Aquatic Vegetation Maintenance Program

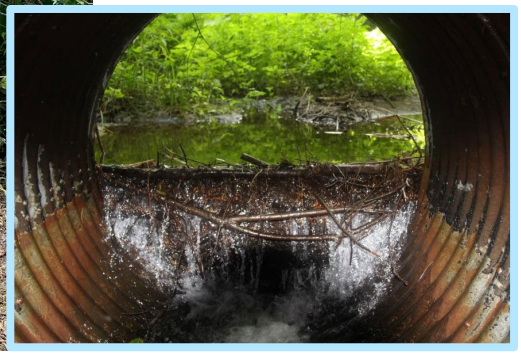
Public Works Department

Agenda

- Without Treatment
- Public Works Maintenance and Staff
- History of the Aquatics Program
- Current Contractor AVC
- Tracking Activities and Progress
- Management Approaches
- Facts About Herbicides and Pesticides
- Vegetation within the City Boundaries
- Treatment Options
- Research of Aquatic Programs Around the State
- Moving Forward

Without Treatment

Without proper treatment, our canals and waterways will become overrun with invasive vegetation, which will impede effective stormwater drainage.



Before

August 2023

September 2023

After

PORT ST. LUCIE
HEART OF THE TREASURE COAST

Public Works Maintenance

Management of Maintenance Operations

- Regular meetings and communication with contractor AVC
- Oversees daily activities and schedule
- Inspects treated areas 7 to 14 days following treatment
- Supports with 1PSL resident responses and requests

Aquatic Staff

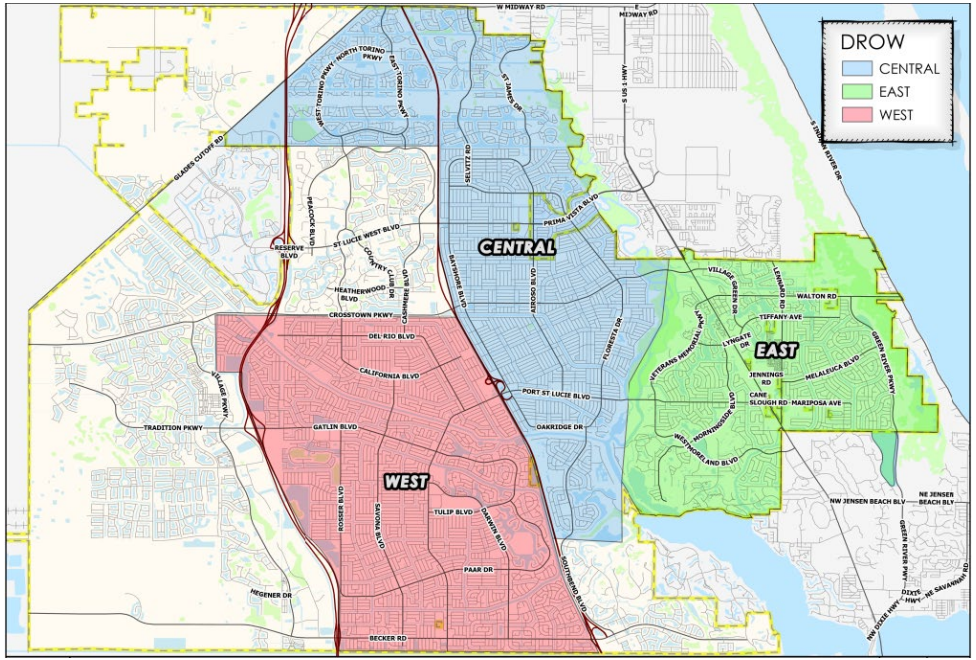
- John Dunton and Karen Love from Public Works
- Dan Charles manages the program and brings over 11 years of expertise.

History of the Aquatics Program

- In 1987, swale liner was implemented as a result of water and sewer expansion in the west and to support drainage for the city stormwater system.
- GDC filed for bankruptcy in the early 1990's, leaving the City to take over maintenance of the stormwater for the entire City.
- In the 1990's the Public Works Maintenance Program expanded between the St. Lucie River and Florida Turnpike to the west, including lakes and waterways.

Aquatic Vegetation Management Program
Over 35 Years

Aquatic Program is Divided into Three Sections



The contractor maintains the City based on three schedules:

Schedule 1: Smaller Ditches – Maintained up to 4 times a year (every three months)

Schedule 2: Waterways, Lakes, Canals and Stormwater Treatment Areas (STA) – Maintained as needed and inspected monthly

Schedule 3: Greenways and STAs – Maintained up to 3 times a year

🌿 Herbicide Use & Integrated Pest Management (IPM)

What is IPM? Integrated Pest Management is a smart, sustainable approach to controlling invasive plants. It combines several methods — like prevention, monitoring, and physical or biological controls — to reduce environmental impact.

