



The South Florida Aquatic Plant Management Society

The Hydrophyte

Volume 28 Issue 2



Highlights

**Low-Level Maintenance Control
of Water Hyacinth**

**Keeping the Canal Right of
Way Clear**

The Applicator's Survival Kit

Florida Vessel Turn In Program

President's Message

Greetings Fellow Applicators,

Summer is upon us, and as every season, it brings new challenges and issues. For most of the state of Florida, we experienced a somewhat classic El Nino winter. And now it appears we are heading into a classic La Nina summer, which means more rain, and the potential for an above average hurricane season, increased runoff leading to algae blooms.

As the summer season approaches, the time to prepare is now. Not only preparing the industry, but our own personal lives. I am a native Floridian and have seen firsthand the destructive force of a tropical system. Even if we are glanced by a storm, we may experience long lines for food, supplies and fuel. Shortages are also very common. Also, as for the governmental folks, we may be asked to "help out" the people who are most impacted. Message being, "Prepare Now". Fuel, water, non-perishable food, enough for each person in your household for at least one week. Make sure you have a plan. Some may remember 1992 and a guy named "Andrew" no relation, I swear. After the storm passes, that's the tough part.

As aquatic resource managers, we all know what happens when it rains and the water starts to flow. Planktonic algae... Inform the general public about the issues with it. In some instances, there's not a lot we can do, however, we can keep the public aware and informed. We are all in this together.

Hopefully, this upcoming summer season will be uneventful and limited issues as far as hurricanes go. I'd also like to extend the invitation to the June SFAPMS meeting here in Fort Myers at Lee County Hyacinth Control District facility. Hope to see everyone then. Have a safe and "uneventful" summer.

Keith Andreu – President
South Florida Aquatic Plant Management Society

Cover Photo:
Allstate Resource Management

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The Francis E. "Chil" Rossbach Scholarship Fund

Funds from the scholarship are used to help defray costs for students taking classes related to the study of aquatic environmental sciences or related areas. The scholarship is open to anyone, and all are encouraged to apply. Applications will be accepted throughout the year and the scholarship awarded when a suitable candidate is found. Money raised by the Society during the year partially goes to fund this scholarship, the intent of which is to promote the study of aquatics. For an application, please go to www.sfapms.org.

Low-level Maintenance Control of Water Hyacinth

Sperry, B.P., Ferrell, J.A., & Gettys, L.

UF IFAS
UNIVERSITY OF FLORIDA



CENTER FOR AQUATIC
AND INVASIVE PLANTS

Introduction

Managing water hyacinth is critical for protecting Florida's waterways. Water hyacinth management relies on chemical solutions; however, the public is very concerned with herbicide use.

Previous Research

A significant study done by UF researcher, Joe Joyce, was published in *Aquatics* magazine's 1985 winter issue. Joyce (1985)* addressed the three main public concerns of using herbicides to control water hyacinth which included: (1) the quantity of herbicide used, (2) herbicide affects on water quality, and (3) muck accumulation in lake bottoms created by dying plant matter.

In order to quantify the predicted benefits of maintaining low levels of water hyacinth, Joyce explored the relationship between all three components of water hyacinth management (herbicide quantity, water quality, and muck accumulation).

So What?

Low-level maintenance control can help applicators and scientists bring invasive plant populations down to manageable levels through more frequent application ultimately using **half** as much herbicide.



WATER HYACINTH

HAS BEEN A
**MANAGEMENT
CHALLENGE**
FOR OVER
130 YEARS.

It impedes navigation, irrigation, and recreation while reducing water quality and sheltering mosquitoes.

1985:

Joyce found that low-level maintenance control, spraying herbicide more often with less overall chemical solution used over time, can:

1

REDUCE THE AMOUNT OF
CHEMICAL SOLUTION, OR
HERBICIDE USED ANNUALLY.

2

PREVENT A DECREASE
IN DISSOLVED OXYGEN
CONCENTRATIONS.

3

REDUCE PLANT MATTER
ACCUMULATION IN LAKE
BOTTOMS.

