

# North Coast Hydrology 101: water conservation in Tillamook County

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Water conservation is an important topic for the North Coast. But why conserve water, you may ask? Our unique mix of geology, population growth and climate means that water is not always a sure thing in Tillamook County. Let's take a quick tour of our hydrologic situation and then explore some easy ways to conserve water.

The casual observer of the North Coast would assume that we have abundant water resources. After all, our average annual rainfall ranges from 50 to 150 inches. Beaches may receive the low end of that range, while the majority will fall on the crest of the Coast Range. Yet just because we get a lot of rain, it doesn't mean that the water falls consistently all year. By early July, a ridge of high pressure sets up over the eastern Pacific, and sends storms toward the north. This weather pattern will usually persist through late September, and the consistent rains don't usually start until late October.

The summer dry-season is also the time of year when our population peaks as tourist destinations swell with visitors,

and part-time residents return to enjoy the best of the county. Of course, the summer and early fall is also the peak production period for farmers and gardeners alike. So water use is also at its peak. When water demand collides with water scarcity, we have drought. When it is driven primarily by population growth, we call that a "social drought." In some increasingly popular coastal areas such as the South Coast, it is possible to have a social drought most summers. Given trends in second and vacation home growth on the North Coast, these water crises might not be far ahead for us either.

Water is also scarce in the summer because of our geology. From northern to southern tip, the county's mountainous terrain has created many relatively short watersheds. These funnel water through steep, rocky, narrow canyons into relatively short, shallow floodplains—the Tillamook Valley being the exception—and into the Pacific Ocean. This means that water travels quickly through our communities. Our subsurface geology (the mix of rocks and soil beneath our feet) is particularly complex here too. Some of our rainwater seeps into layer-cake deposits of soil and rock, called aquifers, beneath our narrow floodplains.

This groundwater in the aquifers, however, doesn't always stay put. Depending upon the slope, the groundwater may seep toward lower points. This is an explanation for some springs found at the beaches, where groundwater hits its lowest possible point and surfaces. Other springs are formed in mountain slope areas as water trickles through fissures in the rock. Once on the surface, spring water rejoins streams on their journey to the sea. Most surface and groundwater has little place else to go but toward the ocean.

A significant portion of groundwater is also tied to summertime flow in our rivers. While wintertime rains fill our streams to overflowing, how is it that they continue to flow without rain into early September? The reason is that groundwater recharged by precipitation into the surrounding watersheds feeds them with a steady supply from springs and underground seepage during the dry season. The effect is a delayed release of water that lasts from the last springtime soaking rain through the dry season. Take away that water and we would see our big rivers slow to a trickle, while smaller streams may dry completely. In drought years this is often the expected outcome. Our sum-

mer-time droughts are just one drier-than-normal winter away.

All of this mixture of geography, geology, population, and climate

means that despite our seemingly abundant rains, water conservation is important for maintaining healthy communities and watersheds upon which we all depend. More importantly for some, water conservation saves money. So how can we conserve water in our farms and homes?

First, there are several ways to conserve water on the farm. Farms are large water consumers with the largest draw on water supplies for livestock. An average milking cow, depending upon her size and average milk production, will drink from 35-45 gallons of water per day, while a heifer will consume about 10-15 gallons per day. Beef cattle and horses will consume about 12 gallons a day. Of course, you don't want to try to conserve water by limiting what livestock will drink, but here are some practices that will save



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both water and money:

- Fix leaks in pipes and hoses around the farm. A leaking pipe can contribute to the loss of about 10 gallons per day.
- Pay attention when filling tanks or tubs. A water tank that is left to overflow can contribute to a loss of 5 gallons per minute.
- Install and maintain floats on water tanks so that they shut off when the tub is full. Keep these floats and hoses away from animals that can damage them.
- Keep drinking water clean so that animals don't waste water.
- Capture the pre-cooler water that chills down milk. Allowing it to run down the drain can waste up to 30 gallons a minute! Capture that water and use it for animal drinking water.
- Consider reusing wash water from your clean in place (CIP) system for washing down the milking parlor.
- Manually clean floors and alleys before washing down, to reduce the amount of water needed.

Saving water also starts at home and especially in the garden. Landscapes tend to consume the lion's share of a household's water. Here are some practices to conserve

water in your home landscape:

- Water your landscape plants in the morning before daytime temperatures are high and before the winds pick up.
- Frequent, shallow waterings lead to shallow roots. Shallow roots lead to more rapid stress under drought or hot conditions.
- Irrigate deeply by letting water soak into the soil around the roots of your plants. Rather than applying water overhead with a sprinkler, consider using a soaker hose or drip irrigation system.
- Plant drought-tolerant plants such as natives. Once established, most woody native plants should not need supplemental irrigation in the dry season.
- Lawns are often the biggest water users in a home landscape. Check to make sure your water is penetrating the soil of your lawn. De-thatch older lawns. Apply fertilizer only in the fall to cut down on summertime growth, mowing and water demand.

There are many more tips for water conservation available at the OSU Extension Service – Tillamook County, 2204 Fourth Street, Tillamook, OR. 97141; (503) 842-3433.