

IN THE GARDEN

FIFTY SHADES OF GREYWATER

Capturing perfectly good water—be it rain or wash water—before it goes down the drain

BY JILLIAN LAUREL STEINBERGER

“We are all going to have to adapt in our lifetime, and it can be exciting and creative—not a sacrifice or exercise in scarcity. People love cars that get good gas mileage. Now it’s time for our homes, businesses, landscapes, parks, schools and churches to get good “water mileage.”

—LeAnne Ravinale, water wise coach, Scotts Valley Water District



Carmel Valley resident Zephyr Miller outfits old wine barrels to collect rain from her roof.

GREYWATER EXPLAINED

Greywater makes good common sense—it can help a household cut its water use by nearly half—a family of four, for example, can trim the typical 38,000 gallons of water it uses each year by 15,000. Just as recycling plastics and paper diverts them from the landfill, greywater systems prevent perfectly good water from washing machines and bathroom sinks, tubs and showers from being discarded into sewers and overloading energy-intensive treatment plants. Instead, they direct the water straight to gardens and landscaping. The systems also require few upfront costs and few or no permitting hurdles and, since we humans can generally be counted upon to bathe and wash our clothes, it’s a reliable year-round supply of water for the garden.

For decades, even as they embraced other forms of recycling, most people have ignored the greywater option, rather obstinately. Perhaps it seemed too far out—maybe due to misconceptions. Greywater is never, ever toilet water. That’s blackwater, which also includes water from kitchen sinks and dishwashers, and must be sent to sewers or septic tanks. There have also been concerns about potential pathogens in greywater itself, although these can be safely remediated in the soil.

In fact, in 2009, researchers scoured public health records, looking for evidence of greywater-related disease outbreaks, and found none. Now, formerly averse health inspectors say greywater is safe if guidelines are followed, and some water agencies offer rebates for installations. It’s a policy change with a big impact.

“When I realized that by using water in my home, I was participating in a giant infrastructure that extended to a dam 100 miles away, destroyed rivers to send the water to my house and then went through a chemical- and energy-intensive treatment process to be dumped into the bay, I decided there must be a better way,” says Laura Allen of Greywater Action, based in the East Bay, which lobbied for the change and helped write the new code.

Concerned about the drought, now residents are rushing to make use of greywater, and companies like Santa Cruz-based Terra Nova Ecological Landscaping, have recently been installing these systems at a rapid clip.

“It’s such a great way to conserve water. It’s a no-brainer,” says Ken Foster, a long-time greywater advocate who also instructs Cabrillo College student’s greywater installation as part of the permaculture class he teaches at the college. “Our customers want to save their plants and keep their water bills low at the same time.”

Although greywater installations can be innovative and high-tech, most homeowners opt for so-called “simple systems.” There are two types. Laundry-to-landscape systems send wash water only to the garden; they don’t require a permit and are easy to install for handy DIY-ers, who need spend only \$200–250 for materials. To have a contractor do the installation, the average cost is \$750–\$2,000, depending upon site requirements.

Branched drain systems separate bathroom sink and bath water from toilet water and then pipe it to the garden. They require plumbing alterations and require a permit. Consequently, contractors are frequently called in to help.

However you get your greywater to your garden, to be code compliant and safe, it must drain into mulch, gravel or soil basins—most greywater gardens have several—where the water can percolate into the soil without ponding or causing runoff, which is a health hazard. Nutrients from bits of skin, dirt and earth-friendly cleansers—which contain biodegradable compounds—are broken down by soil micro-organisms and alchemize into plant food.

“I’m personally inspired because I’m a gardener, and edible gardens use as much water as lawns, says Sherry Lee Bryan of the Central Coast Greywater Alliance. “I have guilty pleasures. I’m really into growing chili peppers, and although they can withstand periods of drought, they produce the best with regular water. If I don’t use any potable water, I still get to have my garden, even with water rationing.”

In fact, greywater works well with many edible plants, particularly fruit trees and vines. It’s also safe on produce like tomatoes, beans and cucumbers that are staked or trellised. However, greywater should never touch the parts of a plant that you eat, so for that reason, it should not be used to water strawberries, root crops like carrots, potatoes and beets, or leafy greens like lettuce, spinach and kale.

