

Tangled Tales of *Vallisneria Spiralis*

Knot Your Average Tape Grass

Photo Taken by Geoff Lokuta; 06/01/2022

Kristen Peterson, FWC IPM Biologist



Vallisneria Species

- Vallisneria, like most aquatic plants, are great for the aquarium trade
- Trade selling hybrid thinking it was the native
- How they find their ways into the waterways

Native

- **Vallisneria americana (NE US)**
- **Vallisneria neotropicalis**

Non-native

- **Eurasian eelgrass (V. spiralis x V. denseserrulata)**
- **Vallisneria spiralis (Old World Tape grass)**
- **Vallisneria australis (Australia; potential in FL)**



What is Vallisneria Spiralis?

Common name:

- Old World Tape Grass

Native Range:

- North Africa, Asia and Europe

Description:

- Evergreen Perennial
- native range it flowers June to October;
- striped leaves; 30-50 cm long, 1-2 cm wide
- Still and flowing water
- Individual flowers are either male or female, but only one sex per plant
- pollinated by water
- Soils: light (sandy), medium (loamy) and heavy (clay) soils

Potential Problems:

- Grows in all light and water conditions; forms runners; easy to propagate



What is Vallisneria Spiralis?

Reproduction

- male flowers carried on long spiral stalks that break away from the plant and float on the water's surface
- After the female flowers have been pollinated, the pedicel curls up like a tendril, drawing the young fruit closer to the bed of the stream or pond; thus the name "spiralis".
- Seeds have not been observed germinating in aquaria. Instead, it most often propagates by runners which can lead to dense stands

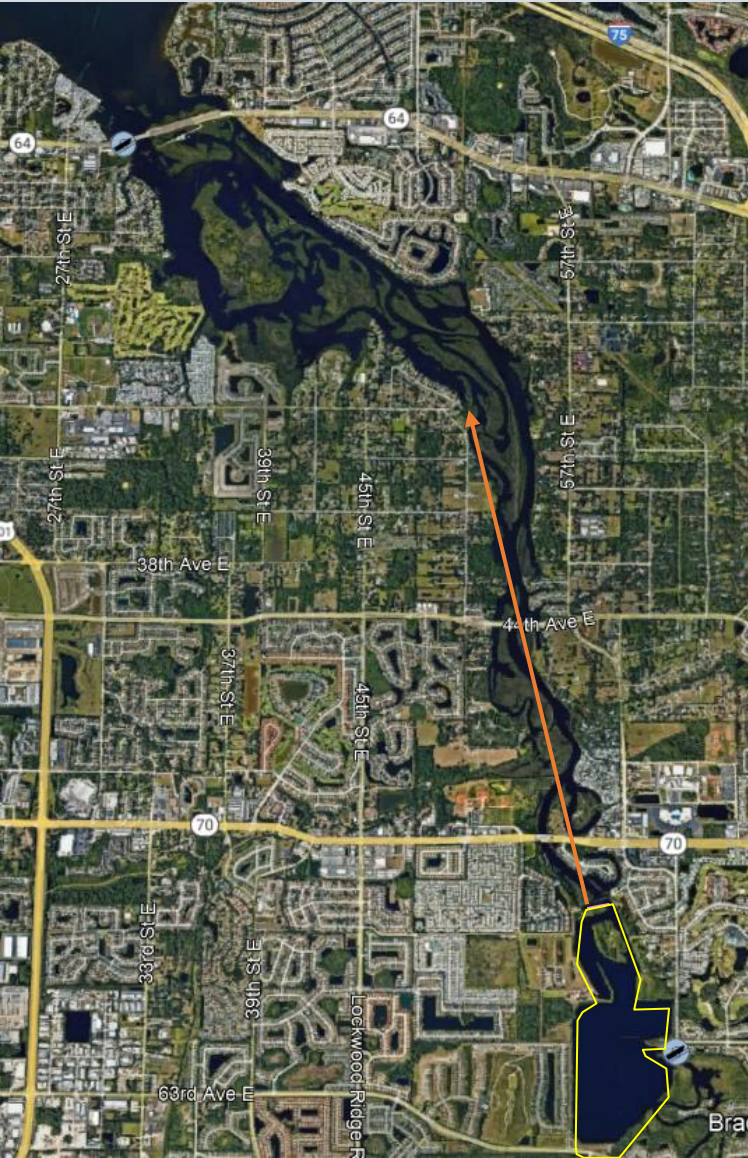


Let's Identify: Native vs. *V. spiralis*

Now we are still working on a hard copy of easy ways to identify but here are some ways we can identify in plain site.

- Native blades tend to be wider compared to *V. spiralis*
- Native colors have been more brown/green in color when *spiralis* is lime green.
This isn't always accurate
- *V. spiralis*: spirals in the blades more so than the natives





Brackish side to Manatee River

Braden River

Before we begin...

