

Drinking Water Releases into the Creek

2008

Most people agree that the water coming out of Marin County's taps is healthy for drinking, but unfortunately it is definitely unhealthy—and can be lethal—to fish in our creeks, because of the disinfectant used to protect humans from bacteria and microbial pathogens. The water takes a long journey from MMWD's treatment plants, so planned and accidental releases from the 900-mile network of distribution pipes quite often find their way into the creek. In the dry season, drinking water releases are less diluted by creek water, so have the highest potential to harm fish. The chlorine-based disinfectants that are used inhibit the absorption of water-borne oxygen into the blood stream of gilled animals, and so can suffocate them.

State and federal regulations require public water systems to maintain a specified disinfectant residual concentration in all parts of the distribution system, and only chlorine-based disinfectants can achieve this level. Although other disinfectants such as ozone, ultraviolet light, and hydrogen peroxide are sometimes used for pre-disinfection, they cannot maintain the residual concentration required to protect human health.

Chloramine replaced chlorine as the commonly used disinfectant about 15 years ago, because it persists in water longer than chlorine does. Aquarium owners are well aware of the danger tap water represents to their finny companions. However, even chloramine soon depletes in creek conditions of contact with soil, bacteria and sunlight.

MMWD staff makes a concerted effort to reduce the amount of disinfectant reaching the creek during both accidental and planned water releases. When someone drives into a fire hydrant causing it to burst, as much as 10,000 gallons of water shoots into the air each minute, travels to a storm drain, and flows into the creek; if an underground water main breaks, as notoriously happened outside San Anselmo's main fire station in July 2004, a torrent of muddy water finds a path to the creek. As soon as they can, MMWD personnel place perforated bags containing sodium sulfite tablets or sodium thiosulfate granules in the flowing water, in an attempt to neutralize the chloramine. In the San Anselmo case just mentioned, the treatment was unsuccessful, and several large trout were killed; water from a hydrant breakage in Fairfax in May of this year ran for at least half an hour, but large steelhead in a pool in downtown San Anselmo appeared unharmed the following day. (A paving contractor had covered over the shut-off valve, thus delaying access to it.) According to MMWD staff, even excessive neutralizing agents do not harm fish, because to fish they are the equivalent of common salt, of which a great amount would be needed to raise water salinity. When spills occur, District protocol requires that MCSTOPPP and the State Water Quality Control Board are notified.

Drinking water is also released into the creek when new supply pipelines are flushed before being placed in service. In this case disinfectants are neutralized in a planned and monitored procedure. When the six- and eight-inch pipes are replaced in the downtown San Anselmo area this year and next, each new 1000-



Driving into fire hydrants is bad for your health, and bad for the creek's health. Gary Leo photographed this scene in Fairfax in May.

foot section is first pressure tested and flushed with tap water at high pressure to clean out any debris; then the section is disinfected with chlorine. These disinfecting flows are passed through neutralizing filters before being released into either a sewer or a storm drain. All water releases are periodically tested for disinfectant levels to monitor the effectiveness of the treatment. Leaks into the creek from mains or supply lines, far from benignly augmenting creek flow, are expensive and endanger fish, so they should be reported to MMWD as soon as possible.

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