

Aquatic Midges (Blind Mosquitoes)

Aquatic Midges are mosquito-like insects in the family Chironomidae. "Blind Mosquito" is a layman's term, which may refer to several species of these midges. Blind mosquitoes do not bite, suck blood, or carry disease. Their occurrence and survival in certain eutrophic waters often indicate the type and amount of nutrients found in the aquatic habitat. Blind mosquitoes are important only when they emerge in such large numbers to pose a nuisance.

LIFE CYCLE

The aquatic midge has four stages in its life cycle. These stages are the egg, larvae, pupae, and adult.

The eggs are laid in a mass on the surface of the water. Depending on the species, each mass may contain from 10 to 3,000 eggs enclosed in a gelatinous substance. These egg masses may become attached to twigs and other debris found along the shore of lakes, streams, or rivers. Those egg masses not attached to objects will sink to the bottom where the eggs hatch into larvae in 2 to 7 days.

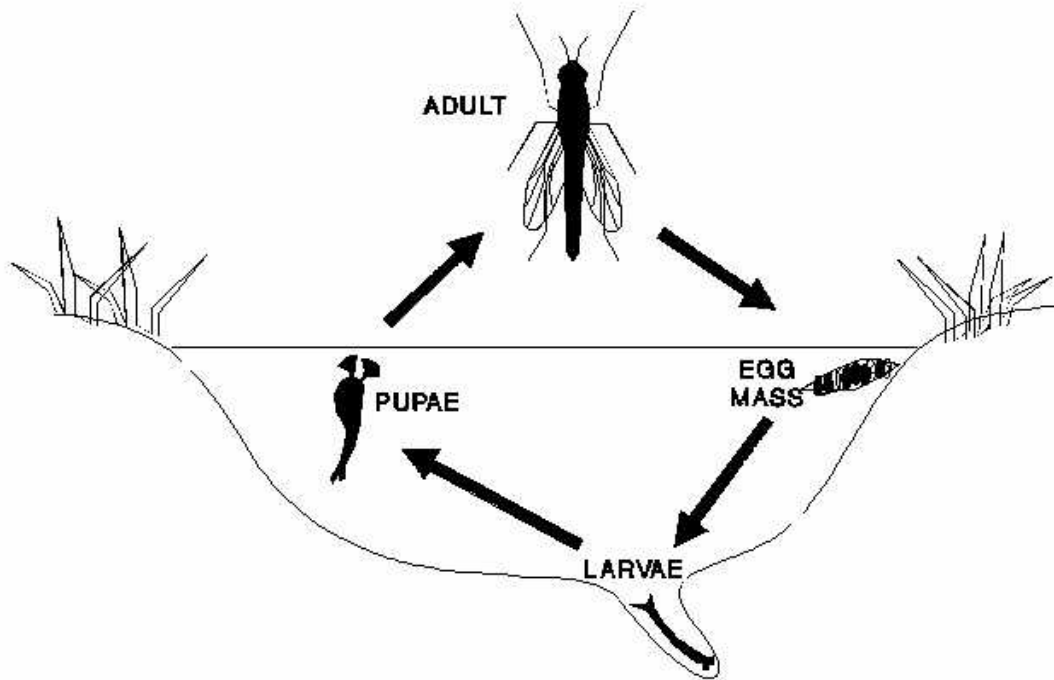
After hatching, the larvae feed on the gelatinous material for about 2 days and then leave the mass. They burrow into the mud and, by using salivary secretions, bind small substrate particles into tubes or tunnels in which they live. Most larval tubes have an opening at each end to allow the larvae to feed. Water is circulated within the tube by a rapid undulating motion in order to extract oxygen and food. The larvae feed on suspended matter in the water and organic matter in the mud.

After the first molt, the larvae of most aquatic midges take on a pink color that gradually darkens into a deep red. These are sometimes referred to as "blood-worms". Depending on the water temperature, the larval stage can last from less than 2 to 7 weeks.

The larvae transform into pupae while still in the tubes and remain there for about 3 days. The pupae then leave the tube and actively swim to the surface. A few hours later, the adult aquatic midge emerges.

