



Russian River Watershed Association

300 Seminary Ave, Ukiah, CA 95482 • (707)833-2553 • www.rrwatershed.org

RRWA Environmental Column – February 2015 Bacteria as a Water Quality Concern

Bacteria are a natural part of the environment, but some bacteria like those found in human or animal waste can be a hazard when we are exposed to it in the rivers where we work and play. These microscopic single-celled organisms are found virtually everywhere, including water, soil, plants, animals and the human body. Bacteria provide numerous benefits to the environment, including the decomposition of organic matter like breaking down leaves and plants to nourish the soil. Bacteria also serve several functions in the human body, including assisting with digestion, aiding the immune system, and protecting against harmful and disease-causing invaders, known as pathogenic microbes.

Not all bacteria have positive functions. Some bacteria are harmful to humans and other living animals and will cause disease to the host. Common diseases that affect humans, which are caused by bacteria, are strep throat, ear infections and pneumonia. One example of potentially harmful bacteria is pathogenic strains of *Escherichia coli*, or more commonly referred to as pathogenic *E. coli*.

E. coli occurs naturally in the gut of humans and other warm blooded animals. The main function of *E. coli* is to aid in digestion and fight off pathogenic microbes. But there are other strains of *E. coli* that can cause disease in humans—often due to the transfer from livestock (for whom these strains are harmless) to humans. “Food poisoning” is sometimes caused by pathogenic *E. coli* entering the body through undercooked, contaminated foods. Pathogenic *E. coli* can also be transferred to humans through contaminated water, causing similar symptoms to that of food poisoning.

E. coli is found in human and animal waste (also known as fecal matter or poop), as can other microbes that could potentially cause illness. This becomes problematic when waste products come in contact with rivers, lakes, or even rain water. Rain water can potentially transport bacteria to creeks, rivers, and lakes.

Close to Home

Contact with water contaminated with pathogenic *E. coli* can occur when swimming in or ingesting untreated water, like a lake or river. Water from a municipal supply or a chlorinated swimming pool is treated in a manner to kill off these unwanted and harmful bacteria. Natural water, like that found in a river is not treated, so these natural bacteria can enter and live in this environment. The Russian River and its tributary creeks are no exception. Water quality monitoring has confirmed the presence of bacterial contamination due in part to human and domestic animal waste. Human contact with contaminated water can result in an infection and illness. As a result, the North Coast Regional Water Quality Control Board is working on a plan to ensure recreational waters do not contain pathogens above the expected natural level.

What Can You Do?

It is important for every member of the community to do their part to reduce the amount of bacteria entering the creeks, rivers, and lakes. If you spend time outdoors and don't have access to a restroom, it is important to abide by the “pack it in, pack it out” rule for your own human waste and disposing of it in the trash. Picking up



Russian River Watershed Association

300 Seminary Ave, Ukiah, CA 95482 • (707)833-2553 • www.rwatershed.org

pet waste is one of the best ways to cut down on the amount of bacteria entering creeks. If you own a pet, pick up animal waste in your yard on a regular basis. Also, carry a bag with you when walking your pet to pick up waste along the way, and dispose it in the garbage. Bagging your pet's poop on every occasion is an easy way to keep millions of potentially harmful bacteria from entering our waterways.

This article was authored by Colleen Hunt of the North Coast Regional Water Quality Control Board and Erin Mackey of West Yost Associates, on behalf of RRWA. RRWA (www.rwatershed.org) is an association of local public agencies in the Russian River Watershed that have come together to coordinate regional programs for clean water, fisheries restoration, and watershed enhancement.