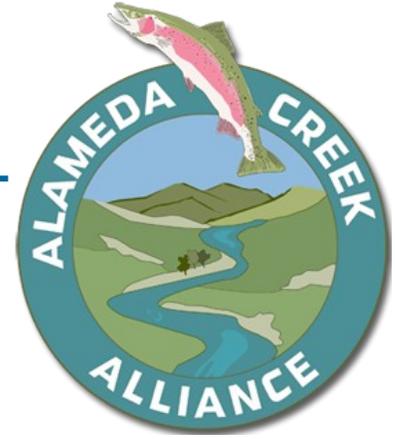


# FISH-FRIENDLY GUIDE FOR RESIDENTS AND LANDOWNERS



Creeks in the Alameda Creek Watershed support rainbow trout and a host of other native, fresh-water fish, and have the potential to harbor steelhead trout.

Development and other activities near creeks can add pollution, degrade habitat, and alter the natural flow of water. To protect our creeks, fish, and other wildlife that depend on creeks for survival it is important to adopt 'creek setbacks' - buffer areas where development or other alterations are restricted.

## WHAT IS A WATERSHED?

A watershed is an area of land that water flows over or through on its way to a larger body of water, such as the San Francisco Bay. Everyone lives in a watershed. Large watersheds like Alameda Creek are made up of many smaller ones.

A watershed starts at the peaks and ridges of mountains and hill-tops. Rainfall washes over the high ground, forming rivulets that drain into creeks. As creeks descend, tributaries and groundwater add to their volume and flow. Eventually they will flow into a lake or the sea.

Estuaries, where a creek or river's fresh water mixes with salt water, are some of the most biologically productive places on earth, and are important rearing grounds for young fish.



Artwork by Stuart Helmintoller

## STEELHEAD TROUT

Steelhead trout are anadromous fish, meaning that, like salmon, they spawn in fresh water and mature at sea. Steelhead are listed as 'threatened' under the federal Endangered Species Act.

Steelhead trout live in freshwater for 1-2 years, then migrate to sea for 1-4 years, before returning to spawning creeks. Trout require cold, clean, fast-flowing, gravel-bottomed creeks to spawn in. Unlike salmon, which only spawn once, steelhead can return to spawn as many as four times.

Other native fish in the Alameda Creek watershed include California roach, hitch, prickly sculpin, Sacramento sucker, threespine stickleback, Sacramento pikeminnow, and Pacific lamprey.

Non-native fish you may see in the watershed include carp and catfish. These introduced fish prefer warm, shallow water, and will often be found where flows are impaired and banks stripped of vegetation.

## IDEAL CREEK HABITAT

Good quality stream habitat is essential for the remaining steelhead, and other native fish in the Alameda Creek system. Streamside plants provide insect habitat and contribute nutrients. Cover creates refuge from predators and resting areas during heavy storm flows.

Ideal creek habitat has:

- Diverse habitat with deep, quiet pools and shallow, rocky riffles; and relatively stable creek banks;
- Clean spawning gravels and cobbles without fine sediment;
- Cool, clean water;
- Dense shade canopy from creekside vegetation;
- Woody debris from fallen trees and branches;
- Lots of protective cover—undercut banks, rocks, tree roots, woody debris, surface turbulence, and overhanging vegetation.

## CREEK SETBACKS

A creek setback establishes a buffer area where activities are limited to protect fish and wildlife, native plants, and the creek itself. Creek setbacks protect creekside landowners and their property from flooding and erosion.

### What you can do:

- Don't construct or place anything in a creek or within the setback area. 'Anything' includes driveways, parking areas, retaining walls, rip-rap, concrete, or other artificial slope protection, compost bins, and yard debris;
- Leave native plants within the setback area. Do not remove vegetation if it will expose the bank to increased erosion and sediment.



## VEGETATION MANAGEMENT

Vegetation regulates the speed of water flowing through and over soil while providing cover and food for wildlife. Roots of plants hold soil in place, reducing the potential for landslides.

Native plants are adapted to local soil and rainfall conditions.

Native plants found along creeks provide shade and help keep waters cool. Their roots hold creek banks in place, and woody debris provide spots for fish to hide and rest. When native plant cover is removed, wildlife habitat is lost, water temperatures rise, and soil erosion can occur.