2021:

The UF/IFAS Center for Aquatic and Invasive Plants (CAIP) researchers are excited to scientifically recognize these results by validating findings Joyce's (1985) findings.

*Joyce, J.C. (1985, December) Benefits of Maintenance Control of Waterhyacinth. *Aquatics*, 7(4), 11-13.

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Experiment

CAIP researchers are currently running similar trials to observe and quantify the relationship between herbicide quantity, water quality (dissolved oxygen levels), and muck accumulation.

8 TREATMENT LEVELS

The plants were managed based on the percent of area covered (PAC). The PAC is the amount of surface area the water hyacinth covers in the tank. The treatment levels were: zero, 5%, 25%, 50%, 100%, and 100% (unsprayed).

UF/IFAS CAIP researchers included two additional treatments. One demonstrating mechanical harvest at 100% PAC (shovel) and another serving as a control for muck accumulation measurements near the end of the study (shade cloth).

As the original water hyacinth plants grow to their tank's predetermined PAC, researchers chemically treat the plants with 2,4-D back to 5%.

Data collection is currently underway, with trials ending in September 2021.



For more insight into the details of this study, scan the QR code

2 LOCATIONS
GAINESVILLE, FL &
FT. LAUDERDALE, FL

5%



25%



50%



100%



100%



(left to grow)

0%



100%



Shade Cloth



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LAKE WORTH DRAINAGE DISTRICT

Water Talk

Get the facts...

KEEPING THE CANAL
RIGHT-OF-WAY CLEARThe Lake Worth
Drainage District

Lake Worth Drainage District (LWDD) is a Special District of the State of Florida that manages flood control for 200 square miles in southeastern Palm Beach County. It is one of the largest water control districts in the state with over 500 miles of drainage canals and associated rights-of-way.

In addition LWDD provides water supply to several municipal well fields.

LWDD was created in 1915 for the purpose of reclaiming the lands within its boundaries and for the further purpose of providing water control and water supply for settlement and agriculture.

Safety Is Key!



Flood control in your neighborhood depends on well maintained canals and rights-of-way. This requires the periodic rehabilitation of canals and banks.

Some property enhancements may be permissible, but depend on the location and size of the canal and if there is adequate right-of-way for maintenance and emergency response.

The Lake Worth Drainage District (LWDD) mission is to provide flood control and water supply to our residents. Managing over 500 miles of drainage canals and associated rights-of-way is a monumental task. It requires over 90 employees working daily to maintain the free flow of water and unencumbered access along our canals. Property enhancements and/or encroachments located on LWDD rights-of-way may become obstructions to the proper flow of storm water as well as interfere with emergency response by LWDD personnel.

Many people in Palm Beach County live along an LWDD canal. In order to enhance their landscapes or properties, residents often plant vegetation or place other encroachments such as swings, fences and patio furniture on the LWDD canal rights-of-way. Unauthorized enhancements can severely hamper the ability of the LWDD to keep you and your family safe during severe storms.



Fence and vegetation located on LWDD right-of-way

Since the majority of the land in our region is low and flat, proper drainage depends on a sophisticated network of canals to remove excess storm water after major rainfall events, including tropical storms and hurricanes. A well maintained and operating canal system

is your best defense against possible flooding. Vegetation and other structures along the canal right-of-way may cause blockages, slow the progression of drainage and reduce response time during emergency situations. The health, safety and welfare of you and those around you are paramount. Unauthorized property enhancement can threaten the welfare of residents many miles away.



Removal cost of downed tree \$20,000

LWDD canals and rights-of-way vary in width throughout the service area. Some property enhancements may be permissible, but depend on the location and size of the canal and if there is adequate right-of-way for maintenance and emergency response.

Specific improvements, such as fences or docks, will be allowed to encroach into the canal right-of-way pursuant to LWDD Operating Policies. All allowable improvements must be permitted or licensed by LWDD.

