

## **Poultney Mettowee Watershed Progress Report 2001-2002**

### **The Watershed Planning Process**

#### **Poultney Mettowee Watershed Partnership Enhancement**

The Statewide Framework Committee has proposed that local “Watershed Councils” should be formed in each basin to assist in the creation of a basin plan. In some basins an existing local organization may serve this role without having to create a new entity. In a collaborative effort with the Agency of Natural Resources, the Poultney Mettowee Watershed Partnership has agreed to assume the role of the Watershed Council (as it relates to the *Guidelines for Watershed Planning*) in making recommendations to the Secretary of the Agency of Natural Resources regarding the Poultney Mettowee Watershed Plan. The meetings, forums, and focus group discussions conducted by the Poultney Mettowee Watershed Partnership will be open to the general public, and will contain all required elements for state and federal obligations regarding the Agency of Natural Resources Watershed Improvement Project.

Initial efforts were made to enhance the representation from all interest groups in the basin. One of the difficulties noted early on in this process was the effort to enhance the stakeholder participation within the existing Watershed Partnership so as to make this planning body representative, balanced, and inclusive. Initial public meetings hosted by VTDEC provided an introduction to basin planning as well as to include constituencies not yet represented. As a result, several different stakeholder groups were identified and included in the basin planning in the Poultney Mettowee watershed.

Since 1998, the Poultney Mettowee Watershed Partnership has pursued the goals of assessment, prioritization, and project completion to produce effective returns. Most of these projects have focused on education and outreach, such as the Poultney Educational Trail, the Public Attitudes Survey of residents on water quality, storm-drain stenciling, and the Watershed Festival of 2001. The Partnership members represent watershed interests from various backgrounds including farmers, foresters, loggers, business owners, municipal officials, anglers, local watershed organizations, environmental groups, teachers, utility companies, regional planners, and slate quarry operations. The Watershed Partnership is guiding the development of the watershed plan and assist in the implementation of watershed restoration projects. The Watershed Partnership meets regularly to formulate a collaborative approach to resolving high priority water quality issues.

#### **Public Forums**

Seven public forums and six focus group discussions were held throughout the watershed to listen to residents concerns and visions regarding water quality issues in the Poultney and Mettowee River Watersheds. Issues, concerns, and project areas were later ranked through mailings, press releases, and through a website download. Four of the focus group meetings specifically targeted farmers, loggers, and foresters in an effort to address concerns regarding loss of the working landscape and it’s associated degradation of water quality. The top issues of the forums were ranked, and are being used to direct the Watershed Partnership on developing

strategies, securing funds, and recruiting technical advisors to improve water quality through collaborative projects throughout the basin.

### **Panel Discussions**

In an effort to provide water quality information to watershed residents and the Watershed Partnership, several panel discussions have been held that include presentations, and question and answer sessions between technical resource contacts and the Partnership members and residents regarding the top water quality issues. Panel discussion topics have included impaired waters, agricultural AAPs and BMPs, and fluvial geomorphology. Background material and scientific assessment results regarding various issues will allow the Partnership to develop strategies and prioritize water quality issues that will be used in the watershed plan development.

### **Media Coverage – Outreach & Education**

The watershed coordinator participated as a featured guest on the WVNR radio program, “Coffee Break” with Marli Rupe (PMNRCD), to discuss basin planning and the collaborative efforts now taking place between the Poultney Mettowee Watershed Partnership and VTDEC to initiate basin planning and develop a watershed plan. In addition, the watershed coordinator has written several articles, which have appeared in local and regional newspapers, regarding the basin planning process underway in Rutland and Addison Counties. Also, newsletters describing the watershed planning process have been printed for the Poultney Mettowee Natural Resource Conservation District, the Poultney Mettowee Watershed Partnership, the Rutland Regional Planning Commission, and the Lakes and Ponds Section of the VTDEC Water Quality Division.

The watershed coordinator has conducted basin planning presentations on the Poultney Mettowee Watershed planning process to the Vermont Slate Quarries Association; the Vermont Federation of Lake Associations; The Vermont Farm Bureau; The Addison County RPC; The Bennington RPC; The Windham Regional Planning Commission/ Natural Resources Committee and the Windham NRC; the Lake Champlain Basin Program Staff; the National Fish & Wildlife Foundation staff; the West River Alliance; the supervisors of the Bennington, Rutland, and Otter Creek NRCs; and the Board of Commissioners of the Rutland Regional Planning Commission.

