



Cold River Local Advisory Committee
P.O. Box 68, South Acworth, NH 03608
Serving the Watershed Towns Of: Acworth, Alstead,
Charlestown, Langdon, Lempster, Marlow, Unity & Walpole
Online at: www.coldriver.org

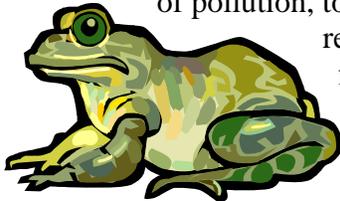


COLD RIVER WATER QUALITY CHARACTERIZATION PROJECT

Sampling Results: 2006

The Project: Now in its fifth year of service to the towns in the Cold River watershed, the Cold River Local Advisory Committee's (LAC's) sampling team is pleased to present the latest results of its innovative watershed-wide characterization project. The project focuses on assessing surface water quality and flow by developing a comprehensive long-term database of representative physical, chemical and biological measurements at 29 key sites in Acworth, Alstead, Langdon, Lempster and Walpole.

Why Are We Doing This? Landowners in the watershed towns have repeatedly identified water quality as a significant concern in detailed surveys. The LAC is completing this project to better understand the watershed we live in, to identify new or recurring sources of pollution, to encourage discussions in our communities about water



resources and to provide an objective and credible scientific basis for local, state and federal planning and law enforcement decisions. The data needed to make those decisions are not being collected on a regular basis by those agencies due to resource limitations.

How Are We Funded? We are an all-volunteer group that is largely self-funded. In 2003, we purchased state-of-the-art sampling equipment by securing local donations and grants from the CT River Joint Commissions and New England Grassroots Environmental Fund. The equipment has allowed us to develop an extensive and quick but accurate sampling program that is cost-effective. We've also received valuable technical assistance and partial lab fee funding from the NH Department of Environmental Services (DES).

What's So Special about the Cold River Watershed? The Cold River was recognized as a significant statewide natural, cultural, scenic and scientific resource by the NH Legislature in 1999 upon acceptance as a Designated River. It is one of only 14 such rivers in the state. The watershed is regionally, nationally and globally recognized for its outstanding wildlife habitat and plant communities. The rural character of the watershed creates opportunities for working forests, farms, recreation and peaceful homes.

Water Quality Testing Results: Between 07/06 and 11/06, water quality in the Cold River and its tributaries generally remained *Good* to *Excellent*, but was occasionally *Poor*:

- ▶ **Dissolved Oxygen** is the amount of oxygen in the water, which is critical to aquatic life. All measurements were well above the minimum standard of 5.0 mg/L.
- ▶ **pH** is the acidity of water, which can impact fish health. Many measurements were below the minimum standard of 6.5, most likely due to local geology, wetlands and acid rain.
- ▶ **Turbidity** is the amount of suspended material in the water. Most Turbidity readings were very low but high levels continued to be observed in portions of the watershed damaged by

the October 2005 flood. These areas remain highly vulnerable to erosion by rain storms that wash sediment from exposed stream banks into the water.

- ▶ **Specific Conductance** is an indicator of pollutants such as road salt, septic waste or yard and field runoff entering the water. Specific Conductance was low on all occasions but an anomalous spike in the readings was observed in August on Crane Brook.
- ▶ **Temperature** ranged from 42°F to 80°F. Temperature is a critical parameter for many processes, and values in excess of 70°F are considered stressful to lethal for trout/salmon. Low temperatures were generally observed but elevated temperatures were periodically recorded for the river, Warren Brook and Crane Brook.
- ▶ **Bacteria (*Escherichia coli*)** presence may suggest harmful pathogens in the water. Five sites, including three swimming holes, exceeded the maximum standard after a summer rain storm. Bacteria sources may have included animal waste or septic effluent.
- ▶ **Phosphorus (P) and Nitrogen (N)** can increase algae and plant growth and decrease the amount of oxygen in the water. Possible sources of P/N include natural materials, residential/agricultural fields and septic systems. Low P/N levels were generally observed over the summer but elevated levels were seen on Crane Brook and Great Brook.
- ▶ **Aluminum and Other Metals** can be toxic to aquatic life. One Aluminum measurement exceeded the applicable standard. Copper, Lead and Zinc were not detected.
- ▶ **Chloride** can be toxic to aquatic life. Very low Chloride levels were observed at all sites. Springtime testing is being considered to evaluate possible road salt impacts.

Water Flow Monitoring Results: The LAC measured stage (stream level) at most sampling sites. Stage is directly proportional to flow and can impact water chemistry. Stage readings were within previously observed ranges. The LAC also participated in the NH Stream Gauging Task Force to assess the status of the state's current stream flow monitoring network. The Task Force's September 2006 report to DES recommended adding 17 new flow gauges to the network, including at least one on the Cold River to replace the Drewsville Gorge (Walpole) gauge abandoned in the 1970's.



Biological Sampling Results: Aquatic insects are a staple in the diet of trout and salmon, and healthy populations of insects and fish are good overall indicators of stream quality. The LAC did not collect macro-invertebrate (aquatic insect) samples in 2006. However, portions of the watershed damaged by the October 2005 flood were the focus of detailed macro-invertebrate and fish community studies by DES and the NH Fish & Game Department. Preliminary findings from the studies suggest (a) insect and fish populations destroyed by the flood may be beginning to partially recover and (b) aquatic habitat damage remains severe with increased sedimentation and fewer deep pools. Temperature data from Warren Brook and the lower Cold River (Walpole) suggest that those stream reaches are marginally suitable for wild brook trout in the summer.



For more information on this project, contact the LAC (835-2328) or DES (271-2083). New volunteers are always welcome and needed. A detailed report on the 2006 results is available at <http://www.des.state.nh.us/wmb/vrap>.