

Conserving Water: Our Most Precious Resource

by Sherri D. Osaka

Water is essential to all life on earth and we can't seem to get enough of it. With 326 million cubic miles of water on our Earth, it is our most abundant compound. Yet only 3/10,000 is fresh water that we can use for drinking, washing, and bathing. The rest is locked up in our oceans, glaciers, icecaps, inland seas, ground water, and atmosphere.

The Bay Area has a Mediterranean climate—one of only five in the world—which means that all our rain falls during the cool winter months. Even in those wet months, we average a mere 17 inches of rain per year in the South Bay. So if fresh clean water is precious elsewhere in the world, it is even more so here.

You have probably heard of many ways to save water inside your house, by fixing leaky faucets and installing low flow showers and toilets. There are as many and maybe more ways to save and reuse water outside the house. Some are easy, inexpensive steps you can take today and others are more involved projects that you can plan for the future. Think of them as different levels on your road to honoring this abundant, yet precious resource.

Level One: Reduce Water Use

First, try to lower your water use in the garden by following some of these suggestions.

- 1) Eliminate or reduce high water-use lawns. Most yards don't need nearly the amount of grass they contain. Grass is a great surface for playing and sitting, but it exacts a large price in water requirements since most types of grass require one inch of water per week during the dry season. Think about eliminating your lawn or at least reducing its size. Use low perennials and shrubs instead, such as sedges, manzanitas, wild lilacs, and dwarf coyote brushes.
- 2) Include drought-tolerant California native and Mediterranean plants. Once you've eliminated or reduced the size of your lawn, you'll have space for more drought-tolerant plants from California and other Mediterranean climates. Mother Nature has spent hundreds of years developing these plants to survive our long dry summers without supplemental water. We should take advantage of her work.
- 3) Install drip irrigation. If you do need to irrigate, invest in highly-efficient systems such as drip systems.
- 4) Eliminate water waste. Reposition spray heads to prevent sprinkler runoff, and if water doesn't soak into your soil quickly enough to prevent runoff, decrease your watering time and increase watering frequency.

5) Add two to three inches of mulch. Bare ground dries out quickly so mulch your plants every year using free tree trimmings called “arbor chips” or purchased woody mulch. Your plants will appreciate the nutrients, your soil will improve greatly, and you'll reduce weeds, all the while conserving soil moisture and watering less often.

Level Two: Improve Water Percolation & Reduce Flow to Storm Drains

One of our big water problems in California is handling water runoff when it does finally rain. We've all experienced flooded streets and highways due to an overloaded or clogged storm drain. Besides taxing drains, excess rain water also endangers the Bay since adding too much fresh water decreases its salinity and adds pollutants washed off streets. To ensure rain water seeps into the ground where it is naturally filtered and fills our aquifers, take these steps:

1) Divert downspouts or re-grade soil to allow roof and pavement runoff to percolate into soil, away from the house, instead of running off into storm drains. You can even use the water as a garden feature by creating a dry stream bed or winter water garden.

2) Use permeable pavement whenever possible. Instead of the more typical impermeable concrete and asphalt, try gravel, decomposed granite (DG), permeable pavers and concrete and, or stepping stones to create paths, walkways, and especially driveways which allow rain water to percolate into our underground aquifers.

3) Install a green roof. This is a technology that started in Germany that is becoming more accepted in the United States. Instead of traditional roofing materials, such as shingles, tiles, and composite roofing, you can plant a meadow on top of your house. These green roof systems hold rain water and keep it out of storm drains, create wildlife habitats above the ground, add insulation, and soak up solar energy to keep surrounding areas cooler. While not common, green roofs are appearing in the Bay Area, such as at the Gap headquarters in San Bruno. If you're not quite ready to replace your home's existing roof with plants, you may want to experiment with a green roof on a garden shed, detached garage, or even just on a bird- or doghouse. It's one more step in the right direction.

Level Three: Use Grey Water

After reducing your outdoor water requirements, you might want to consider reusing water from inside the house to supply your outside water needs. Water from bathroom sinks, showers, and washing machines is called grey water and can legally be used in California to water your plants outside, assuming you follow certain guidelines such as keeping the water away from the soil surface. This water also contains nutrients from soaps and debris that plants can break down and use.

You can create an inexpensive system and move hoses around on your own, or purchase a more sophisticated system which will automatically store and pump grey water to your plants. If you ever have the sewer plumbing in your house altered, seriously consider a grey water system or at least "stub out" the plumbing so that such a system can be added at a later date.

Level Four: Store Water On-Site

The final step in becoming a true water miser is to either store or clean water on-site. Some people store their roof runoff to be used later for irrigation, or at least flushing toilets. Called rainwater harvesting, these systems have been very popular in arid states like Arizona and New Mexico and are now appearing in California.

On-site water cleansing systems are the future of water conservation. They mimic the processes which occur in wetlands, Mother Nature's strategy for water purification, and use plants, such as cattails and rushes, to filter and feed on the debris in water, naturally cleansing it. These systems can be outdoor constructed wetlands or indoor "living machines" which filter water in a greenhouse with water running through tanks of different aqueous plants and animals. Perhaps one day these nature-inspired, yet manmade purification systems will be in every home and our large chemical water treatment plants will be a thing of the past.

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