

# Regional Approaches to Water Protection from Nonpoint Sources of Microbial Contaminants

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## **Background:**

Land managers are seeking reliable management practices to reduce the risk of microbial and nutrient (including nitrogen and phosphorus) contamination of surface waters. Practices recommended, such as buffer strips, may be effective in controlling both domestic and wild animal sources of pathogens and nutrients. Demonstrations and research plots in California indicate that such practices can be effective in preventing off-site movement of pathogens associated with rangelands. Increased regulatory emphasis on surface water protection in alpine environments has led to a need to broaden educational efforts related to land management and demonstrate effectiveness of management practices in alpine and tropical watersheds. Cooperative Extension can play an important role in supporting the U.S. Environmental Protection Agency's regional water quality protection efforts by facilitating delivery of useful information. This includes information about pathogens and nutrients, sources and management practices to minimize the potential for water contamination. However, in order to maximize the effectiveness of extension efforts, community-based faculty need training and educational materials so that they are fully equipped to educate their local audiences about effective implementation of these beneficial management practices. This includes an evaluation of effectiveness of and need for management practices in very diverse climatic, vegetative, and soil zones (alpine and tropical).

## **Activities:**

This one year project will involve participants and collaborators from three state universities (Nevada, California and Hawaii), one safe drinking water primacy agency (Nevada Bureau of Health Protection Services) and a public water suppliers group in the alpine Lake Tahoe area. The project will focus on education, research and demonstration. Work in the Lake Tahoe area will include development of management

plans to identify and prescribe controls for potential nonpoint sources of microbial and nutrient contamination. This will involve application of geographic information systems to identify specific combinations of physical characteristics that suggest risk of off-site contamination and potential to affect raw water supplies used for drinking water. Educational work will target Extension staff and cooperating state and federal agencies who have a strong interest in developing voluntary approaches to nonpoint source management. Demonstrations will feature ongoing work with buffer strip evaluations in California, under the management of the University of California at Davis. Finally, researchers in Hawaii will evaluate effectiveness of buffer strips in preventing microbial and nutrient movement in tropical settings.