

FLORIDA'S AQUATIC MIDGE FLIES

IDENTIFICATION AND CONTROL

Order: Diptera

Family: Chironomidae

Genus & Species: 700+ Southeastern United States

Also called blind mosquitoes, these midge flies are insects often found swarming around lakes, ponds and waterways. They look like a mosquito but don't bite, sting, suck blood or transmit disease. Midges belong to a very large and diverse family of aquatic insects. Their egg, larvae and pupae stages occur in water. The flying adults emerge from the water surface in large numbers from our lakes, ponds wetlands.

Midge flies are ubiquitous throughout Florida, North America and the world. They successfully inhabit many different aquatic ecosystems including both neighborhood storm water drainage systems and large natural lakes where they serve as an important food source for other aquatic insects, amphibians, fish and birds.



MIDGE FLY LARVA

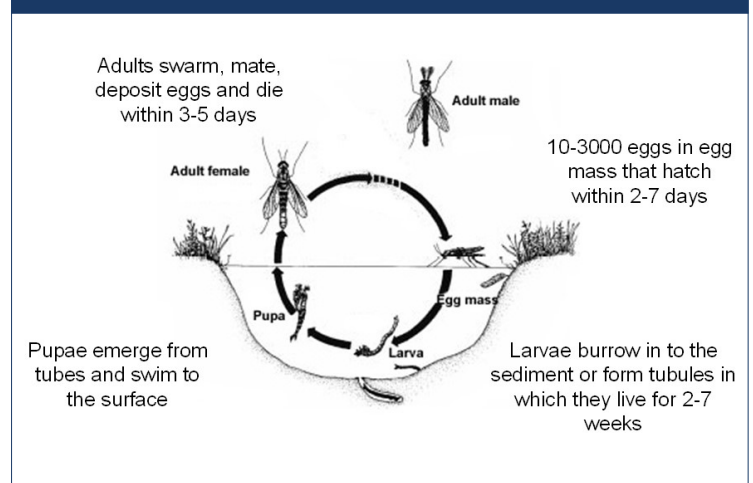


Many species of midge flies have red colored larvae, commonly called blood worms, that burrow into the bottom muck and feed on suspended organic particles and algae drifting by. One curious exception is the free-swimming predatory and transparent phantom midge whose diet includes larger zooplankton, other insect larvae and most any organism small enough for them to capture and eat. Florida phantom midges are less common than blood worms and are often found inhabiting deeper areas of lakes.

THE PROBLEM WITH MIDGE FLIES

Midge larvae have evolved to survive and prosper under difficult environmental conditions commonly occurring in many of our community lakes and ponds that have excessive nutrient loading, murky water, organic muck accumulation and low dissolved oxygen levels. These same water quality problems that favor midges also prevent midge predators such as fish and other aquatic insects from preying on them. This allows midges to form monocultures across a lake's bottom and reproduce in extremely large numbers often exceeding 4,000 larvae per square meter! Out-of-control midge larvae populations can become a terrible annoyance, inconvenience and even a health hazard to waterside residents when they metamorphose into adult flies.

MIDGE FLY LIFE CYCLE





Midge fly swarming occurs in Florida year-round but is strongest each spring and fall when adults emerge from the water surface at night in huge numbers. They can make outdoor activities unpleasant and are attracted to lights in houses, porches and street lamps where they land in large numbers blanketing, discoloring, staining and damaging the exterior surfaces of buildings, cars and businesses. A secondary phenomenon is the rapid increase in the local spider population reacting to the midge flies as a food source. Residents find their eaves, porches and windows covered in spider webs full of decaying midges and smelling like dead fish.

FIVE STEPS TO SAFELY AND SUSTAINABLY REDUCING MIDGE FLY POPULATIONS

Managing midge fly populations below nuisance levels requires a multidisciplinary approach to achieve successful long-term control.

1. Lake management efforts should be focused on improving water quality

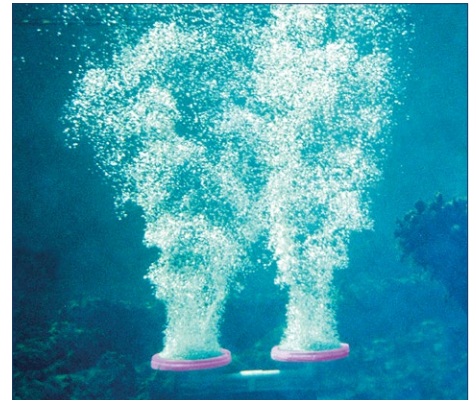
- Lowering phosphorus levels reduces recurring algae blooms that feed midge larvae
- Preventing or diverting watershed runoff lowers phosphorus, nitrogen and organic detritus
- Avoiding reclaimed wastewater discharges prevents phosphorus, nitrogen and ammonia problems
- Applying algacides reduces algae blooms, a major larvae food source

2. Install a bottom diffused aeration system

- Aeration raises dissolved oxygen thus accelerating the oxidation of decaying organic content – a key food source that filter feeding midge larvae rely on.
- Raising bottom oxygen levels above 3-4 PPM will allow predatory fish to reach and attack the larvae population hiding in the deeper bottom waters and sediments
- Higher oxygen levels help reduce phosphorus, nitrogen and algae growth improving the lake's overall water quality, clarity and beauty.

