

# **Streamflow and water quality monitoring West slope of Mt. Mansfield**

1998 Annual Report

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The USGS, in collaboration with the VMC, established a stream gage at Nettle Brook on the west slope of Mt. Mansfield in September 1993. A 90-degree V-notch weir was installed in the stream channel. Water levels are tracked by a float in a stilling well in hydraulic contact with the pool behind the weir. The rise and fall of the float drives a potentiometer which electronically records the pool level at 5-min intervals. Pool level is converted to discharge by a theoretical equation which has been validated by volumetric measurements. Streamflow data are collected continuously by datalogger and archived after each monthly site visit.

The 11-hectare catchment has been used for water quality studies, including nitrogen cycling and mercury biogeochemistry. Data quality is generally very good, but editing for the inevitable occurrences of backwater from ice and vegetative debris is performed on an "as needed" basis by standard USGS techniques.

The 1998 water year (October 1997 through September 1998) was wetter than average in northern Vermont, particularly in the summer of 1998. In the fall (of 1997), a dry October and December were balanced by a wet November. A significant thaw came (uncharacteristically) early in January, followed by minor thaws in mid-February and early March. Record heat in late March melted a large portion of the snowpack, leading to near record levels on Lake Champlain and a somewhat damped but respectable peak flow at the elevation of Nettle Brook. The low snowpack and light precipitation led to well below average flow in April and May. This situation reversed markedly in June. The summer of 1998 was very wet, with many storms and several very high flow events. This pattern continued through the end of September.

There was little demand for editing of the streamflow data in water year 1998 as there were no active water quality monitoring projects. However, the data appear to be largely free of major artifacts from ice and debris.