How Are Herbicides Applied? The most common method is **foliar spraying**, where herbicide is applied directly to plant leaves.
This can be done using:

- Boats or trucks
- Utility vehicles (UTVs)
- Backpack sprayers
- Granular or pellet spreaders

Why Use Herbicides? When used properly as part of IPM:

- ✅ They're safe and effective
- 💰 They're cost-efficient
- 🌱 They work best when combined with other control methods like mowing, hand-pulling, or introducing natural predators

✅ Herbicide Safety & Regulation

Who Approves Herbicides?

•**EPA (Environmental Protection Agency)** reviews all pesticide labels

•Approval process ensures:

- ✔️ Effectiveness
- ✔️ Safety
- ✔️ Minimal environmental impact

•Takes **4–10+ years** for full approval

What's Allowed in PSL?

•Only **EPA-approved herbicides** can be used in aquatic areas

•Targets invasive plants like:

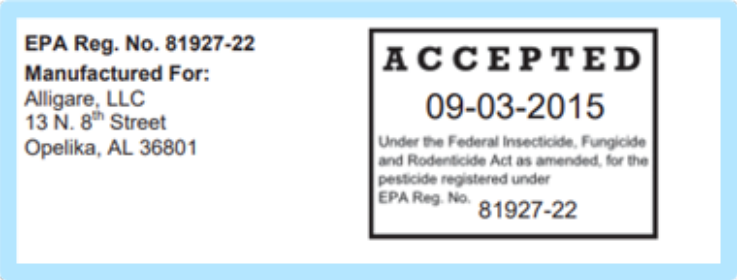
- Hydrilla
- Alligator weed

Florida Oversight

•**FDACS** (Florida Dept. of Agriculture and Consumer Services) regulates aquatic herbicide use

•Applicators must:

- ✅ Pass a state exam
- ✅ Hold a valid license
- ✅ Complete continuing education every 4 years



IPM Treatment Options

1. Chemical Control – Contracted Herbicide Applications

2. Mechanical Control – Use of Equipment

3. Physical Control of Vegetation – Use of Physical Labor Methods

4. Biological Control - Grass Carp (Triploid Carp), probiotic bacteria and others – Adding fish to support vegetation in waterways

Note: The City has successfully implemented a combination of these methods in select waterways. By integrating chemical, mechanical, biological, and physical approaches under the IPM framework, the City promotes long-term vegetation control while supporting healthier, more resilient aquatic ecosystems.

Chemical Control – Contracted Herbicide Applications

🌱 How We Manage Invasive Plants

Who Does the Work?
•Licensed contractors like **Aquatic Vegetation Control (AVC)** apply EPA-approved herbicides
•These treatments target invasive plants while protecting native vegetation

Why Use Herbicides?
• ✅ Most efficient and cost-effective method
• 💨 Works well when invasive plants spread quickly or cover large areas

Safety First
•All treatments follow **local, state, and federal rules**
•Timing and technique are carefully planned for best results

Access Challenges
• 🚫 Some areas are hard to reach by boat
• 🛠 Public Works continues working to improve access to our waterways

Mechanical Control – Use of Equipment

- Heavy machinery and specialized aquatic equipment are used to cut, remove, or shred vegetation in targeted areas.
- Provides immediate results, helping to clear navigation channels, restore water flow, and reduce dense plant mats that restrict recreation and habitat.
- Integrated with chemical treatments to prevent rapid regrowth.

The City currently uses 4 swampmeisters to mow hard-to-reach areas and overgrown canals.

🧹 Physical Plant Removal: Pros & Challenges

What It Is

- Techniques like cutting, harvesting, and dredging
- Clears vegetation and opens waterways
- Example: **Hydroraking** — removes plants and roots from sediment

Pros

✅ Immediate results
🌱 Helps reduce regrowth in targeted areas

Challenges

💰 Labor-intensive and expensive
🔁 Requires ongoing maintenance
🚫 Risk of spreading invasive plants
🚣 Some areas are hard to reach or impractical to treat

Biological Control – Grass Carp (Triploid Carp & others)

🐟 Grass Carp: Natural Plant Control

What They Do
- Sterile grass carp eat large amounts of aquatic plants
- Help reduce maintenance and support other treatment methods

How It Works
- Fish are **sterilized** and come from certified farms
- Stocking is regulated by **Florida Fish & Wildlife (FWC)**
- Safety measures keep fish **confined** to specific waterways

Important Notes
🚫 Not a full solution — just one tool in the toolbox
🏞️ Not used everywhere and **doesn't treat shorelines**
🌊 Must stay out of the **St. Lucie River**

