

Study Component	What data are collected and why	Number and types of sites sampled	Sampling frequency and period
Stream Chemistry			
Basic fixed sites	Samples were analyzed for major ions, nutrients, organic carbon, and suspended sediment. Samples were analyzed for trace elements at 5 sites. Selected samples were analyzed for bacteria. Daily streamflow data also were collected. Data were collected to describe the occurrence and distribution of constituents.	10 sites, consisting of 6 sites on tributaries representing mineralized, forested, rangeland, and mixed land-use areas; and 4 sites on the Yellowstone River, representing areas of mixed land use.	Monthly plus additional high-flow samples, January 1999 through October 2001.
Intensive fixed sites	In addition to data collected for basic fixed sites, samples were analyzed for pesticides. Data were collected to describe the occurrence of pesticides and to refine descriptions of seasonal variability of multiple constituents.	Three of the basic fixed sites representing areas with more intensive agricultural land use.	Biweekly to monthly plus additional high-flow samples, January 1999 through December 1999.
Bacteria synoptic	Samples were analyzed for fecal coliform and <i>Escherichia coli</i> to determine the distribution and abundance of coliform bacteria.	One hundred sites on small and large streams with varying land use in the Wind River, Bighorn River, and Goose Creek basins of Wyoming.	June and July 2000.
Stream Ecology			
Basic and intensive fixed sites	Measurements of habitat and samples of algae, invertebrates, and fish community. Biological and habitat indicators of stream quality.	Stream sizes included 3 small, wadeable tributaries that were land use indicator sites, larger tributaries that integrated land uses in the basins, and 4 large river sites on the main stem Yellowstone River.	All were sampled once during August-September, 1999.
Multi-year and multi-reach sites	Measurements of habitat and samples of algae, invertebrates, and fish community. To test variability between years and between reaches.	2 fixed sites were selected for multi-year sampling, and 1 site for multi-reach sampling.	Multi-year sites were sampled once per year during 1999-2001 for all data types, and in 1998 for fish. 3 reaches were sampled at 1 site once during 2001.
Bed sediment and fish tissue survey	Bed sediment and fish tissue samples were analyzed for organic compounds and trace elements, to determine occurrence and distribution.	24 sites were sampled, including the 10 basic and intensive sites, and 14 other land-use indicator and integrator sites.	Once during July to September 1998.
Algal-nutrient study	Samples of nutrients, algae, invertebrates, and measurements of water properties and selected habitat characteristics, to evaluate the trophic condition of the Yellowstone River and tributaries.	Samples were collected at 11 sites on the main stem Yellowstone River and 5 sites on tributaries.	Once during August 2000.
Ground-Water Chemistry			
Major aquifer survey-Quaternary unconsolidated-deposit aquifers	Major ions, trace elements, nutrients, volatile organic compounds, pesticides, pesticide breakdown products, and radiochemicals (including radon). To broadly assess water quality in these aquifers.	24 monitoring wells installed for this study plus 1 domestic well.	Once in October 1999-March 2000.
Major aquifer survey-Lower Tertiary aquifers	Major ions, trace elements, nutrients, volatile organic compounds, pesticides, pesticide breakdown products, and radiochemicals (including radon). To broadly assess water quality in these aquifers.	15 domestic wells, 8 wells used for both domestic and stock purposes, and 6 stock wells.	Once in July 2000-June 2001.
Land-use monitoring well survey	Major ions, trace elements, nutrients, volatile organic compounds, pesticides, pesticide breakdown products, methylene blue active substances, chlorofluorocarbons (for age dating), and radon. To determine the effects of land use on shallow ground-water quality in these aquifers.	Installed 29 wells about 5 to 10 feet below the water table underlying low-density development surrounding Sheridan (Wyoming), Lander (Wyoming), and Red Lodge (Montana).	Once in June-September 2001.