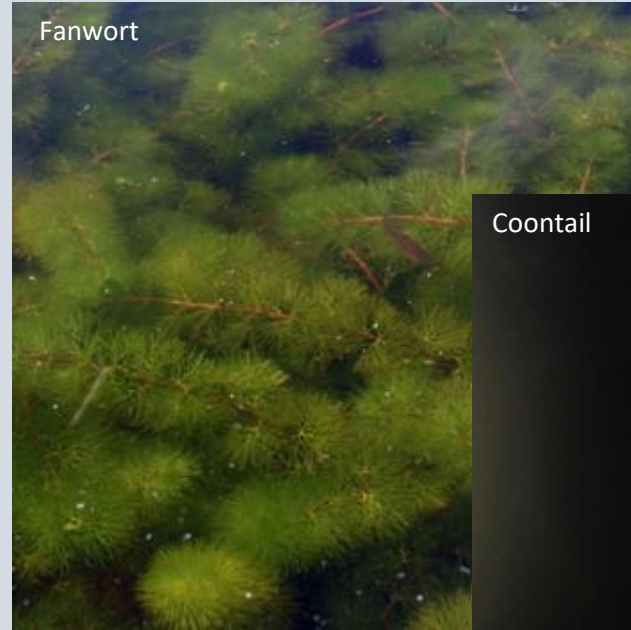
Weir ———
Bill Evers ———
Flow North ←——

Focus area below



Braden River

- Connects to Bill Evers/Ward Lake; last modified was in 1985 for expansion of how much water it will hold
- River is mostly rain fed, with water more north slowing down compared to the past
- No submersed aquatic vegetation (SAV) reported other than Coontail, mostly during summer months
- Hydrilla population pop ups sparse; usually treated by the water treatment plant



Where it started

population located at Jigg's Landing Boat Ramp; sample came back as native (*Vallisneria neotropalis*)

what was believed to be native eelgrass was carpeting and rolling down the main river impeding navigation

Jan. 2022

2020

June 2022

floating pieces of "eelgrass" reported floating down river; unable to find source.





Public Concerns

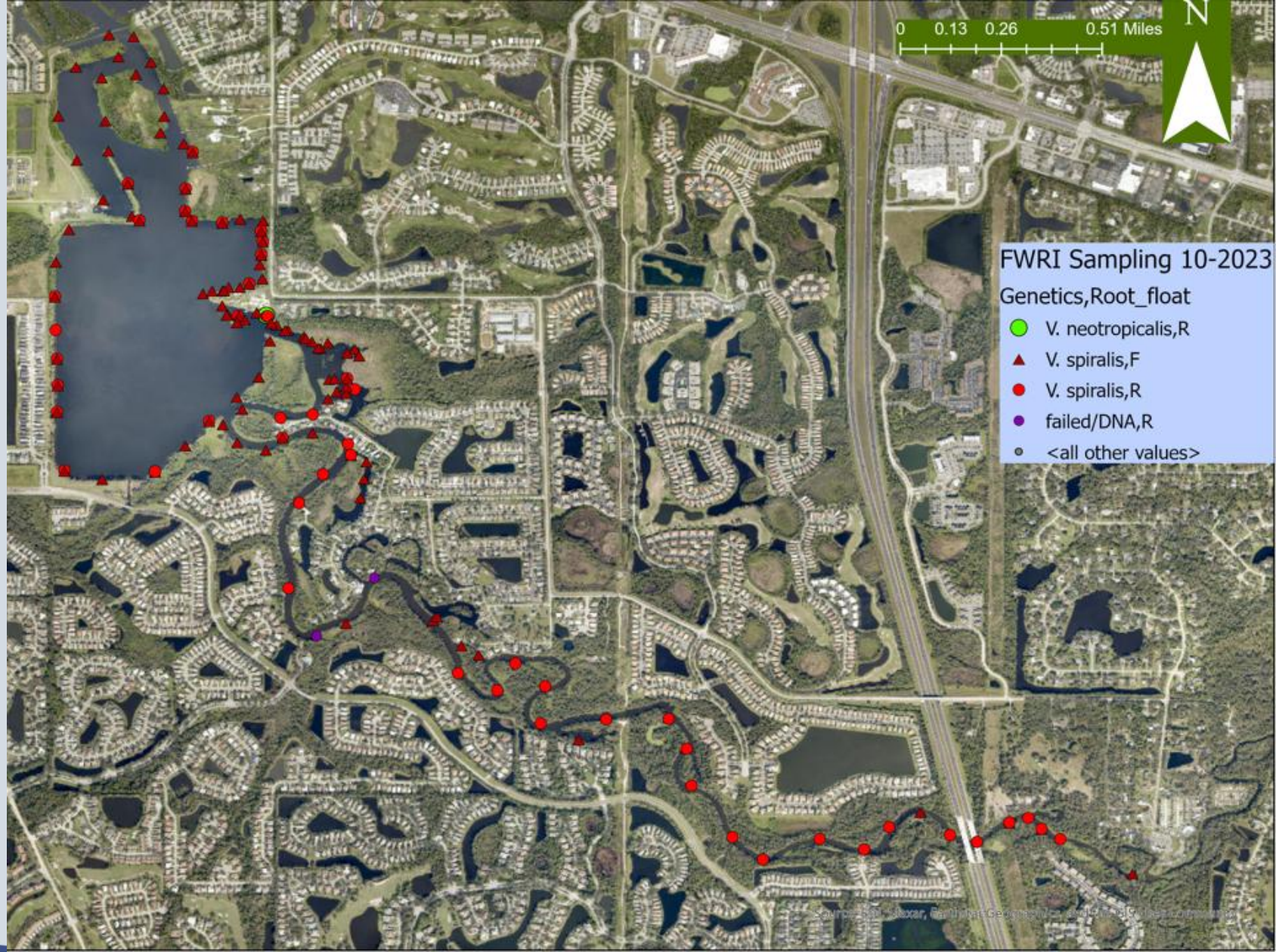
- Navigation
- Fish beds
- Fishing overall
- Smell
- Tussocks
- Wildlife movement



