

Quality of Groundwater and Surface Water, Wood River Valley, South-Central
Idaho: July and August 2012

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Residents and resource managers of the Wood River Valley of south-central Idaho are concerned about the effects that population growth might have on the quality of groundwater and surface water. As part of a multi-phase assessment of the groundwater resources in the study area, the U.S. Geological Survey evaluated the quality of water at 45 groundwater and 5 surface-water sites throughout the Wood River Valley during July and August 2012. Water samples were analyzed for field parameters (temperature, pH, specific conductance, dissolved oxygen, and alkalinity), major ions, boron, iron, manganese, nutrients, and *Escherichia coli* (*E.coli*) and total coliform bacteria.

This study was conducted to determine baseline water quality throughout the Wood River Valley, with special emphasis on nutrient concentrations. Water quality in most samples collected did not exceed U.S. Environmental Protection Agency standards for drinking water. *E. coli* bacteria, used as indicators of water quality, were detected in all five surface-water samples and in two groundwater samples collected. Some analytes have aesthetic-based drinking recommended drinking water standards; one groundwater sample exceeded recommended iron concentrations. Nitrate concentrations varied, but tended to be higher near population centers and in agricultural areas than in tributaries and less populated areas. These higher nitrate concentrations were not correlated with boron concentrations or the presence of bacteria, common indicators of sources of nutrients to water. None of the samples collected exceeded drinking-water standards for nitrate or nitrite.

Time-series plots of historical water-quality data indicated that nitrate does not seem to be increasing or decreasing in groundwater over time; however, time-series plots of chloride concentrations indicate that chloride may be increasing in some wells. The small amount of temporal variability in nitrate concentrations indicates a lack of major temporal changes to groundwater inputs.