

Water's Journey from Sky to Creek

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Water is found throughout our environment: as vapor in the air; as rain, sleet, or snow falling to the ground from clouds; on the surface of the ground in runoff, streams, and lakes; and underground in the soil. Creeks, streams, ponds, and lakes are found where the water table intersects the ground surface. The exchange of water among these forms is called the hydrologic cycle.

If we look at the hydrologic cycle as beginning with moisture in the atmosphere, the first step occurs when water vapor condenses and forms droplets that fall to the ground. Then the water either moves across the land as runoff or seeps into the ground and slowly moves downward between rocks and



The beginnings of Corte Madera Creek

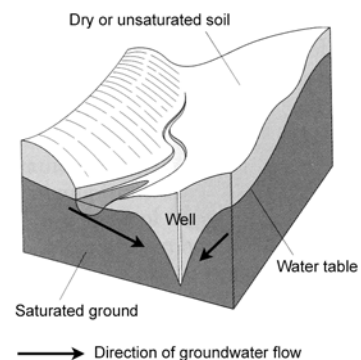
through soil layers as groundwater. The water we see in our creeks has followed both of these pathways. In the winter, runoff reaches the creeks by flowing over the surface, traveling through storm drains, as well as by soaking into the ground and flowing as part of the groundwater until it reaches the creek. In the summer, there is very little surface runoff or input from storm drains (unless someone leaves a sprinkler on too long or pours water into a drain), so nearly all of the water in the creeks in the dry season comes from groundwater flow. When we take actions that change how the water flows, we affect the amount and quality of water available for the aquatic and riparian plants and animals in our watershed.

Many people are familiar with the problems, caused by impervious road and roof surfaces, which accelerate runoff into creeks and cause flood peaks to both occur more quickly and be higher. A more subtle effect of impermeable surfaces is that they reduce the amount of water that soaks into the soil to replenish the groundwater. Therefore, impervious surfaces are doubly bad – they increase flooding and reduce the amount of groundwater available to sustain aquatic and riparian life during the dry season.

Reducing creek levels by pumping water directly from the creek during the summer obviously has a direct impact on the plants, fish, and other animals that depend on summer water. Young steelhead are especially vulnerable; they not only need water, they need cool water and the shallower a pool is, the more likely it is to heat up during the summer. Wells, too, present a threat to steelhead, especially those that are located near a creek.

Pumping water from wells changes the way water moves underground and lowers the water table in the vicinity of the well. That in turn lowers the level of water in the pools that provide rearing habitat for fish and keep the riparian vegetation alive. This connection between the extraction of water using wells and the level of water in the creeks is invisible, but it is crucial. A shallow well pumping from the water table interrupts groundwater flow as it makes its way toward the creek and can significantly decrease or even eliminate water in a creek during critical summer months.

If you already have a well, please give serious thought to not using it during the summer. If you are considering installing a well to water your landscaping, consider also the steelhead – now a threatened species – and the richness of wildlife dependent on a healthy creek!



Pumping water from a well depresses the water table and causes groundwater to flow away from the creek.

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