DNA Sampling

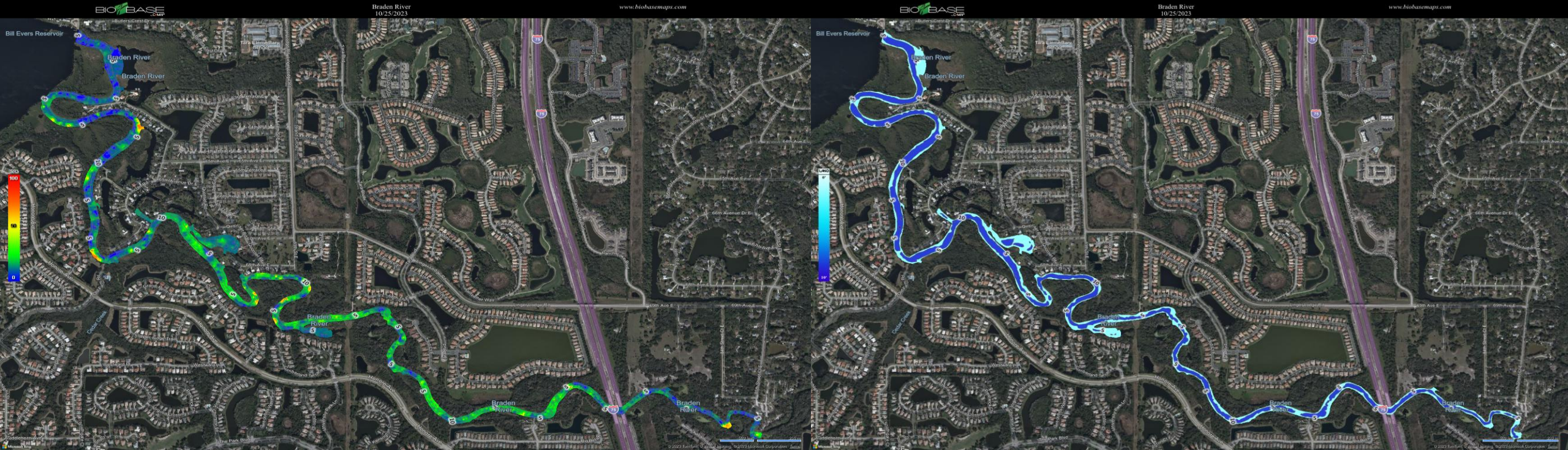
Done on 10/25/2023-10/26/2023

- DNA sampling was happening statewide and sent over to FWRI
- This sampling shown was done by FWRI
- Sampling had rooted and floating samples collected.
- Two samples within the river had an error with DNA
- Jiggs landing boat ramp has the only native spot



Treatment

- Started by mapping the system to get plant density but mostly depths for contractors to calculate how much herbicide would be needed
- Talking with the water treatment plant of herbicide restrictions
- After this made polygons of treatment areas



Treatment

- Ran into some struggles; flow, water treatment plant, treatment of Vallisneria
- Herbicide we CAN use, YAY!
 - Rates:
 - 0.5 ppm of Komeen Descend
 - 0.37 ppm of Diquat
- Checking, double checking labels
- Working with contractor