On a case-by-case situation, and as determined by LWDD, limited encroachments including native trees and vegetation may be allowed as long as these encroachments do not interfere with the maintenance operations or emergency response of LWDD. For more information contact the LWDD office.

Lake Worth Drainage District

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The Applicator's Survival Kit

By: Steve “Monty” Montgomery, Allstate Resource Management

Let's face it. Being an applicator is a multi-task job. It requires us to be part biologist, part salesperson, part public relations person, part chemist, and part handyman/mechanic. With so many responsibilities, things don't always run as smoothly as we'd like. There are a lot of delays we have no control over like weather, traffic, or dealing with homeowners. All too often the most time consuming and costly delays are things that could be easily rectified with a little preparation. Equipment failure is an eventuality that we all deal with sooner or later.

Even though it's impossible to prepare for every eventuality, a well stocked "survival kit" can head off many of the headaches that would ruin a productive day. Think about equipment problems you and other colleagues have encountered in the past and try to build up an inventory of tools, spare parts, and other items. The time spent stocking up is a lot better than the time spent in the middle of a lake in a boat with a dead motor, with a leaking spray system, on a hot summer day, two hours before quitting time.

“There's nothing more aggravating than having an operation brought to a screeching halt, half way through the day and realizing you don't have the means to correct it.”



Florida Strawberry Fritters

Recipe from Fresh From Florida
Florida Department of Agriculture and Consumer Services

Ingredients

- | | |
|---|-------------------------------------|
| 2 cups Florida strawberries, diced | 1 teaspoon salt |
| 1 cup Florida orange juice | 1 teaspoon cinnamon |
| 2 large eggs | 1/4 teaspoon ground ginger |
| 2 tablespoons unsalted butter, melted and cooled slightly | Pinch of cardamom |
| 1 teaspoon vanilla extract | Pinch of white pepper |
| 2 cups all-purpose flour | 1/2 cup sugar (for coating) |
| 1/3 cup sugar | 1 tablespoon cinnamon (for coating) |
| 1 tablespoon baking powder | 2 quarts (or more) oil, for frying |

Preparation

In a medium bowl toss sugar and cinnamon together and set aside.

To prepare the batter, combine flour, sugar, baking powder, salt, cinnamon, cardamom, ginger, and white pepper in a large bowl. Add the diced strawberries to the flour mixture and toss to combine. In a separate bowl whisk together the orange juice, vanilla, eggs and melted butter. Add dry ingredients (in 2 stages) to wet ingredients until fully combined. Set batter aside to rest for 10 to 15 minutes.

Meanwhile, add at least 2 inches oil to cast iron pan or Dutch oven and heat over medium-high heat until 350 degrees. Using an ice cream scoop (or other high heat safe spoon) drop mounds of batter into hot oil, being careful not to overcrowd pan. Allow to fry at least 6 to 8 minutes, flipping halfway through, or until golden brown. Transfer fritters to paper-towel lined baking sheet to drain any excess oil. Immediately toss in cinnamon-sugar mixture to coat. Serve warm. Fresh tip: Seasonal fruit (Florida blueberries or mangoes) can be substituted if desired.

Each applicator's kit is obviously tailored for his or her specific needs (spare parts particularly) but here are a few items that some of my fellow applicators carry:

Spare spark plugs	Basic tool kit	Basic tool kit
Spray tips and stabilizers	Trailer hub and bearings	Trailer hub and bearings
Extra O-rings	Winch crank	Winch crank
Lug wrench	Tow strap	Tow strap
Duct tape	Extra hose	Extra hose
Spare motor recoil	Lubricants (WD-40, grease)	Lubricants (WD-40, grease)
Hose clamps	Spare valves	Spare valves
Extra fuses	PVC pipe scraps	PVC pipe scraps

Necessity may be the mother of invention but an applicator in a pinch may very well be the most ingenious thing on earth. Some items can be helpful in ways other than their intended purpose. I've heard of some truly Macgyver-like fixes to get out of a jam over the years. Pieces of PVC used as bridges to bypass a section of dry rotted hose. Layers of rubber glove under a hose clamp to stop a leaking line. I've even used window spline, wrapped in duct tape as a temporary gasket. None of these ideas are permanent fixes, of course, but they can get us through a job, or keep a small mess from becoming a big one. Forethought and preparation are key elements to overcoming the day to day, operational headaches of our profession. The closest hardware store may as well be a million miles away once you're out on the water and a problem occurs. A small investment of time in advance could pay big dividends down the road.



