

OCEAN COUNTY MOSQUITO EXTERMINATION COMMISSION

QUESTIONS & ANSWERS

Q: What is the life cycle of a mosquito?

A: Despite all the different mosquito species and various mosquito habitats in Ocean County, they all have at least one thing in common; all mosquitoes require water to complete their life cycle.

Mosquitoes have 4 different developmental stages: egg, larva, pupa and adult. Depending on the species, female mosquitoes will lay their eggs either on the water's surface, edges of emergent vegetation or damp soil depressions that will become inundated by rain and or tide.

The eggs hatch into the aquatic life stage known as larvae. Larvae grow by feeding on organic matter in the water and go through 4 growth stages called instars. After the 4th instar, the larvae molt into pupae, beginning to prepare for adulthood.

The pupa is still an aquatic stage and is where the mosquito undergoes metamorphosis in order to become the flying adult.

Shortly after emerging, the female mosquitoes fly off in order to seek a bloodmeal. The mosquito doesn't gain nutrition from blood feeding. Instead, the proteins from the blood are used to help her eggs to develop. Once egg laying is completed, she will host seek for another bloodmeal in order to lay further batches of eggs.

Q: What mosquitoes do we have in Ocean County?

A: In Ocean County, we have identified over 40 different mosquito species that are found in a wide variety of habitats. These include roadside ditches, flooded woodlands, freshwater swamps, storm water basins, artificial containers and coastal salt marshes.

Salt marsh breeding species constitute the majority of pest problems throughout the county. Heaviest populations of these mosquitoes occur in Southern Ocean County. These mosquitoes can travel over 20 miles for a bloodmeal and can be found to the western borders of the county.

The Asian Tiger Mosquito (*Aedes albopictus*) is an invasive species that has made adapted well to Ocean County. These aggressive bitters lay eggs in artificial containers found outside of the home. All they need is enough water to fill a bottle cap to lay eggs! Common breeding spots for the Asian Tiger Mosquito include flowerpots, buckets, uncovered garbage cans and lids, folds in tarps, and old tires.

Q: What human and animal diseases do mosquitoes transmit?

A: It's through this blood "feeding" behavior that a mosquito can act as a vector, or transmitter, of diseases between humans and animals. Depending on the species, mosquitoes can transmit diseases like malaria, yellow fever, dog heartworm, encephalitis (such as Eastern Equine Encephalitis and West Nile Virus), chikungunya, and Zika virus.

West Nile Virus (WNV) was first recognized in the New York/Metropolitan area in 1999. Fortunately, WNV activity in Ocean County has been minimal. We still monitor WNV from May through November in our local mosquito population to protect the human and horse population.

Historically, Eastern Equine Encephalitis (EEE) has been the major human health concern in Ocean County. In previous years, EEE outbreaks have caused sickness and even fatalities and can account for the development of mosquito control in Ocean County.

Animals can also be the targets of mosquito diseases. Dog Heartworm is an ever-present threat to your pet's life and is costly to treat once it has been contracted. Horses can contract EEE and it is important to have them vaccinated against this disease. Horses are susceptible to WNV and a vaccine has been approved. Contact your veterinarian for more information. WNV has been responsible for deaths in several species of birds, particularly in wild populations.

Q: What does the Mosquito Commission do?

A: By state mandate, the Ocean County Mosquito Extermination Commission was established in 1913. Since that time, our goal has been to control mosquitoes to eliminate disease and enhance the quality of life to the people of Ocean County.

The Commission's mosquito control program is a comprehensive integrated pest management program that utilizes a balance of various control techniques and a detailed surveillance program to monitor the effectiveness of those techniques. Our control techniques focus on the aquatic larval stage of the mosquito. This aquatic stage of the life cycle is more concentrated and accessible than that of the adult stage.

The larval control program utilizes pesticides to eliminate breeding by directly treating the larval mosquito habitat by use of ground trucks or helicopters. A routine system has been developed and breeding sites are continually inspected throughout the breeding season (April-October).