Bryan shares the good news that some water agencies may give lawn conversion and greywater system rebates for the same yard. “A customer going for a turf removal rebate will get it based on the drought-tolerant plants that make that requirement. But if you apply for the greywater rebate at the same time, and explain it will irrigate fruit trees (which use more water), the district might give you the rebates together. There are homeowners who have gotten both,” she says.

GREYWATER DO’S & DON’TS

- Do install a clearly labeled three-way valve, which directs water to the landscape or the sewer, and be mindful of where the water is going. Bleach and wash water from baby diapers, for example, should never go to the garden.
- Do use biocompatible household cleaners, personal care products and laundry detergents that are free of hazardous chemicals, toxins, salts or boron.
- Don’t let greywater puddle or run off your property—it must be covered with at least 2 inches of mulch, gravel or soil.
- Don’t use greywater near playgrounds or recreational facilities.

- Do avoid contact with kids and pets.
- Do site your greywater system at least 100 feet away from a creek, wetland, well or other waterway.
- Don’t store greywater for more than 24 hours. Otherwise, it will become blackwater.
- Don’t run greywater through sprinklers to water lawns. It’s illegal.

RAIN COLLECTION: CATCH THE FREE, CLEAN WATER

Until fairly recently it was considered a best practice for property owners to route excess rainwater to French drains and on to storm sewers—but in the process, the rain also carries off car oil, pesticides, fertilizers, garbage and—yuck—animal feces to the ocean. Increasingly, an awareness of how bad this runoff is for both our land and waters is taking hold.

“Once rainwater flows off our roofs, down our driveways and hits the storm drain, it picks up volume, velocity and pollution and sends it dirty to the ocean. Not only is this bad for the ocean, it actually parches the land,” says LeAnne Ravinale, water use efficiency coordinator at the Scotts Valley Water District, where she coaches the district’s customers on water-wise practices. Mandated by the state, public agencies are adopting policies that keep precious rainwater on-site.

But in arid California—especially in these times of drought—can enough rain be collected to make setting up a catchment system worthwhile for an individual homeowner?

Here on the Central Coast, the numbers are persuasive.

For example, 600 gallons of rainwater can be harvested off of a tiny 10-by-10-square-foot roof during a 1-inch rain storm. That means that in Salinas, where an average about 15 inches of rain fall per year, around 9,000 gallons of water can be harvested from every 1,000 square feet of roof. In Carmel Valley and Monterey, which receive around 21 inches, about 12,600 gallons could be collected from that amount of roof. And in cooler, wetter Santa Cruz, with an average of 31 inches, the figure is 18,600 gallons per year.

Carmel Valley resident Tom Augustitis has been collecting rainwater for 26 years, and until three years of severe drought finally dried up his cistern earlier this year, his California American Water bills for his two-person household had been averaging just \$35 per month.

“It’s very rewarding,” he says, but he also cautions that if you want to go large scale, setting up a system doesn’t come without cost.

For instance, although rain water collection can be done with a discarded barrel obtained for free, Augustitis was keeping his own bills down until this year with a 5,300-gallon system consisting of a 300-gallon above-ground swimming pool and a 5,000-gallon tank. But after his supply went dry this year, he decided he needed more storage capacity, and installed another 5,000-gallon tank at a cost of \$3,000.