### What you can do:

- Maintain existing vegetation along creeks;
- When removing invasive plants, stabilize the disturbed area by planting natives or using erosion control blankets;

- Let fallen trees and branches stay on banks and in the creek, as long as they don't impede flow or threaten property;
- Don't dump yard waste into the creek area. Decomposing material reduces oxygen levels needed for fish to survive.

## KEEP WATER IN THE CREEK

Fish need water in the creek to survive until they can migrate.

### What you can do:

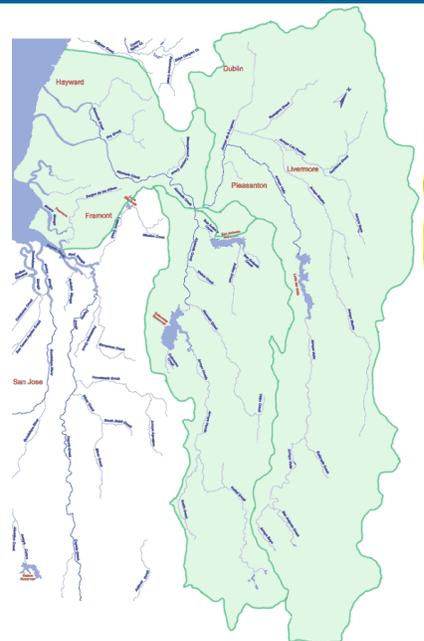
- Use drip irrigation or other water conserving measures for your landscaping;
- Establish a rain garden or catchment system to store rain water on site and spread it into your landscaping;
- Don't build dams in the creek that prevent water from reaching fish downstream, or divert or draw water directly from a creek.

## THE ALAMEDA CREEK WATERSHED

The 680-mile Alameda Creek Watershed is the largest in the Bay Area. It extends south to Mt. Hamilton, north to the hills of Mt. Diablo, east to the Altamont Hills, and west to San Francisco Bay.

The watershed is drained by Alameda Creek, which flows for more than 40 miles, connecting eastern and western Alameda County through Niles Canyon. Lower Alameda Creek is constrained in a flood control channel through Fremont before emptying into San Francisco Bay just north of Coyote Hills.

Steelhead trout, Coho and Chinook salmon once spawned here, but were gone by the early 1960s due to urban development and in-stream barriers. A series of dam removal projects, habitat restoration, and improved flows for cold-water fish will soon improve conditions for migratory fish.





## RAIN, RUNOFF, AND EROSION

Parking lots, roofs, roads, and other hard surfaces prevent water from soaking into the ground, causing the volume of runoff to increase when rainstorms come. Water enters the creek with more power, which exacerbates erosion and increases the amount and concentration of pollutants.

Creek setbacks with vegetation are the best protection against erosion. Plants improve the soil's capacity to absorb and slow down water, and setbacks provide room for native plants to grow. Limiting paved surfaces and directing runoff to vegetated areas will protect fish, the creek, and your property.

Even if you're far from a creek, your property influences creek flows. Use permeable materials



CA slender salamander- Craig Latker

like porous concrete, decomposed granite, inter-locking pavers, and flagstone to slow, sink, and spread stormwater. Maximize vegetated areas on your property, and direct runoff to those areas.

## PEOPLE, PETS, AND LIVESTOCK

People, pets, and livestock can disturb the land next to creeks. Erosion is exacerbated by livestock, and by pets and people who walk on bare slopes or off maintained trails. This disturbs vegetation and creates ruts that concentrate flows, speeding up erosion.

Pets and livestock entering creeks create other problems also. Pets can stir up sediment that covers and suffocates fish eggs. They can trample the plants along the creek. They contribute waste that contains bacteria and nutrients harmful to fish, wildlife, and sometimes humans, and which can cause excessive algal growth in the creek. As the algae decomposes, oxygen that fish need to survive can be depleted to lethal levels.

### What you can do:

- When hiking, use existing and maintained trails;
- Don't wade in creeks, or let your pets play in them;
- Clean up your pet's waste, which carries diseases, and can kill fish and stimulate algal growth in creeks;

- Construct fences to keep livestock from entering creek and wetland areas.

## WASHING VEHICLES

Washing vehicles will contribute pollutants to local creeks unless proper precautions are taken. When vehicles are washed, heavy metals, oils, grease, and automotive fluids are washed off, along with the soap. All are toxic to aquatic life. That water drains into the storm sewer system and is released to local creeks and the Bay untreated.