Our water management program utilizes a technique called Open Marsh Water Management to eliminate mosquito breeding in the salt marshes (i.e. grassy tidal lands surrounding Barnegat Bay) of Ocean County. This technique controls mosquitoes by increasing tidal flow or providing access to predacious fish or other natural predators. It also eliminates the use of pesticides on these managed areas.

The Commission stocks Mosquito Fish (*Gambusia affinis*), Fathead Minnows (*Pimephales promelas*) and other mosquito predacious fish species in applicable breeding areas to reduce the use of pesticides. These fish are made available by the N.J. Division of Fish & Wildlife as part of the State mosquito Control Commission's bio-control program.

The Commission also runs a comprehensive adult mosquito surveillance program, which helps us keep abreast of adult mosquito populations throughout Ocean County.

The system utilizes a countywide network of Light Traps and Landing Rate Counts to determine the size and species make-up of our mosquito population. Mosquito collections are also conducted for virus testing using gravid traps, CDC traps, BGS traps, and resting boxes.

Q: What pesticides are used to control mosquitoes in Ocean County?

A: The pesticides most often used are ones that will control mosquito larvae in their aquatic breeding habitat. These products are applied directly into stagnant, mosquito breeding water. Rarely it may be necessary to control adult mosquitoes.

All products used are recommended for use by the New Jersey Agricultural Experiment Station/Cook College and are registered with both USEPA and NJDEP thus legal for use in New Jersey. Both liquid and granular formulations are used in applicable situations and they can be delivered by hand, by ground truck or aerially by helicopter or plane.

For larval mosquito control by ground we use liquid BTI under the brand names Vectobac, Aquabac, and Technar. By air our primary larvicide is BTI, brand name Vecobac. However, on occasion we utilize the granular products of B.T.I. and Methoprene with brand names VectoPrime and MetaLarv. Also, there are occasions where very small applications of hand-applied products are made to small breeding sites. At that time, we would use Larvicide oil, brand name Golden Bear Oil, or B.T.I. Briquettes, brand name Mosquito Dunks.

On rare occasions, adult mosquito control may be necessary. By ground ULV sprayer we would use Resmethrin (with a brand name of Scourge) or Etofenprox (with a brand name of Zenivex). If an aerial application had to be made, it would be with Malathion (with a brand name of Fyfanon), Sumithrin/Prallethrin (with a brand name of Duet) or Etofenprox (with a brand name of Zenivex).

For more information on the pesticides used for larval and adult mosquito control, and how to limit your exposure, please refer to the N.J. Department of Environmental Protection approved pesticide fact sheets. All pesticides applications are made by state licensed pesticide applicators/operators.

Q: What can the homeowner do?

A: Mosquito control begins at home. If you can eliminate any standing water around your home, mosquitoes will have no local place to breed. Anything that can hold water has the potential to become a mosquito-breeding site.

Keeping adult mosquitoes out of your house is an additional step. Make sure all windows and door screens are free of holes and close securely.

A wide variety of repellents exist for relief from adult mosquitoes or other biting insects. Many of these are available anywhere from department stores to garden centers. Repellents are generally effective but should be used with caution in accordance with label directions. Please - read the label.

Q: What do I do if there is a possible breeding site or an adult mosquito problem around my home?

A: Contact the Mosquito Commission at (609) 698-8271. Our staff will investigate your situation promptly. If an on-site inspection is deemed necessary, a service request form will be filled out and handled as soon as possible.

Q: Where do I get more information?

A: Attached is an example of a newspaper notice that the Commission places in two local newspapers every three weeks throughout the mosquito season.

Visit our Website - www.ocmosquito.org. There you will find more information on our program and numerous links to more information about mosquitoes. You will also find updates on any adult mosquito control, which may be necessary. You can also call the Commission for any specific information at (609) 698-8271 Monday through Friday between 7:00 AM to 3:30 P.M.



National Pesticide Information Center - 1 (800) 858-7378
New Jersey Poison Information and Education System - 1 (800) 222-1222
Bureau of Pesticide Compliance and Enforcement* - 1 (609) 984-6568

*This number for pesticide regulation information, pesticide complaints and Health referrals.