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0.50	1.50	1.70
0.67	2.00	2.26
0.83	2.50	2.84
1.00	3.00	3.40



My lake is drier than it's ever been. . .

By: Lake Worth Drainage District

Your community's lake or pond is actually a stormwater management pond. A stormwater management pond is an engineered structure built to gather surface water runoff (rainfall) from rooftops, lands, and roads. The pond temporarily stores water and then releases it to an LWDD drainage canal at a controlled rate until the designed water elevation in the pond is achieved.

During Florida's dry season, which typically spans from October to May, the water levels in these ponds can drop significantly. This natural fluctuation can expose sandy banks and reduce the pond's capacity for uses like lawn irrigation. Since stormwater ponds primarily rely on rainfall for replenishment and can't be refilled using water from the LWDD canal system, these conditions are likely to persist until sufficient rainfall occurs.

During the dry season when water levels are lower, is an opportune time for communities to conduct thorough inspections and maintenance of their drainage infrastructure. Here are some essential steps for ensuring a well-maintained drainage system:

Keep swale areas clear. Regularly remove debris and vegetation from swale areas and ensure they are mowed regularly. This helps prevent blockages and allows for efficient water flow.

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Clear street drains: Remove any trash or debris that may have accumulated in street drains to prevent blockages and ensure proper drainage during rainfall events.

Inspect discharge points/outfalls: Regularly inspect discharge points or outfalls into LWDD canals to ensure they are clear of obstructions and functioning properly. This helps maintain the flow of water from stormwater management ponds into the LWDD canal system.

Inspect underground drainage pipes: Schedule inspections of underground drainage pipes every three to five years to identify any potential issues such as leaks, cracks, or blockages. Addressing these issues promptly can prevent costly repairs and ensure the effectiveness of the drainage system.

Exercise discharge control structures: Periodically open and close operable discharge control structures to ensure they are functioning correctly. This helps prevent rust or corrosion buildup and ensures they are operational when needed.

Visually inspect fixed discharge control structures: Regularly inspect fixed discharge control structures for signs of structural damage or potential blockages. Address any issues promptly to maintain the integrity and effectiveness of the drainage system.

By following these maintenance practices, communities can ensure their drainage infrastructure remains in optimal condition, minimizing the risk of flooding and ensuring efficient water management during both wet and dry seasons.





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This program is designed to assist vessel owners in disposing of their unwanted at-risk vessel before it becomes derelict.

A derelict vessel upon the waters of this state is a criminal offense and can carry serious penalties and fines or even jail time.

The **VTIP** will take your surrendered vessel and dispose of it at no cost to you. This helps prevent vessels from deteriorating further into a derelict condition and potentially causing legal ramifications to the owner.

