



## **The Vermont Water Resources and Lake Studies Center**

### **A Brief History...and a Look Ahead**

The Vermont Water Resources and Lake Studies Center at the University of Vermont is one of 54 institutes established by Congress through the Water Resources Research Act of 1964. Throughout its history, the Vermont Water Center has served the citizens of Vermont by supporting research on major issues of concern to the state, by distributing information on water resources throughout Vermont, and by helping to educate students about water resources.

Early Water Center research programs included USDA-SCS funded projects of more than 10 years duration on issues related to agricultural water quality and best management practices. Recent efforts have focused on Lake Champlain and non-point source pollution.

### **Serving Vermont**



**Through USGS-supported research on relevant state-wide water issues**

#### ***Lake Champlain:***

....a team of UVM scientists is experimenting with the use of satellite imagery to detect the presence and extent of blooms of blue-green algae in Lake Champlain and other Vermont lakes. Analysis this past summer using Landsat imagery clearly demonstrated its potential to detect and characterize algal blooms from space.

While spatial and spectral limitations of Landsat imagery are a concern, ENVISAT, a recently launched Earth observation satellite, carries a MERES sensor specifically designed to analyze color. UVM investigators will be evaluating MERES imagery of Lake Champlain next summer in the hope that this technology might revolutionize our ability to monitor algal blooms in Vermont lakes.

#### ***Water Resources in Ski Areas:***

....high elevation forested ecosystems are particularly vulnerable to stresses from development. Because ski resorts are common throughout Vermont's Green Mountains, scientists from UVM and the USGS have begun to assess the hydrological and water quality effects of ski area development on high elevation streams.

Using a paired watershed approach on the eastern slopes of Mt. Mansfield, scientists have already detected a distinct difference in runoff volume and water quality between the developed and undeveloped watersheds. Analyses to date show elevated levels of suspended solids likely coming from ski trails and parking lots and some contamination of streams by deicing salts. Future work will include a hydrological model designed to assess the effects of current development and future scenarios on stream flow and water quality.



### **Through Privately Funded Initiatives**

Now in its 4<sup>th</sup> year, the Burlington Bay Project, supported by funds from the Green Mountain Power Corporation, continues to track issues of concern to Vermonters in the near-shore waters of Lake Champlain. During this past summer, we continued our work on the detection of blue green algal blooms in the lake and the presence of toxins they release. A series of analyses and toxicity tests have indicated that, while these blooms are releasing several potent human toxins, more work is needed to determine the risk these compounds pose to human health.



### **Through Outreach**

The Vermont Water Center continues its efforts to assist the campus and local communities with the issue of storm water runoff. Working with UVM campus planners, Water Center scientists have begun to monitor the water quality of streams impacted by runoff from university property. By measuring such pollutants as suspended sediments and *E. coli* and monitoring the biological communities in the affected streams, we can help the university develop the most effective ways to reduce storm water impacts.

In addition, we have begun to meet with neighboring communities to assist them as they struggle to meet their obligations as Phase II regulated storm water municipalities. Since many communities may affect the same stream, it makes sense to have local towns develop coordinated approaches to address this complex issue.



Detection Basin on the UVM campus

For more information about the Water Center, visit our web site at [www.uvm.edu/snr/vtwater](http://www.uvm.edu/snr/vtwater).