Pretreatment



2 day post treatment



4 week post treatment

Treated with 0.6 ppm
Komeen Descend



Pretreatment



2 week post treatment





4 weeks post treatment

Treated
12/19/2023
0.5 ppm Komeen
0.37 ppm Diquat

Two Day post Treatment



8 weeks post treatment



Section one-Part one	
Treatment Date: 12/5/2023	
2-3 days post treatment	
Date:	12/7/2023
Flow:	0.00 ft ³ /s; gage: 2.71 ft
Temp:	High 73; low 46
Fish:	No fish kill
Plant Look:	Browning(?) under I75; tussocks at kayak launch
Flowering?:	Not visible
Notes	Kayak Launch location: visual movement of the water but no true flow. Visually more of the plants have "popped" off the bottom, roots and all and moving in the wind down river towards the reservoir. Dull in color, although location pretreatment was not a vibrant green but color has dulled since, could be the stress of cooler weather or treatment(?) I75 location: visual movement even though flow has not fully started due to lack of rainfall and drought. Compared to pretreatment, the color of the population at follow up showed significant signs of lack of color. 12/5 population was vibrant green, as of 12/7 color was dulling, now if it was due to the cooler weather causing stress or treatment. Will continue to monitor the changes. Next follow up will be in two weeks.

Section one-Part one	
Treatment Date: 12/5/2023	
2 weeks post treatment	
Date:	12/22/2023
Flow:	68.9 ft ³ /s; gage 4.00 ft
Temp:	High 72; low 53
Fish:	No fish kill seen
Plant Look:	Brown, green daughter plants, green protected layers
Flowering?:	One plant in treatment area; floating on top of surface
Notes	No wind, water was like glass, visibility no movement of water. At the I75 monitoring location: some flowering. Regrowth/new growth is minimal. Color turning brown. Leaves that were mostly brown or browning have a decomposing feeling to them. Roots are orange. The water level higher than 2 weeks ago. Collecting samples were difficult due to decomposition. Kayak launch monitoring location: no flowering, no new tussocks yet. Roots are orange. More mature plants are brown and mushy feeling, regrowth and smaller daughter plants are attached. Smaller pips of brown mature plants with daughter plants attached. All pops had mature brown leaves hanging down. Not floating like normally do. Plants in w week area seem more fragile now.

Monitoring

- Once treatment started; monitoring began 2-3 days, 2 weeks, 4 weeks, 8-10 weeks post treatment

Section one-Part one	
Treatment Date: 12/5/2023	
4 weeks post treatment	
Date:	1/5/2024
Flow:	34.2 ft ³ /s; gage: 3.90ft
Temp:	High 76; Low 66
Fish:	No dead fish
Plant Look:	Green vibrant, expanding
Flowering?:	Yes, single plant with flower found
Notes	There is a lot of regrowth, the population is not vibrant green yet that is seen rooted, but pulling up samples they are very green and healthy looking. Still a little difficult to pull up samples but easily than 2 weeks ago. Flowering was spotted on a single plant in the whole monitoring area, not much was seen due to dark waters again even with polarized glasses.

Section one-Part one	
Treatment Date: 12/5/2023	
8-10 weeks post treatment	
Date:	
Flow:	
Temp:	
Fish:	
Plant Look:	
Flowering?:	
Notes	



Before & After First Treatment;



September 7th, 2023



February 20th, 2024

Before & After First Treatment;



