

## CONTROLLING MOSQUITOES WITH FISH

Gambusia affinis, or "mosquitofish", are indispensable to our mosquito control program. Using mosquitofish is one of the most effective ways of controlling mosquito larvae without the use of insecticides or chemicals. An adult mosquitofish can consume up to 100 larvae a day.

Mosquitofish do not lay eggs, but rather give birth to well developed and very active young. Therefore, require no special environment, as most other fish do, for depositing and hatching the eggs. They breed throughout the summer with new broods produced at intervals of about six weeks; containing 50 to 100 young in a single brood.

Mosquitofish are easily cared for and generally do not require special food. When placing mosquitofish in newly constructed or recently cleaned water features where natural food is absent, fish flakes or oatmeal may be used to feed the fish for a short time. After bacteria and algae have had time to build up, the fish will no longer need to be supplied with supplemental food. Continuation of supplemental feed may decrease the effectiveness of mosquitofish for control of mosquito larvae.

In an effort to minimize unwanted environmental impacts, District personnel refrain from placing mosquitofish in sources known or thought to be habitats for endangered or threatened species. Special consideration must be taken when stocking mosquitofish in sources where the potential for migration into endangered or threatened species habitats exists.

Mosquitofish are appropriate for use in ornamental ponds, water troughs, wine barrels, neglected swimming pools and any other permanent feature that can support fish.

## THE MOSQUITO LIFE CYCLE

Mosquitoes have four distinct developmental stages: egg, larva, pupa and adult. The average time it takes a mosquito to develop from egg to adult is five to seven days. Mosquitoes require water to complete their life cycle. Prevent mosquitoes from breeding by eliminating or managing standing water.

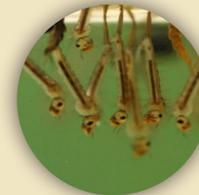
### EGG RAFT

Most mosquitoes lay egg rafts that float on the water. Each raft contains approximately 100 to 400 eggs. Within a few days the eggs hatch into larvae.



### LARVA

The larva or "wiggler" comes to the surface to breathe through a siphon tube. It feeds on microorganisms and organic matter in the water. In a matter of days the larva will molt (shed its skin) four times. On the fourth molt it will change into a pupa.



### PUPA

The pupa or "tumbler" cannot eat. It breathes through two tubes on its back. The adult mosquito grows inside the pupal casing and within a few days, when fully developed, it will split the casing and emerge as an adult mosquito.



### ADULT

The newly emerged adult rests on the surface of the water until it is strong enough to fly away and feed.



## OUR SERVICES

The Marin/Sonoma Mosquito & Vector Control District is committed to protecting the health and welfare of the communities we serve.

### *Our services include:*

- Mosquito Control & Mosquitofish
- Ground-Nesting Yellowjacket Control
- Rodent Control Advice

### **Marin/Sonoma Mosquito & Vector Control District**

595 Helman Lane, Cotati, CA 94931

Monday through Friday 7:00am to 3:30pm

**1.800.231.3236 or 707.285.2200**

**[www.msosquito.com](http://www.msosquito.com)**

# ARE YOU RAISING MOSQUITOES IN YOUR BACKYARD?



PROTECTING PUBLIC HEALTH SINCE 1915

## COMMON BACKYARD MOSQUITO SOURCES

Backyards are the #1 source for mosquito production. Anything that can hold water for more than five to seven days has the ability to produce mosquitoes. Maintain, manage or eliminate all types of standing water on a regular basis. Keep in mind that mosquitoes need as little as a 1/2 inch of water to complete their life cycle, therefore some areas may not be as obvious as others.



The Marin/Sonoma Mosquito & Vector Control District is committed to protecting the health and welfare of the communities we serve. Our programs and services are supported by property taxes and are provided free of charge to all residents in Marin and Sonoma counties.

### Use this checklist to help minimize mosquito production around your home.

- Trash bins:** Keep lids shut tight and remove any water that may have accumulated inside.
- Boats:** Cover with a tight fitting tarp.
- Fountains and bird baths:** Clean or hose out weekly.
- Rain gutters:** Keep clear of leaves and other debris.
- Potted plant saucers:** Don't over water. Flush out saucers with a hose or drill holes in the bottom to allow for better drainage.
- Tires:** Drill holes in tire swings. Recycle used tires or store in a covered area.
- Water bowls for pets:** Rinse and fill with fresh water 1 to 2 times a week.
- Water troughs:** Stock with mosquitofish.
- Leaky hoses:** Replace damaged hoses and fix leaky faucets and pipes.
- Low areas:** Do not over water lawns or gardens.
- Ponds:** Stock ornamental ponds with mosquitofish. Keep ponds free and clear of excess vegetation.
- Pools and spas:** Maintain even when not in use. Remove standing water from the top of pool and spa covers. If you know of a neglected pool or spa please contact the District.
- Containers:** Store containers upside down, cover or place in a sheltered area.
- Rain Barrels:** Cover tightly with a fine mesh screen.
- Chain link fence:** Cover hollow chain link fence posts with metal or plastic caps.
- Drains:** Make sure that drains are flowing freely.
- Flat roofs:** Water may puddle on flat roofs during the rainy season. Inspect weekly and remove any standing water.
- Lighting:** Check garden lights and eliminate water from tops of fixtures and from inside floodlights.
- Sculptures:** Check for water that may collect in lawn ornaments. Drain or flush out weekly.
- Screens:** Install and maintain tight-fitting window and door screens.
- Rot holes in trees:** Be aware that water can collect in rot holes, crotches and dead tree stumps. Check with an arborist for best way to manage water or fill cavities.
- Water under home:** Use a sump pump to remove water.
- Septic tanks:** Screen vent pipes with a fine mesh screen. Cover exposed tanks or manhole lids with plastic or a similar material and secure in place. Place several inches, or more, of dirt or sand over the top of the area.