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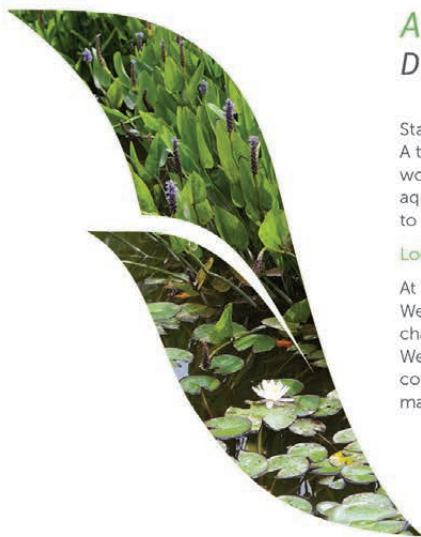
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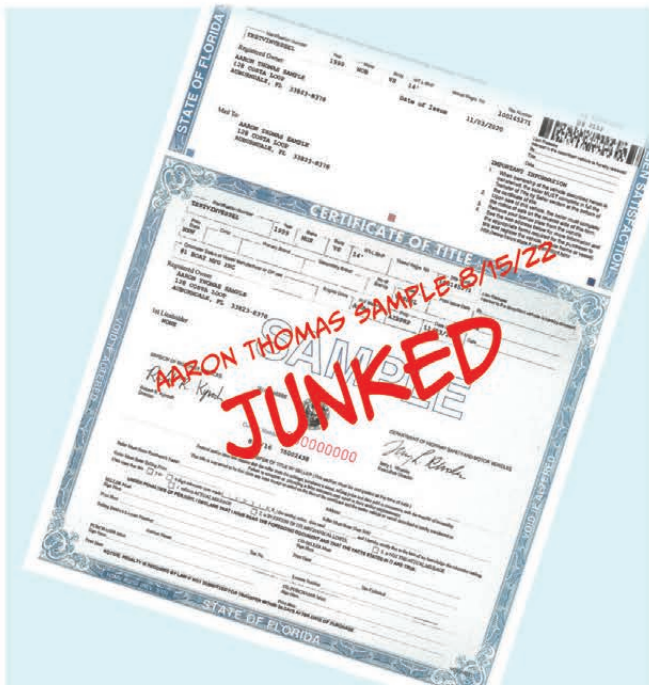
How to Apply

1. Go to **www.MyFWC.com/VTIP** and view the program guidelines.
2. Take digital photos of the vessel to submit with your application. (bow, stern, port, starboard and interior)
3. Secure a copy of the vessel's title proving that you are the owner to submit with your application.

Only the titled owner(s) may surrender the vessel to the VTIP Program.

4. Scan and send the completed and signed application, **copy** of title, waiver and release form, at risk citation or warning, photographs of vessel, and **copy** of a valid government issued ID to **VTIP@MyFWC.com**.
5. Once received, FWC VTIP Program staff will review your application for pre-eligibility.
6. Once pre-eligibility is confirmed, you will be sent a self-addressed stamped envelope to surrender your title.
7. Please mark your original vessel title as **"JUNKED"** across the title and sign above the word junked. Return the junked title to FWC's VTIP Program in the envelope provided.
8. Once the JUNKED title is received by the FWC's VTIP Program, you will be notified that the vessel is now **fully** eligible, and a contractor will be hired by FWC to remove and dispose of the vessel.

Acting now is the best way you can prevent legal action from occurring if the vessel becomes derelict by statute. s.823.11, F.S.





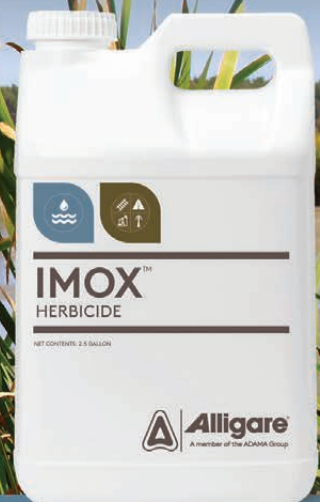
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The **Florida Vessel Turn-In Program (VTIP)** is operated by the Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement, Boating and Waterways Section.

Please call 850-488-5600 for more information on how to surrender your at-risk vessel for disposal at no cost to you! Or visit **[MyFWC.com/VTIP](https://www.myfwc.com/vtip)**.



Some charitable organizations accept vessels as a donation. If you are interested in doing so, please contact your local charity.