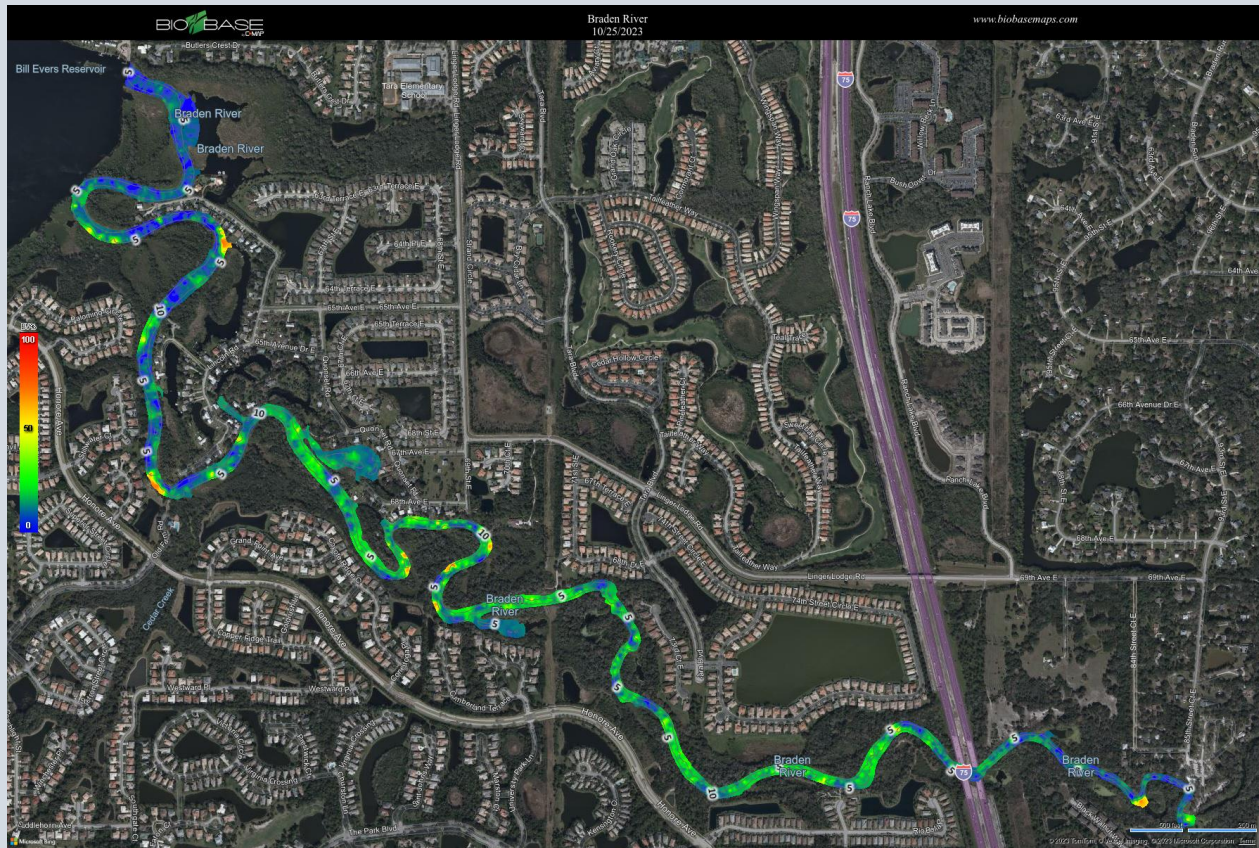
August 8th, 2023



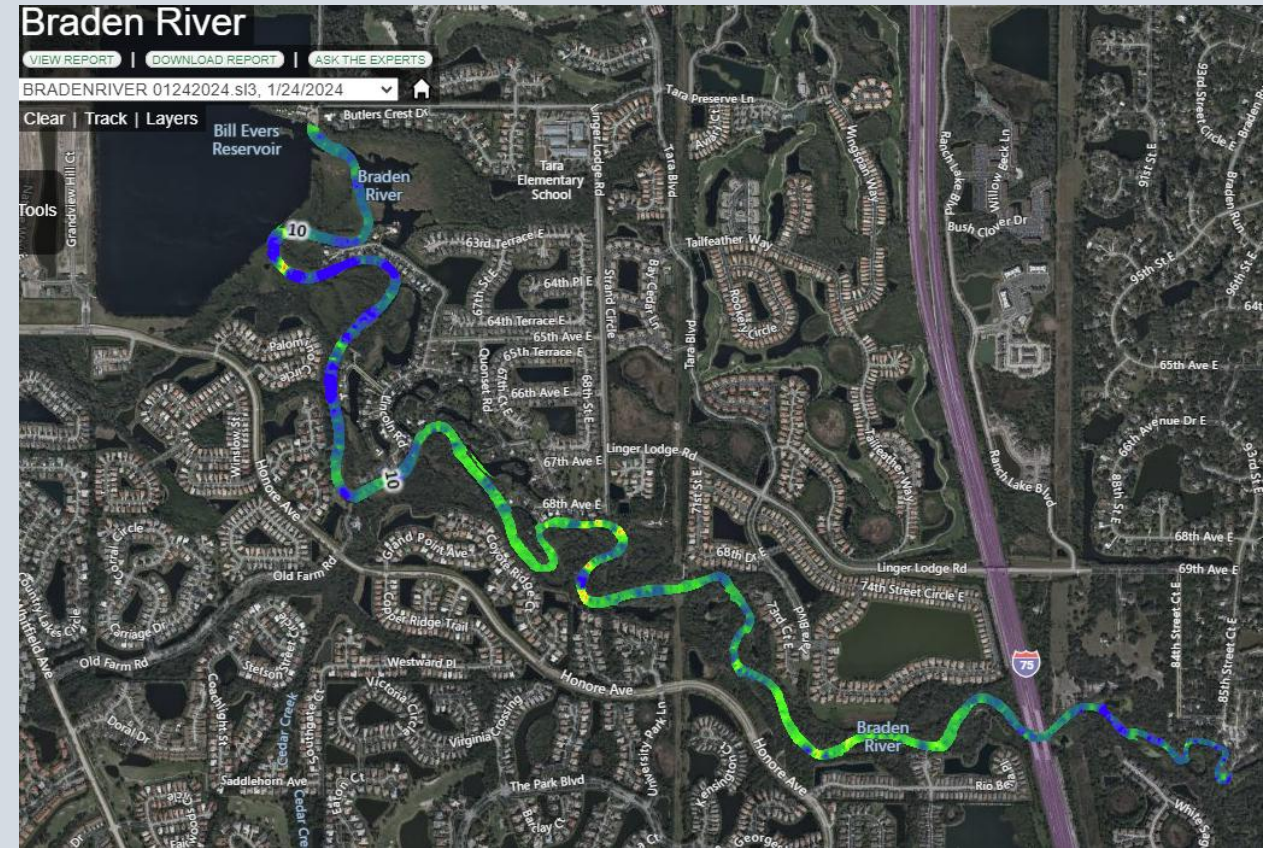
February 20th, 2024



Mapping Before Treatment vs. Midway through



October 25th, 2023



January 24th, 2024



What's Happening Now?

