
fortlauderdale.gov/lauderserv

CALL
CALL US ANYTIME
954-828-8000

EMAIL
cservice@fortlauderdale.gov

24-HOUR CUSTOMER SERVICE

QUESTIONS

Neighbors can always report waterway quality concerns to the City's 24/7 Customer Service line at

954-828-8000