



In the Wake of Hurricanes: The Problem with Standing Water

By Fred M. Reiff, PE

As flood waters recede in Houston and Florida, a new public health threat rears its ugly head: Mosquitoes breeding in standing water left in the wake of hurricanes. Puddles, flower pots and saucers, rain barrels, bird baths, pet bowls, discarded tires, overturned trash can lids, canvas and plastic tarps covering boats and pools, and even swimming pools themselves can become watery incubators for mosquitoes.

Although most mosquitoes do not spread disease, some do spread Zika virus, West Nile virus, chikungunya, malaria, encephalitis and dengue fever. Fortunately, after a quiet summer for Zika virus on the US mainland during which there was no known local transmission of the virus, the US Centers for Disease Control and



A discarded tire containing standing water can become a choice breeding grounds for mosquitoes.

Prevention (CDC) [does not expect](#) to see cases of Zika virus appearing in the wake of flooding from the recent hurricanes, even though mosquito populations are expected to increase.

Operation Repopulation for People ... and Mosquitoes

Humans returning to waterlogged homes in the Houston area and Florida are not alone in rebuilding their "habitats." Although the torrential rains and high winds of hurricanes typically wash out mosquito breeding sites, the insects always return to reclaim their habitats, made all the more inviting by stagnant flood water. How quickly will they reappear? The mosquito lifecycle, from egg to larvae to pupa to adult, can range from four days to as long as one month, according to the [US Environmental Protection Agency \(EPA\)](#).

Tips for Reducing Standing Water in and around Your Home¹

- As much as possible, eliminate objects on your property that can collect and hold even small volumes of water.
- Empty, scrub and change the water in bird baths at least once a week. Scrubbing is needed to remove mosquito eggs, which firmly attach themselves to hard surfaces.

¹ For more detailed tips and information, please see the website of [the American Mosquito Control Association](#).

- Assure that water can drain out of recycling containers, drilling holes in the bottom of them if needed.
- Repair leaky outdoor faucets.
- Stock ornamental pools with predacious minnows, which eat mosquito larvae, or treat with “biorational larvicides,” purchased in hardware stores.
- Keep backyard pools [properly chlorinated](#).
- Empty and dry the water from small inflatable and molded plastic kiddie pools immediately after use.
- Remove leaves and other debris from rain gutters and drains.
- Ensure window and door screens are in good repair.
- Eliminate seepage from cisterns, cesspools and septic tanks.
- Fill or drain puddles, ditches and swampy areas.
- Plug tree holes (see [this EPA website](#)).
- If it is necessary to reside in hurricane damaged homes that allow easy entry for mosquitoes, utilize mosquito nets while sleeping.

Avoiding Mosquito Bites

Besides removing standing water, shore up your personal defenses against mosquitoes by using a [CDC-approved insecticide](#), such as DEET, picaridin, IR3535, oil of lemon eucalyptus, or para-menthane-diol. Lightweight, light colored and loose-fitting long-sleeved shirts and long pants also can help protect you from mosquito bites when working outdoors.

After the destruction wreaked by Hurricanes Harvey and Irma, standing water represents a less dramatic, but insidious challenge for many who have already endured much hardship. We hope these tips will prove useful in the recovery of our neighbors in hurricane-affected communities.

Fred M. Reiff, P.E., is a retired official from both the U.S. Public Health Service and the Pan American Health Organization, and lives in the Reno, Nevada area.

www.waterandhealth.org