- February 15th, 2024: stopped by reporter to write a story about what we are doing on the Braden River

<https://www.youobserver.com/news/2024/feb/21/invasive-grass-species-threatens-braden-river-ecosystem/>

- Jiggs Landing Boat Ramp has Weed Alert posted for the visiting public
- First round of treatments were completed mid-February
- Second round of treatments began two weeks later with the same breakdown as the first round

Invasive grass species threatens Braden River ecosystem

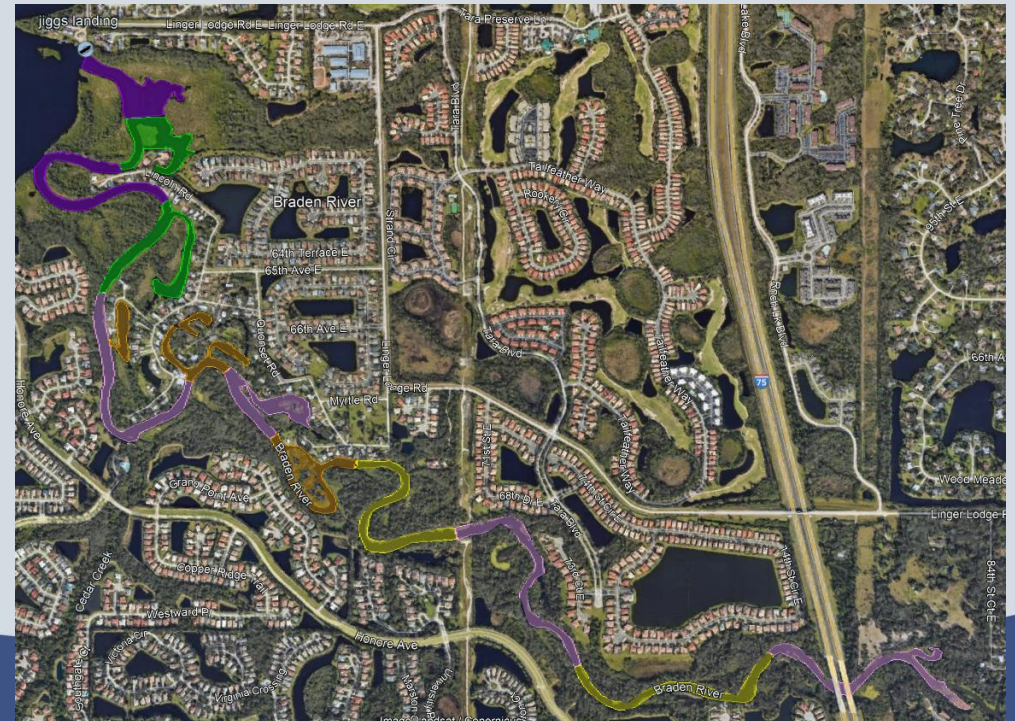
Florida Fish and Wildlife Conservation Commission uses liquid copper to rid the Braden River of tape grass, an aquatic plant that could dominate native vegetation and damage wildlife.

