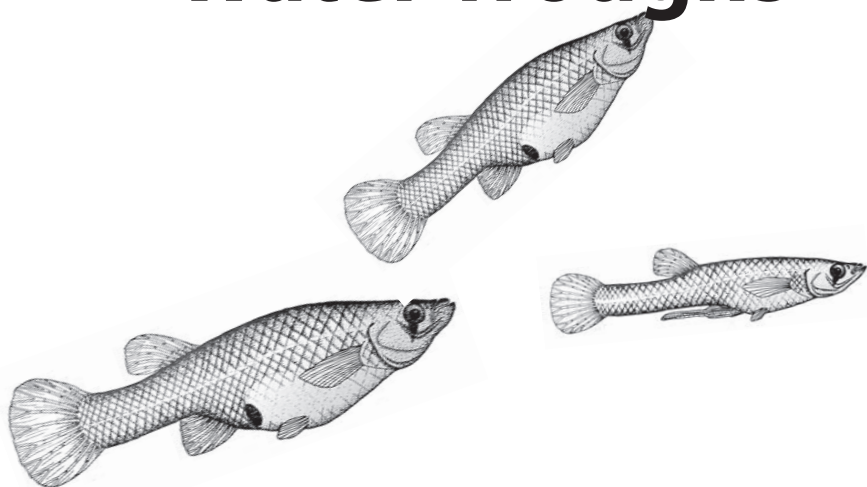


Mosquito Prevention for Water Troughs



Alameda County Mosquito
Abatement District
23187 Connecticut St.
Hayward, CA 94545

Phone: (510) 783-7744

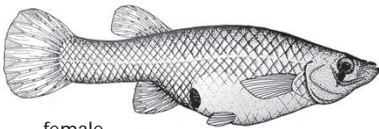
Fax: (510) 783-3903

www.mosquitoes.org
acmad@mosquitoes.org

Controlling mosquitoes with fish

Keeping a healthy population of fish in your water trough is the first line of defense against mosquitoes. Goldfish and koi will also feed on mosquito larvae but are not as effective as mosquitofish or other top feeding minnows.

The mosquitofish



female



male

actual sizes

Gambusia affinis, the Western Mosquitofish, are indispensable to our mosquito control program in Alameda County. The fish eat mosquito larvae. Mosquitofish are provided, without charge, to the public for ponds, unused swimming pools and animal watering troughs. They require minimal feeding or

care other than to protect them from garden sprays, chlorine, chloramines or other chemicals, and predators such as raccoons, cats, opossums, herons or egrets. Mosquitofish generally live peacefully with other pond fish.

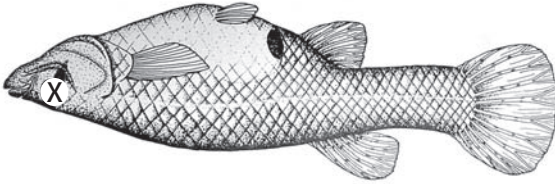
These fish do not lay eggs but give birth to well-developed and very active young. Therefore, they require no special environment for depositing and hatching eggs. Mosquitofish breed throughout the summer producing a new brood at monthly intervals. The newborn are approximately one-half inch in length and are immediately ready to begin the work of eating mosquito larvae. *Gambusia* grow rapidly, reaching a maximum size of about three inches. The fish become sexually mature when 4-5 months old; the earliest broods of the season are born in April to May. Mosquitofish can live two to three years.

How to obtain mosquitofish

To obtain free fish call the District office. Mosquitofish are normally available from April through October. The fish are usually placed directly into troughs by one of our technicians, but if you have a dog off-leash or keep the gates locked, leave a bucket of water accessible (be sure to treat for chloramines) and indicate the size and number of troughs when you call. The District is always glad to provide mosquitofish to County residents, even on repeat calls, to encourage the biological control of mosquitoes in troughs, ponds and other man-made water sources.

The danger of chloramines to fish

All tap water in Alameda County is now being treated with chloramines (not chlorine) which are **toxic to fish**, shellfish, reptiles and amphibians. Chloramines are chemicals which contain chlorine and ammonia, and are being added to tap water to disinfect it. If you use well water to fill your ponds or troughs, chloramines are not an issue.



What can you do to protect your fish?

Water used for fish must be treated in a manner appropriate to remove both the chlorine and ammonia components of the chloramines. In order to do this you must use conditioning chemicals designed to remove chloramines (such as Amquel[®]) available at pet stores, fish supply stores, and some variety stores.

Treatments which are NOT effective:

- ♦ letting the untreated water stand outside for a day or two
- ♦ boiling the water first
- ♦ using chemicals that remove only chlorine

To be completely safe, always pretreat your water before adding it to your trough no matter how little you add. Treatment and test kits are available at most pet and fish supply stores. Chloramine residuals in treated water should be below 0.1 mg per liter.

For additional information regarding your water, contact:

East Bay Municipal Utilities District (866) 403-2683

Alameda County Water District (510) 668-4200

Zone 7 Water Agency (925) 454-5000

Algae and troughs

There are three kinds of algae that grow in water troughs: "carpet" algae, string algae (filamentous) and plankton algae (unicellular).



Carpet algae can grow on all the underwater surfaces in the trough, resembles a green carpet (1/2" thick) and is beneficial to the fish and water quality. They produce oxygen and are food for the fish when mosquito larvae are not present.



String algae grows as long, slimy green strands, will adhere to the bottom and sides of the container and also float in the water. This algae can grow at an uncontrolled rate and become a problem.



Plankton algae are microscopic plants that turn the water green. In excessive amounts they create the green "pea soup" phenomenon which is also detrimental to the fish.

Mosquitofish Stocking Policy

In an effort to minimize unwanted environmental impacts, mosquito abatement personnel refrain from putting mosquitofish in sources known, or suspected to be, habitats for endangered or threatened species. Care must be taken when introducing mosquitofish into sources where they can migrate to habitats used by endangered or threatened species (by flood as an example). Mosquitofish can still be used safely in ornamental fish ponds, watering troughs and abandoned swimming pools in urban and suburban areas without worrying about endangered species conflicts.

It is against California Department of Fish and Game regulations for private citizens to plant mosquitofish into waters of the state without a permit. (Title 14 CCR, Fish and Game Code, Sections 1.63, 6400, and 238.5)

Mosquitofish provided by the Alameda County Mosquito Abatement District are intended for mosquito control only, and should not be introduced into natural water bodies by anyone other than certified mosquito control technicians or Fish and Game personnel.