

Midge and Lakes Informational Summary

2020 Update

The Master Association continues to make the health of our lakes and the control of Midge our highest priority.

As this issue became more than a passing nuisance in 2015 we became quickly aware that we and our immediate vendors did not have a singular answer or the all-encompassing expertise to provide a plan to control the Midge.

In 2015 we began consulting with experts in this field. We have spoken with every local expert we can find and several outside our immediate area. We are still seeking input from other individuals, communities and companies on other effective measures and experiences.

We have instituted a Lakes committee to assist management and the Board in reviewing alternatives to keep our lakes healthy and reduce the Midge.

This communication is intended to inform you what has been done and is being done to minimize these issues and nuisances. The strategies and best management practices described herein were developed with the guidance of professionals and publications from the University of Florida, lake maintenance vendors, Collier County Mosquito Control District, South Florida Water Management District and workshop speakers including industry professionals and an aquatic ecologist from FGCU.

As we have previously reported there is not one easy fix, and the experts we have consulted with agreed that a MULTIFACETED APPROACH is the best form of control.

Links to helpful websites are listed at the end of this report. Particular attention should be paid to the first one listed authored by the University of Florida <http://edis.ifas.ufl.edu/in825>.

The Multifaceted Approach

- Drawn from the program developed by the University of Florida:
 - Algae Control & Nutrient Abatement
 - Insectivorous fish
 - Light Traps
 - Insect growth regulators & Larvicide

- Algae Control
 - Chelated Copper, Biozyme, SeClear, Nitrifier treatments
 - Directly targets algae and muck that contribute to Midge habitat.
 - We continue our weekly Algae control applications.
 - Testing
 - We continue tracking nutrient and muck levels as feedback on product effectiveness against algae and muck but it is clear the larvicide alone is not enough to suppress the outbreak of Midge.
 - Aeration

- Increases oxygen to break down muck and reduce nutrients and algae. We continue to add and replace aeration systems and have 16 separate systems. With most running multiple aeration diffusers to our 23 stormwater ponds.
 - Bio Boost – in the past 18 months we began installing an aeration diffuser that is more efficient and promotes the creation of good bacteria which feed on the muck and nutrients in the water.
 - Still adding with the next lake to be the 6.5 acre pond behind Harrington Sound.

- Nutrient Abatement
 - Physical removal of organic debris such as palm fronds and coconuts.
 - Educating Neighborhoods and their landscapers to assure Fertilization guidelines are adhered to.
 - Addition of littoral plantings. Plants filter and use the nutrients as they grow and stabilize lake banks as well as provide habitat for the insectivorous fish we stock.

Lake bank stabilization efforts can allow us to add littoral plantings (water plants) in areas too steep to allow them in the past. Littoral plants benefit several ways. 1. Provide habitat for our insectivorous fish. 2. Trap organics (grass clippings) near the shore. 3. Soak up nutrients that midge prefer.

 - Phoslock – A product that permanently binds Phosphorus making that nutrient unavailable to algae and midge development. Treatments to commence in March to the

edge of our large lake 8 and three tributary ponds at our front entrance.

- Sewper RX –is a bacteria developed for muck reduction in water treatment facilities. This is new to be tried in storm water detention ponds. We have measured success through core sampling and are now adding monthly and continue tracking results.

- Insectivorous Fish
 - We have stocked Gambusia Mosquitofish, Bream, Blue gill and catfish annually since 2016. To date we have stocked well over 50,000 fish.
 - Fish habitats are being considered to provide habitat for our insectivorous fish.
 - Other insects and birds feed on Mosquitos and presumably Midge but scientific evidence does not support this as a primary control alternative. That said, Martin (bird) houses, bat houses and dragonflies certainly don't hurt.

- Light Traps
 - Light traps – These are reported to be effective but on a smaller or more individual scale than what we are dealing with. The best-reviewed products use a black light and sometimes CO2 containers to attract and trap mosquitos and Midge. The Master Association has installed several around Lake 8 and they do indeed capture Midge.

- Larvacide & Insect Growth Regulators
 - Larvicide

- Larvacide (called *Bacillus thuringiensis israelensis*, or Bti) has been applied to all lakes every three weeks.
- Insect Growth Regulator
 - An alternative to applying Larvacide is to use an Insect Growth Regulator known as Methoprene. As with our other treatments.
- Nematode
 - A nematode that kills off Midge larvae has been applied since early 2019. We are in a bit of a test phase with this and the results have been mixed with notable Midge outbreaks last May, September and this February.

What else can has been considered?

- All of the steps taken above should impact the emergence of the Midge but we invite any and all input.
- Draining the Lakes?
 - The South Florida Water Management District reports that any storm water detention pond could be drained with proper permitting; however, the contents must be stored on site. We cannot simply drain it out into Naples Bay. We have a 19-acre lake and maybe others, and with nowhere to put that much water or their nutrient rich muck, this process seems implausible.
- Dredging the lake?
 - This is less unrealistic than draining the lake but again, we need to find a location to allow the acres of muck to dry before being hauled off or utilized in some other fashion. This too appears implausible. Moreover, no experts have guaranteed that the Midge would be eliminated by this effort.

Why is this happening here?

- We do not technically have natural lakes. We have stormwater detention ponds. They are made to hold runoff and over 20-30+ years they build up with nutrients. Midge prefer nutrient rich waters and muck and once they arrived they thrived.
- There are newer Neighborhoods in Naples that have Midge as well but it is more common in older stormwater ponds.

What can owners do?

- Is there a product or method you or your pest control company has effectively used to control the adult Midge? We want to know. We want to inform others.
- Several Neighborhoods are working with pest control vendors to attempt to control the Midge on and around their residences. This only helps to slow the life cycle and we encourage Neighborhoods that are affected to take action.
- Midge are attracted to light. Closing blinds and turning off lighting can help.
- Get with your landscape vendor and ensure they are adhering to Collier county guidelines.
 - If they use Phosphorus inquire if they have soil tests that indicate it is needed.
 - Nitrogen must be at least 50% slow release.
 - Inform their onsite mowers not to blow grass clippings into lake.

The Master Association is committed to explore every avenue available and to institute any feasible measures provided that they, in and of themselves, do not create other problems. We are still seeking information from others that have found useful and effective solutions and if any of

you know of an individual, community or company that has controlled this nuisance we are eager to hear about it.

Informational links

<http://edis.ifas.ufl.edu/in825>

<https://edis.ifas.ufl.edu/pdffiles/EP/EP47600.pdf>

<https://edis.ifas.ufl.edu/in456>

Individuals and entities consulted include:

Dr. Philip Koehler – University of Florida

Dr. Serge Thomas – Florida Gulf Coast University

Tom Wilmot – Consultant Entomologist, Collier County Mosquito Control District

Steve Nagle – Environmental Resource Compliance, South Florida Water Management District

Aquatic Maintenance & Chemical control vendors

- Advanced Aquatic Services
- Lake and Wetland Management
- Aquagenix
- SePro
- Clarke Mosquito Control

Naples Botanical Garden (for lake planting recommendations)