### What you can do:

- Use a commercial car wash, which uses only a fraction of the water of a home wash, and where water is treated and often reused before being released;
- If you must wash your car at home, use a grassy area or dirt where the soil can filter pollutants. Use a spray nozzle with a shutoff valve;
- Repair automotive fluid leaks promptly. Dispose of motor oil, filters, and other hazardous wastes properly.



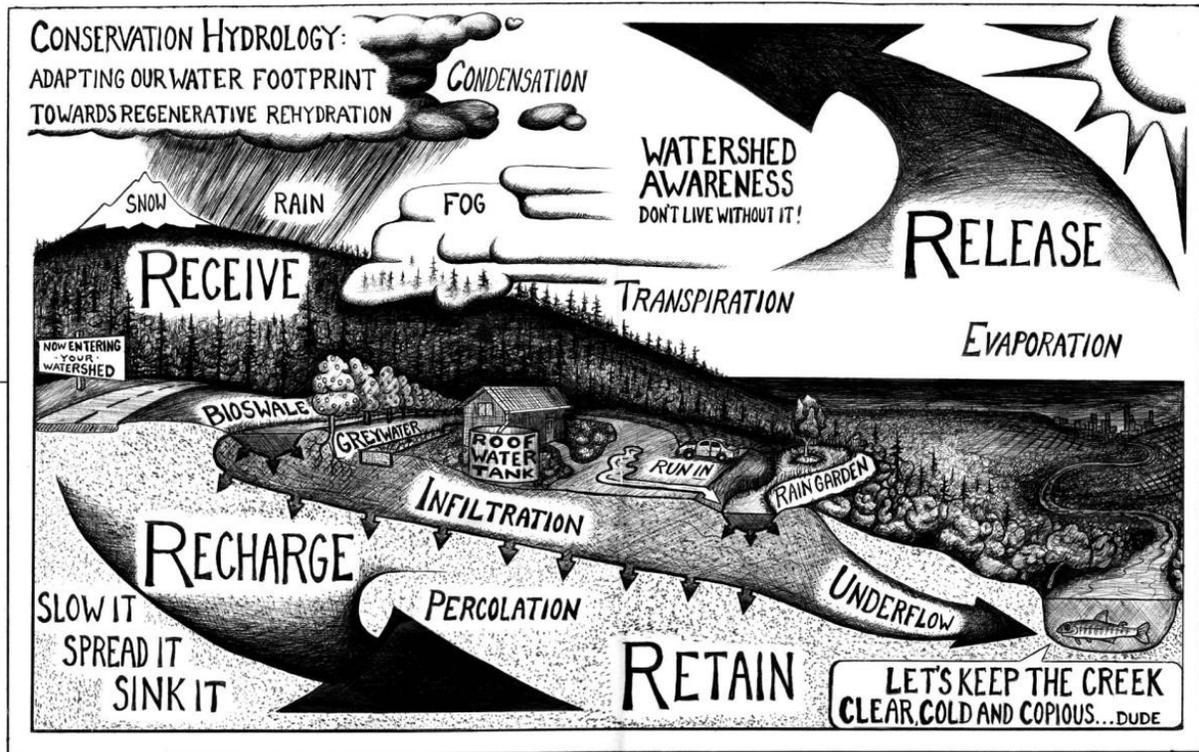


Illustration by Jim Coleman, Occidental Arts and Ecology Center's WATER Institute

## LOCAL RESOURCES

### For Assistance with Streambank Erosion Issues:

- Call the Alameda County Resource Conservation District at (925) 371-0154

### To Report Poaching or Illegal Fishing in Alameda Creek:

- Call CALTIP anonymously at 1-888-DFG-CALTIP (334-2258)
- Call the CA Department of Fish and Wildlife warden dispatch at (707) 944-5512

### To Report Spills and Illegal Discharges:

- Call the CA Dept. of Fish and Wildlife Office of Spill Prevention and Response at 800-852-7550
- Call the San Francisco Bay Regional Water Quality Control Board at 510-622-2300
- Call your local city or county public works department or planning department

### For Recycling and Waste Disposal Information

- Visit [Stopwaste.org](http://Stopwaste.org), or call their recycling hotline at 877-STOPWASTE (786-7927)



*Produced by the Alameda Creek Alliance, a member-driven community watershed group.*

*Visit [alamedacreek.org](http://alamedacreek.org) for more information, or to become a member.*

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