The watershed coordinator has conducted several “Focus Group” meetings with different stakeholder groups to discuss issues and concerns, and to develop priority (project) areas for the working landscape (forest products industry), agricultural producers, water-based recreational interests (i.e., marinas), and lake associations.

## **Watershed Restoration Projects and Assessments**

### **Stream Stability/ Geomorphic Assessments**

Stream stability assessments have been completed for the Poultney, Castleton, and Hubbardton Rivers. A stream stability assessment of the Mettowee River was conducted last season, and additional survey work will take place this season to complete geomorphic assessments of the entire watershed. These assessments are being digitized onto GIS coverages where they will have practical implications projects throughout the watershed. The assessments will be used to target

unstable stream segments for flood remediation and infrastructure protection and to identify reference stream segments for protection.

The watershed coordinator has been involved in rapid geomorphic assessments within the Mettowee River watershed. The use of geomorphic assessments has proven to be very valuable tools for planning and water quality management. Benefits of watershed level assessment include:

1. Statistical info for planning (the maximum length of a stretch of riparian corridor with no buffers along the Mettowee is 1350 meters).
2. Analysis of relationships between parameters (48% of erosion in the Poultney River occurs along 24% of its length).
3. Identify areas with good habitat features (mapping river type and river bottom substrate for the protection of threatened or endangered species).
4. Prioritize restoration sites (what impact will the stabilization of one area have on another – way to coordinate remedial efforts for a given scale).
5. Compare many different things (good habitat, rare species, LWD, type).

These analyses are being developed for planning purposes along the assessed river and tributaries in Basin 2 overall (Poultney and Mettowee Rivers). Additional geomorphic assessments are being planned for the remaining large tributaries to the Mettowee River for the upcoming 2002 field season.

### **Dam Assessment**

The State of Vermont is continuing an interdisciplinary inventory and evaluation of dams in a collaborative project between the Agency of Natural Resources and the State Historic Preservation Office. Work will begin in the Poultney-Mettowee watershed, and continue in the Otter Creek watershed as time and compensation/ credit allows. The assessment team will gather information on all known dams in these watersheds, including the physical characteristics and condition of the dam, geomorphic and aquatic habitat characteristics of the river reaches above and below the dam, the riparian zone, and the historic context of the site. Most of the team's time will be spent in the field with limited supervision, following an initial training and orientation period.

DEC's Planning Section has initiated the watershed planning process in these watersheds. Top water quality issues will be identified and prioritized. Watershed plans will develop strategies that will lead to implementation of watershed restoration projects. The results of the dam inventory and assessment will be used to target dams for removal as part of river restoration initiatives.

### **Hubbardton and Poultney River Buffer Initiative**

An ongoing collaborative effort between the Poultney Mettowee Watershed Partnership and state and federal agencies to engage in watershed restoration projects such as streambank stabilization, riparian buffer establishment, and cattle exclusion of approximately 50 acres along the Hubbardton and Poultney Rivers. The watershed coordinator has collaborated on the implementation of Hubbardton River Watershed Initiative – a demonstration Project based on the

Poultney River Assessment Report by The Nature Conservancy and Green Mountain College. A grant through the National Fish & Wildlife Foundation was awarded for the Hubbardton River Watershed Initiative, which includes a riparian buffer initiative on the mainstem of the River. Many landowners along the mainstem of the Hubbardton are participating in this unique restoration project, which will ensure a greater degree of long-term restoration of this unique clayplain forest and riparian corridor.

During the spring of 2002, the Poultney-Mettowee Natural Resources Conservation District and Watershed Partnership recruited volunteers to help plant 2500 trees along sections of the Hubbardton and Poultney Rivers. These trees are being paid for by the US Fish and Wildlife Service, and a grant from the National Fish and Wildlife Foundation, and will help stabilize streambanks, provide shade to cool the river, and create sources of wildlife food and habitat. Along the Hubbardton River, tree species were chosen that were native to the original clayplain soils of the area, in an attempt to reclaim the clayplain forests.

### **Castleton River Working Group**

A newly formed riparian landowner conservation group has organized to address water quality issues in the Castleton River. The group hopes to further assess water quality conditions and inventory natural resources features associated with riparian habitat. A Phase I and II geomorphic assessment process has been identified as the next step to document how previous and on-going land uses have affected water quality conditions. As a result of this assessment, the group hopes to identify unstable reaches of the river and through a prioritization process, develop strategies to address those sites. The ultimate goal of this riparian landowner group is to adopt a stewardship ethic for the river, and use a collaborative approach in solving water quality problems.

