

ESTUARY WISE

INFORMATION AND TIPS ON HOW
TO PROTECT OUR BAY AND DELTA

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Green Streets/Resilient Watersheds

The way we have developed the land has impacted the San Francisco Bay Estuary's water quality, its streams and rivers, and the health of its fish and wildlife. Our landscape is now covered with concrete and asphalt instead of fields, farms, and forests. Freeways, city streets, driveways, parking lots, and stormwater pipes all send runoff from the rain shooting into the Estuary instead of allowing it to slowly sink into the ground. That stormwater runoff is loaded with pesticides, fertilizers, grease, oil, and heavy metals from our cars.



This Bay Area schoolyard demonstrates the extent of our paved-over landscape. Photo by Lisa Owens Viani.

And instead of free flowing creeks connecting the hills to the Bay, we now see disconnected snippets of streams. Yet almost all of these creeks still flow to the Bay, even if underground. But there is a movement underway to let the ground “breathe” again and to let stormwater trickle down into the ground instead of run off into the Estuary. We can restore our streams and wetlands, and make our watersheds more resilient to the intense storms and sea level rise that are part of our changing climate.

We can bring creeks that have been piped underground back above ground.



Like many of the creeks around the Bay, Schoolhouse Creek enters the Bay in a storm drain pipe. Photo by Lisa Owens Viani.

Free-flowing creeks and their trees and riparian (streamside) vegetation allow chemical, biological, and physical processes to take place, helping filter pollutants. They also provide wildlife habitat and green space within urban settings. One of the techniques used to restore urban streams is “soil bioengineering,” in which cuttings of native plants like willows and dogwoods are stuck into the ground, where they grow to stabilize the creek's banks, prevent excessive erosion, provide habitat, and take up pollutants.



“Soil bioengineering” is a way to stabilize and green creek banks using plant material instead of riprap. It helps make our watersheds more resilient. Photo courtesy of Urban Creeks Council.



Despite storm drain stencils, many people do not realize that stormwater—and anything in it—flows to the Bay untreated. Photo by Suzanne Spencer.



Baxter Creek before daylighting: underground in a storm drain pipe. Photo by Lisa Owens Viani.



Baxter Creek after: When the pipe failed in 1997, the city of El Cerrito decided to bring the creek above ground and back to life (photo shows daylighted section from adjacent hillside). Photo by Lisa Owens Viani.

In conjunction with open, restored, natural streams, green stormwater projects (also referred to as “green infrastructure” or sometimes “LID”) can help restore the former permeable nature of our landscape. These projects allow stormwater to slow down, spread out, and sink into the ground, the way it once did. Below are two examples in San Mateo County: a “curb extension” or “green street” that treats road runoff in San Bruno, and a rain garden at Brisbane City Hall that accepts and filters runoff from the roof and parking lot.

Closer to the edge of the Bay, at the bottom of our watersheds, wetlands absorb stormwater runoff. Wetlands are the Estuary’s “sponges,” buffering it from sea

level rise, filtering pollutants, and offering habitat for many wildlife species. Most of the wetlands that once fringed the Bay have been filled for development or agriculture.

But today, thousands of acres of former wetlands that were converted to salt production or put behind levees for agriculture are being restored to their natural condition.



A curb extension in San Bruno (notice the cut in the curb). Photo courtesy San Mateo County.



Brisbane City Hall's new rain garden. Photo courtesy San Mateo County.



A levee is breached at Tubbs Island, allowing the Bay's tides to come in and recreate tidal marsh. Photo by Marc Holmes.

You can promote green streets/ resilient watersheds in your community:

- Tell your city council and mayor you want to see green streets projects in your community (in addition to filtering pollution, they slow traffic and beautify neighborhoods).
- Set up a rainwater cistern at your home to capture runoff from your roof.
- Create your own rain garden (see our fact sheet at www.sfestuary.org about how to create your own).
- Get involved in your local creek or watershed group— to find your group, see <http://www.museumca.org/creeks/resc.html>.
- Get involved in hands-on wetland restoration projects. Golden Gate Audubon, Marin Audubon, and Save the Bay all use volunteers.



Wetlands are the Estuary's sponges, absorbing flood waters, filtering pollutants, and creating resiliency at the water's edges. Photo by Peter Baye.

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