

Aquatic Macroinvertebrate Monitoring at the Vermont Monitoring Cooperative Research Site Underhill, Vermont

by the
Vermont Department of Environmental Conservation

1998 marks the 8th year that the Vermont Department of Environmental Conservation (VTDEC) has sampled the aquatic macroinvertebrate communities at two stream sites in the upper Brown's River drainage basin on the western slope of Mount Mansfield. Both sites are located at an elevation of 1400 feet on small first-order mountain streams: Browns River and Stevensville Brook. These streams are steep and rocky and are subject to extreme variations in flow. Drainage areas are small and predominantly forested. These sites represent conditions that are minimally affected by human activities other than atmospheric deposition. Long-term sampling is undertaken at these sites in order to gather data describing the natural variability of aquatic macroinvertebrate communities between years.

Macroinvertebrates are sampled once per year using standard semi-quantitative methods during the months September-October. Samples are collected from riffle areas of the streams to standardize for physical habitat type. Organisms collected are identified to the lowest practical level, generally genus or species. Methodologies are consistent with those used by VTDEC in statewide monitoring programs making data comparable across a wide range of monitoring sites in Vermont.

Macroinvertebrate taxonomic data are used to calculate "metrics" descriptive of community structure and function. These metrics include: relative abundance; number of mayfly, stonefly, and caddisfly taxa per sample and per site (M-EPT and T-EPT); biotic index (after Hilsenhoff-indicator of organic enrichment); percent composition of the functional groups Detrivore-Shredders and Collector-Gatherers; and percent composition of stoneflies and mayflies. The following table summarizes the eight year statistics for these metrics.

Vermont DEC will continue to monitor these two sites in order to further refine descriptions of natural variability within the structure and function of macroinvertebrate communities inhabiting steep rocky mountain streams in the Green Mountains of Vermont.