3. Manage your fisheries

- Survey your fisheries
- Maintain a predatory fish population that feeds on midge larvae
 - Stock the correct quantity of fish for your lake's midge species and density
 - Restock yearly to maintain abundant fish populations

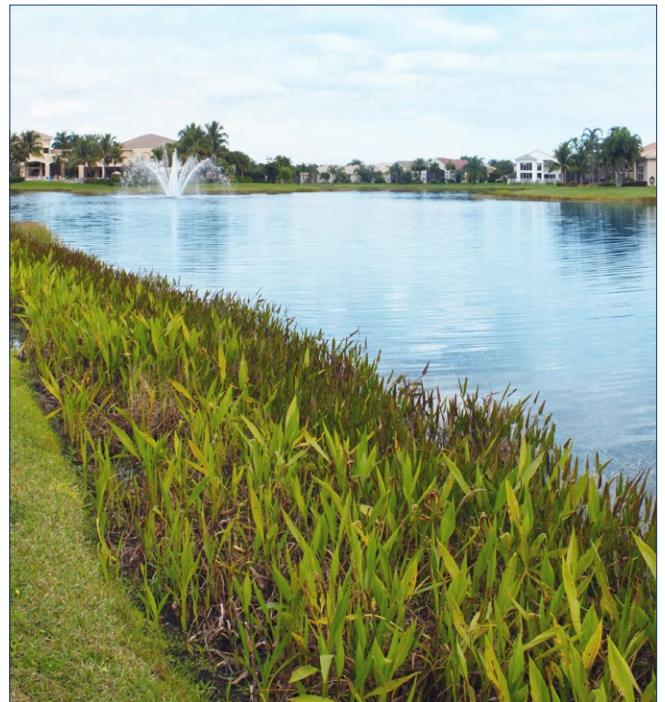


4. Apply biological larvicides

- Conduct a midge survey to determine locations, types and density of larvae
- Develop a treatment plan utilizing a series of timed applications to disrupt their reproduction cycle
- Employ biological products now available for midge control
 - Provide faster, longer lasting and less expensive control
 - Targets mosquito and midge fly larvae

5. Develop a healthy and diverse shoreline littoral habitat

- Native plantings provide cover and shelter to midge predators including fish, amphibians, birds and dragonfly nymphs and adults
- Many hardy attractive native flowering species to choose from including arrowhead, pickerelweed, canna lily and blue flag iris



SOME MIDGE FLIES ARE BENEFICIAL

A swarm of midge flies by your Florida lake, pond or waterway is a major nuisance, and it may seem like a good idea to be rid of them all. However, a healthy, balanced midge fly population below nuisance levels, is best for a waterway's overall fisheries and aquatic ecology. With a proven, proactive approach to larvae management, midge fly problems can be quickly and sustainably resolved.

DON'T LET MIDGE FLIES KEEP YOU INSIDE.

We're here to help you understand and resolve your midge fly problems today.

REFERENCES

- Lobinske, J and Cichra, E and Ali, A "Predation by Bluegill (*Lepomis macrochirus*) on Larval Chironomidae (Diptera) in Relation to Midge Standing Crop in Two Central Florida Lakes - Florida Entomologist 85(2):372-375. 2002
- J. L. Callahan and C. D. Morris "Survey of 13 Polk County, Florida Lakes for Mosquito (Diptera: Culicidae) and Midge (Diptera: Chironomidae) Production - The Florida Entomologist Vol. 70, No. 4, pp. 471-478, Dec. 1987
- Darold P. Batzer "Trophic Interactions Among Detritus, Benthic Midges, and Predatory Fish in a Freshwater Marsh" Ecological Society of America, Vol. 79, Issue 5, pp. 1688-1698, July 1998
- Kenneth T. Gioeli, R. Leroy Creswell, Jeffrey P. Gellermann, Edward A. Skvarch, and Philip G. Koehler "Managing Pestiferous Freshwater Aquatic Midge Emergences from Storm Water Retention Ponds" ENY-856, Entomology and Nematology Department, UF/IFAS Extension. October 2009.
- Hudson, Patrick L.; Lenat, David R.; Caldwell, Broughton A.; and Smith, David, "Chironomidae of the Southeastern United States: A Checklist of Species and Notes on Biology, Distribution, and Habitat" US Fish & Wildlife Publications. 173. 1990