The emerging adults usually swarm at night to mate. They do not feed and, consequently, only live for about 3 to 5 days. The entire life cycle of the aquatic midge is usually completed in 2 weeks. However, it is not uncommon for the life cycle to take longer. The figure below depicts the life cycle of the aquatic midge.

LIFE CYCLE OF AQUATIC MIDGES



BREEDING SITES

Aquatic midges are one of the most common and abundant organisms found in natural and man-made aquatic systems. They can be found in natural lakes, residential ponds, wastewater channels, and sewage settling ponds. Larval surveys have revealed aquatic midge populations of 4500/ft² on the bottom of certain lakes. The adult midges emerging from these breeding areas are the cause of a variety of nuisance and economic problems. The problem midges in Florida are *Glyptotendipes paripes*, *Chironomus crassicaudatus*, *Chironomus decorus*, *Goeldichironomus holoprasinus*, and certain species of *Tanytarsus*.

IMPORTANCE

The importance of aquatic midges as pests has increased during the past 50 years. This is primarily due to creation of new midge producing habitats close to residences, water quality becoming more suitable for breeding midges, and an increasing desire of humans to live close to lakes and rivers.

Residents living close to aquatic midge breeding areas sometimes experience severe nuisance and economic problems. Outdoor activities are often disrupted by the annoyance of these pests being inhaled or flying into the mouth, eyes, and ears.

Aquatic midges usually emerge in phenomenal numbers between April and November. During the day, they are generally found around cool, shady places such as the underneath side of leaves and under window awnings. At night they are attracted to lights around homes and businesses.

When large numbers of aquatic midges are present, serious damage can occur to paint, stucco, and other wall finishes. Automobiles become soiled and when headlights and windshields get covered,

traffic accidents may result. Thousands of dollars are spent cleaning dead bodies of midges from sidewalks and porches the morning after mating flights. Piles of dead midges up to 3 feet have been measured in front of stores. The bodies, which are mashed into painted surfaces, may cause permanent staining. Also, as doors are opened and closed, aquatic midges will fly inside homes and businesses creating severe annoyances.

Aquatic midges eventually attract spiders. Accumulation of dead midges and spider webs require individuals to frequently wash and maintain homes and businesses. As they decay, aquatic midges have a smell similar to rotting fish. The smell persists in damp weather even after the insects have been removed.

An economic impact study undertaken by the Greater Sanford Chamber of Commerce in Seminole County revealed that aquatic midges emerging from Lake Monroe and other nearby water bodies cause business losses of \$4 million annually. One lake front establishment spends \$50,000 each year on property maintenance and aquatic midge control. The same study indicated at least 10 counties in Florida (including Lake County) are affected by similar problems.

Aquatic midges can be beneficial. Fish utilize the larvae as a food source and lakes where aquatic midges breed are sometimes our best fishing lakes. However, the nuisance derived from large numbers of these pests far outweigh the benefits.

CONTROL

Extensive research has been carried out on the use of insecticides against aquatic midges. Because the larvae live on the lake or river bottom, they are extremely difficult and costly to kill. The entire volume of water must be treated to provide effective control. In the past, total treatment has been effective in small lakes. However, with emphasis on environmental quality and the development of resistance in midges to pesticides, larval control is not feasible.

Control measures against adult aquatic midges are effective for short periods of time. Organized mosquito control districts should carry out area control of the adults. However, individuals can control aquatic midges around their homes and businesses by using fogging units. You should follow the directions on the pesticide label and fogging unit for instructions.

All of these control methods are temporary and do not get to the root of the problem. Aquatic midges breed in lakes and rivers in large numbers mainly due to the eutrophication of the water. Effluent from food-processing plants, septic tanks, sewage treatment plants, and leaching of fertilizers from lawns and agriculture around lakes supply nutrients that contribute to the production of food for aquatic midges. As nutrients increase, the available food increases and aquatic midge populations increase.

Aquatic midges have predators, diseases, and parasites that are being investigated as biological control agents. Hopefully, the propagation and establishment of these organisms will provide a future solution to the aquatic midge problem.