By Jay Heater | 8:00 a.m. February 21, 2024



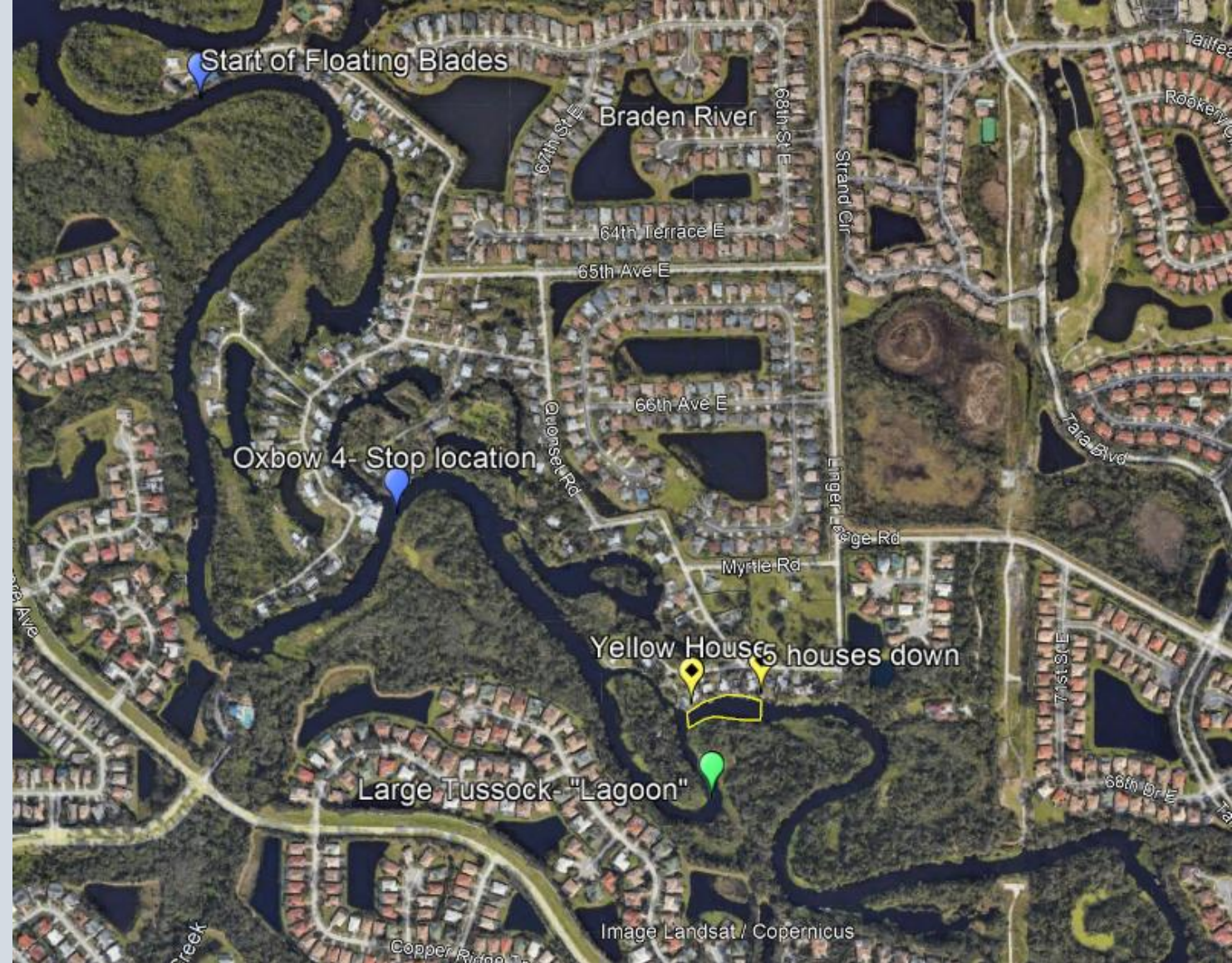
Biologists Kristen Peterson and Jamie Wolanin monitor the Braden River to check for Old World Tape Grass growth.

Photo by Jay Heater



What's Happening Now? (April)

- Floating blades moving with wind current, small pieces with orange roots, browning blades
- “Lagoon”- large tussocks, wind stopped in this area, water lacked movement and could see low carpet. 75% coverage.



As of
04/30/2024 at
the time of
annual survey





As of 04/30/2024 at the time of annual survey



What's Happening Now?

- APMS Tour on July 15th; more samples mailed for herbicide treatment testing
- Photos taken within the month of July.