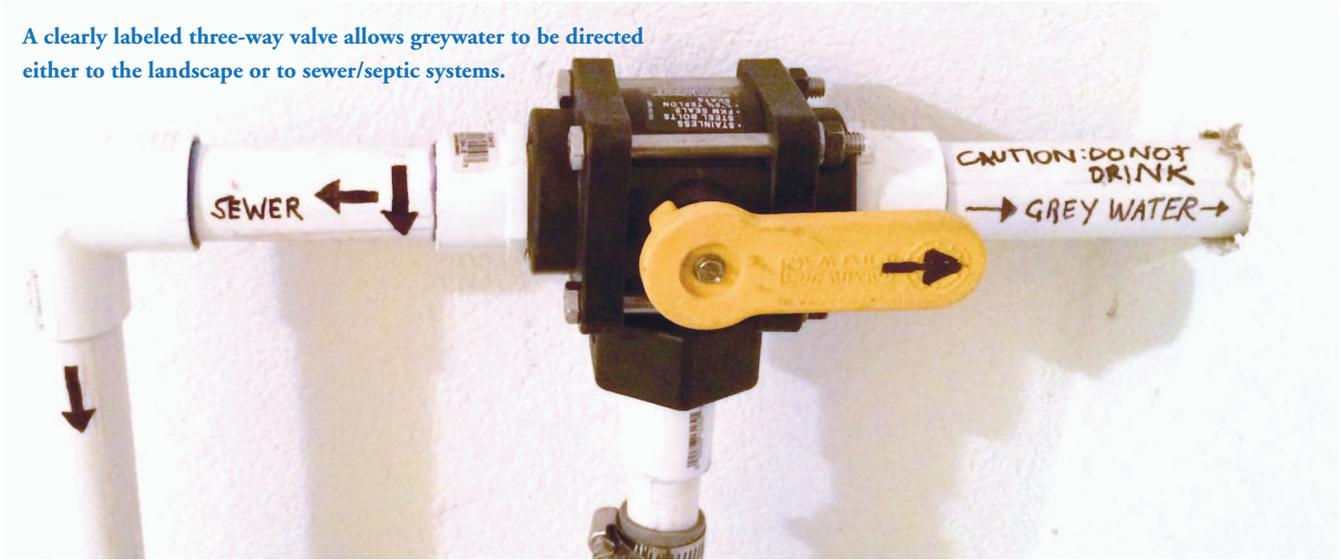
HOW IT WORKS

Gutters around the roof direct rainwater to downspouts that flow into collection barrels. These come in many shapes and sizes, ranging from 50-gallon Ivy units sold at cost to residents by the City of Santa Cruz to fancy units that sit flush against an exterior wall to huge tanks that hold thousands of gallons. (See www.waterawareness.org for a list of local dealers.)

JOIN THE GREYWATER CHALLENGE!

In 2014, the Central Coast Greywater Alliance, together with its parent organization Ecology Action, is sponsoring a 1,000 Greywater Systems Challenge—and they may get to the finish line. In 2013, they sponsored a 100 systems challenge. Volunteers and public agencies coordinated nine workshops, where residents learned about laundry-to-landscape systems and designed them for their homes, with more than 240 participants. Only 22 systems resulted, but over 100 systems have since been documented. It is estimated that there are more than 1,000 systems in the region. Record your system on the Monterey Bay Greywater Challenge Map at centralcoastgreywater.com.

A clearly labeled three-way valve allows greywater to be directed either to the landscape or to sewer/septic systems.



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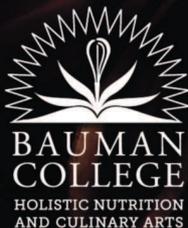
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Rain barrels and tanks can also be made from other containers by fitting them with spigots for accessing the water, screened lids to keep out debris and overflow pipes in case they fill up.

For a family with an off-the-grid homestead without a well, three 10,000-gallon tanks may get it through the year—or irrigate a small farm or a large garden.

OTHER CATCHMENT METHODS

A great approach for capturing rainwater right where it falls is by covering the soil with 4–8 inches of mulch. This wicks moisture into the soil where plants can use it. An additional way to help your garden areas soak up the rain, called “earthworks,” directs excess rainwater running down buildings and slopes on your property into dry creek beds, constructed wetlands, bioswales, rain gardens or to edibles. Both strategies reduce both runoff and the need for irrigation from sprinklers and drip systems.

Of course, it’s possible to go the most low-tech and inexpensive way, catching rain for your garden simply by putting out buckets during a rain storm. But setting up even a simple system that also helps prevent runoff will be as good for the environment as it is for your garden. 

RESOURCES: Contact information for the Central Coast Greywater Alliance, the Water Awareness Committee and other resources for anyone interested in greywater or rainwater catchment can be found under the “GROW” tab at www.ediblemontereybay.com.

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*Oceana Study Reveals Seafood Fraud Nationwide, February 2013
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