Research – Aquatic Programs Around the State

Activity	Pinellas County (St. Petersburg)	City of Jacksonville	City of Ft. Lauderdale	Lee County (Cape Coral)
The scope of activities included in the aquatic program	Maintain water flow, remove invasives, remove weedy vegetation, leave native vegetation that is not obstructing flow, maintain all waterways including parks, pipes, bridges, ponds, lakes, stormwater facilities. Do not treat algae.	Remove invasive species, remove floating, submerged, or dead vegetation and litter/debris. Remove aquatic plants, algae and grasses listed as "prohibited" Apply aquatic herbacide, algacide and mechanical controls.	Monthly canal cleaning, emergency deployment, floating boom clearing, herbicidal applications, algaecide applications, mechanical weed removal, and mechanical algae removal.	Promote sound aquatic plant management through operations, research, outreach, and education emphasizing integrated management techniques.
Annual budget for the aquatic maintenance program	$1,922,940	$780,081	$1,244,500	$2,677,341
Spraying practices: chemicals used	Terrestrial herbicides Aquatic herbicides Adjuvants/other	FDA approved herbicide, and algacide.	FDA approved herbicide, and algacide. No glyphosate	FDA approved herbacide, algacide, defoamer, water dye, drift retardant, and water conditioner
Spraying practices: frequency of applications	As needed	Monthly	As needed	Undefined
Spraying practices: program structure details	In house 16FTE's that split the City up into 4 maintenance quadrants. achieving 4-6 maintenance cycles annually	Licensed contractor (2) year bid. Monthly apply herbacide and remove debris from ponds. If pond is not free of debris with monthly applications return to apply spot treatments necessary to keep the pond clear.	Licensed contractor	Boat mounted spraying, air boat spraying, surface spraying, injected spraying, spreaders, and drone spraying.
Use of mechanical equipment: when and in what cases	Staff use chainsaws, trimmers, and pruners. Aquatic harvesters are contracted if an area is too large to spray, woody, has already been sprayed, or spraying would impact the public negatively.	As needed and determined by the contract manager.	As needed Undefined	Staff uses a mini harvester on a case by case scenario. Ramp access, longevity, and ferry time are taken into acount before use.
Total aquatic areas maintained: canals, ponds, lakes	1,043 acres of lakes. 326 acres of ponds. 231 miles of ditches.	425 acres of ponds	165 miles of canals and waterways	30,000 acres of waterbodies 400 miles of canals
References and/or resources	https://pinellas.gov/vegetation-management/			https://lchcd.org/

Maintenance and Moving Forward

What We're Doing

- Continue using **EPA-approved herbicides** to control vegetation
- Improve **access to canals** for better maintenance

Stormwater Projects are incorporating additional water quality components:

- Add **aeration systems** to support water health
- Install **baffle boxes** to improve water quality

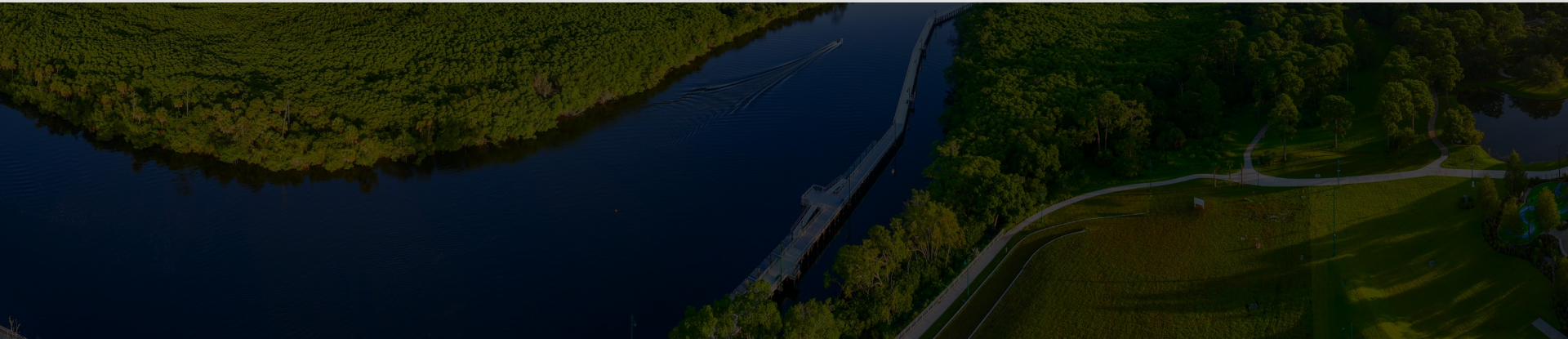
What's Changing

🚫 No more easement or abandonment of City property

🚧 Prevent fences in City right-of-way that block canal access

📈 Plan and budget for **piping canals** as the City grows — supports future **linear parks**

Questions?



Sawgrass Lakes

- Hired Terracon as a third-party consultant to provide specific plans of improvements with pricing and scope of work.
- Internally, Public Works prepared a list of options for consideration based on recommendations from outside sources, residents and our internal Public Works experts.
- Public Works will work with the City Manager's Office to evaluate costs and options and provide a recommendation to City Council.
- Goals:
  - Enhance Vegetation
  - Improve Water Circulation
  - Enhance Water Quality
  - Improve Water Clarity
- Suggestions Under Review:
  - Vegetation Pilot Study
  - Soil Testing
  - Floating Islands
  - Dredging
  - Vegetation Stabilization
  - Mechanical Aeration
  - Refresh or pump water into Sawgrass
  - Irrigation Management
  - Alum Treatments
  - Dye product