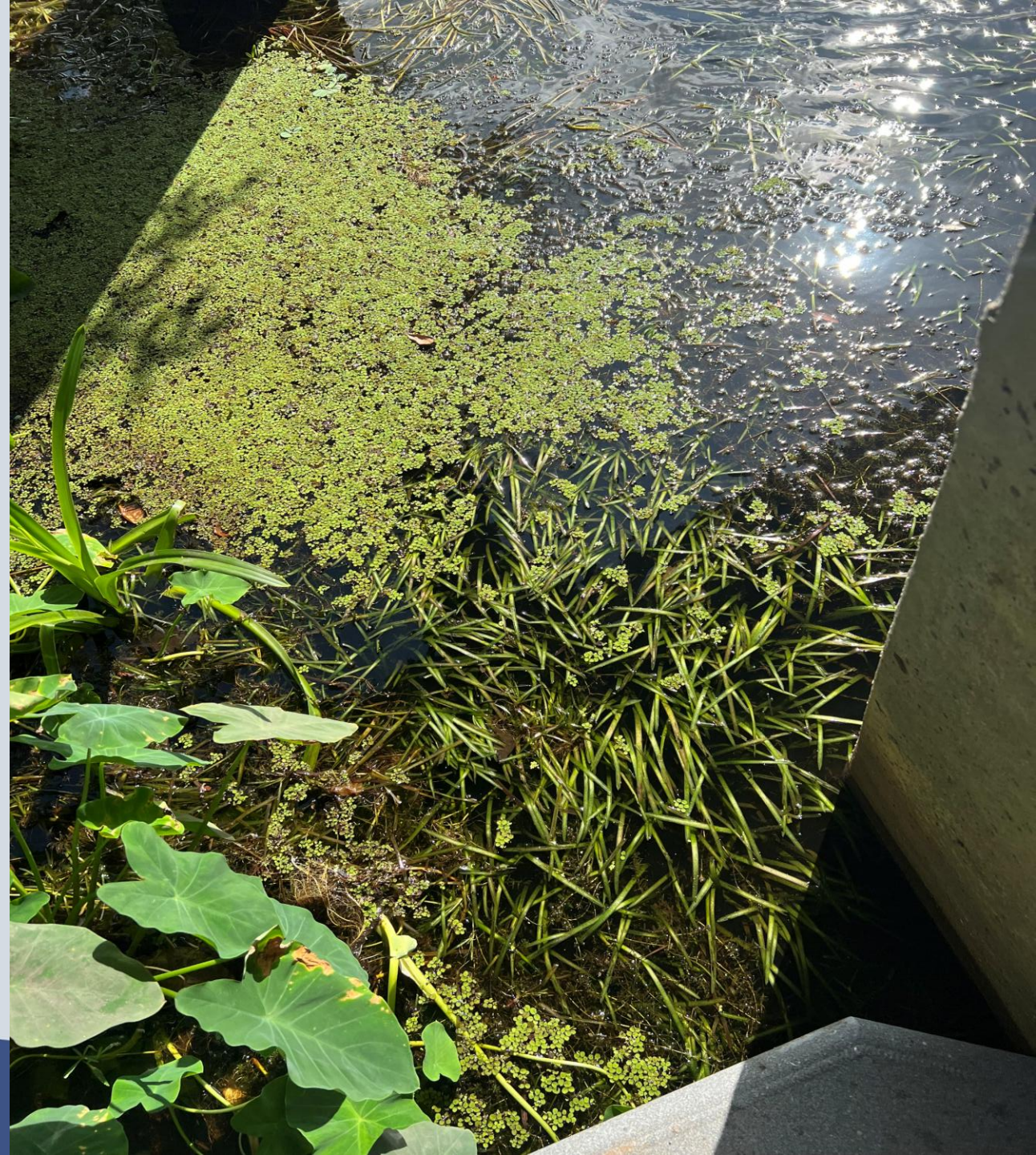
Post Hurricanes

- Debby:
 - River flooded homes living on the river.
 - Yellow house had 18 inches in their basement area, *V. spiralis* was flooded onto their landscaping; 6 dump trucks to remove sediment from the road into their home.
- Helene/Milton
 - Severe storm surge; river flowed in reverse, saltwater intrusion, water levels high.
 - *V. spiralis* still present but saw 5 floating mats (6 inches by 6 inches), tallest was a two inches tall. All other submersed vegetation was not observed.
 - Four days post storm the weir gauge just showed flood with no reading.
 - Manatees have been seen in system after Helene but not after Milton, along with saltwater fish.
 - No visible signs of manatees but evidences of para grass being consumed.



What IPM is doing

- We are moving forward with setting up a contract to have a university begin sampling statewide
- Get a more comprehensive idea of where these species are occurring
- Giving us a better idea of population density and leading to our next steps of treatment methods
- Planning for Winter treatment post hurricane season.





MyFWC.com

INVASIVE PLANT ADVISORY

Old World Tape Grass (*Vallisneria spiralis*)

- This species was discovered for the first time in Manatee County in the Braden River this past year. Old World Tape Grass is native to Europe, N. Africa, and W. Asia and has the potential to rapidly invade Florida's lakes, rivers, and ponds. Its introduction into the U.S. is linked to the aquarium trade.
- Old World Tape Grass is an effective invader that has the potential to cause damage to our native fish and wildlife by outcompeting our native submersed vegetation. This plant can also disrupt recreational opportunities by clogging boat motors and physically reducing access to waterbodies.
- The FWC is working quickly to research information around this plant to create a management plan moving forward. The end goal is to eradicate this species from the river as soon as possible.
- Boaters and anglers can help prevent the spread of this plant by removing all aquatic plants from propellers, intakes, trailers, gear and draining the motor, bilge, live well, and other water-containing devices before leaving the launch. It's important to never dump an aquarium into any body of water in Florida, please always dispose of aquarium plants responsibly by placing them in a bag and discarding them into the trash.



If you think you see this plant anywhere outside of the Braden River, please call 850-617-9430 or email a photo and location to InvasivePlants@MyFWC.com

Scan me for more
information on
invasive plant
management!



Questions?

My Contact

Kristen.Peterson@MyFWC.com

863-578-1123

Questions about Invasive plants

InvasivePlants@MyFWC.com

Other Questions

AskFWC on the myfwc.com page