Contact Us

**Florida Fish and Wildlife
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Florida Blueberry Icebox Pie

Recipe from Fresh From Florida
Florida Department of Agriculture and Consumer Services

Ingredients

4 cups Florida blueberries (or strawberries)

3 cups heavy whipping cream

1 tablespoon Florida sugar

1/4 cup confectioners sugar

1 tablespoon cornstarch

1 teaspoon vanilla extract

1 tablespoon fresh squeezed lemon juice

8-10 full sheets of graham crackers, roughly crushed

1 tablespoon lemon zest

Preparation

In a small sauce pot over medium-low heat, combine 2 cups berries, corn starch, lemon juice, sugar and lemon zest. Cook, while stirring, until a sauce has formed, about 5 minutes. Remove from heat and cool. In a large mixing bowl, add the heavy cream, confectioners sugar, and vanilla extract. Whisk to form stiff peaks. Line the inside of a 9 x 5-inch loaf pan with plastic wrap. Extend the plastic wrap over edges for easier removal. To assemble, spread an even thin layer of the whipped cream on the bottom. Next add a layer of crushed graham crackers, then a layer of sliced berries then drizzle a layer of the berry sauce. Repeat this process until the pan is full. Cover the pie using the extended plastic wrap and freeze. Before serving, place the frozen pie in the refrigerator for 1 hour. Use the extended plastic wrap to remove pie from the pan and place on a platter. Slice and serve cold. Garnish with whip cream, crushed graham crackers and/or berry sauce.



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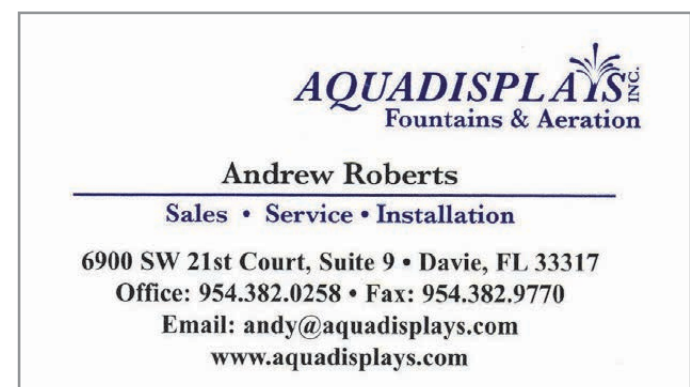
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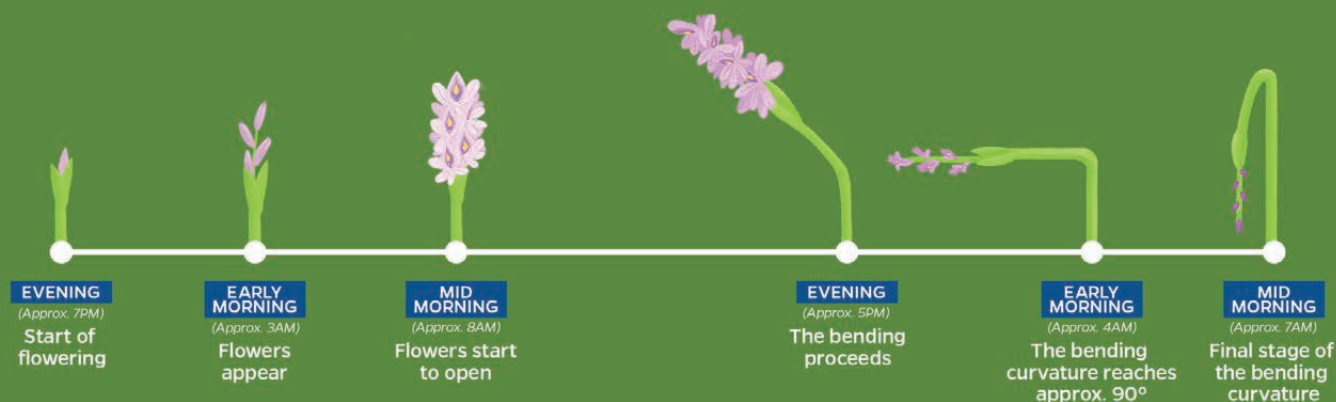



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Adapted from Penfound, Wm. T. & Earle, T.T. (1948). The Biology of the Water Hyacinth. *Ecological Monographs*, 18(4), 447-472. <https://doi.org/10.2307/1948585>

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