### **Vermont Youth Conservation Corps**

The Watershed Coordinator assisted the Vermont Youth Conservation Corps (VYCC) on streambank restoration projects, invasive plant management, and outreach and education in the watershed. Through a collaborative effort with the Poultney Mettowee Watershed Partnership, the Watershed Coordinator assisted ten members of the Vermont Youth Corps during the summer of 2001 to promote clean water in the Poultney Mettowee Watershed. The crew painted 165 storm drains in Fair Haven. While in the village, crewmembers went door-to-door, handing out information sheets from the Lake Champlain Committee listing things residents can do to protect water quality. Crewmembers also hung-up colorful posters around town with anti-pollution messages.

Other projects that the Youth Corps crew completed while stationed in the watershed included streambank clean up along the Poultney River, pulling invasive water chestnuts for The Nature Conservancy on Lake Champlain near Benson, and removing black swallowtail plants from roadsides in Castleton. The group also helped the Poultney Mettowee Natural Resources Conservation District clear brush from a new nature trail in Poultney.

This year (2002), the VYCC crew had undertaken a streambank stabilization project using tree revetments on the Poultney River. An old agricultural dump on the banks of the Hubbardton River in Benson is also being targeted for clean-up this season. This clean-up project is the result of Vermont Land Trust grant conditions for the farm where the old dump is located.

## **Mettowee River Valley Projects Update:**

### **Thermal Monitoring in the Mettowee River**

The Mettowee River Thermal (TMDL) Restoration Project includes the completion of a rapid habitat and geomorphic assessment of the mainstem and several tributaries. This assessment and survey work will contribute to the greater thermal modification project that will result in recommendations included in the basin plan for remediating the thermal impairment of the Mettowee River. The Mettowee River is listed on the Vermont 303(d) List (EPA) of Impaired Waters for temperature modification. Recently, several different partners are monitoring the temperature of the Mettowee River. As a result of this research, recommendations for streambank management or riparian plantings to shade the river and lower water temperature will be made. In spring and summer 2002, the monitoring and shade modeling work was expanded into New York State.

### **Data Collection**

The summer of 2001 proved to be very cooperative with regard to data collection and environmental conditions. The hot and dry conditions that existed during data collection should be beneficial to calibrating the temperature model as it predicts upper limit temperature conditions in the river. Over the course of two months, August and September, ENSR (project contractor) conducted a number of field data collections. These included the placement of 10 in-stream temperature sensors that recorded hourly temperatures. These sensors were spaced throughout the length of the Mettowee River Valley. Other data collection included physical and chemical water quality parameters, riparian vegetation condition, flow, and channel morphology. A weather station was erected in the watershed to supply local weather conditions to support the modeling effort. Maximum temperatures observed in the river during the summer of 2001 were in excess of 82 EF.

### **Next Steps**

The contractor is currently developing a target temperature criteria based on the fish species previously known to inhabit the Mettowee. This criteria development will result in a technically defensible target value to be applied in evaluating modeling results and alternative TMDL allocation alternatives.

Over the course of this spring (2002), ENSR will develop the selected temperature model and calibrate it to best represent the conditions observed in the river. Once the model is calibrated, various scenarios can be “run” to determine the result on water temperature in the river. These scenarios might answer such questions as “What changes might need to occur to prevent the maximum temperature criteria from being reached on a regular basis?” or “Under ideal conditions, what types of temperatures might one expect to see?” The results of these modeling scenarios will help direct the on-the-ground actions needed to best protect the river.

During the spring (2002), the contractor presented specific recommendations for actions and alternative management scenarios based on the thermal model. A final report will be submitted to VTDEC and will be available for public review. Several meetings will be held to both present the results of the project and to receive comments.

### **Mettowee Valley Road Run-off Management**

A recent study conducted with support from the Lake Champlain Basin Program identified one of the greatest sources of water pollution in the south end of Lake Champlain to be sediment and run-off from gravel roads. Researchers estimated that the quantity of sand and gravel that reaches the lake each year, from Rutland County would cover a football field twenty feet deep.

With the help of Cornell Cooperative Extension, in 2000 the Partnership received grants from the Lake Champlain Basin Program and the Vermont Better Back Roads Program to plan, design, and install ditch line-settling basins to trap sand and gravel run-off from steep dirt roads in the Mettowee River valley. The National Fish and Wildlife Foundation and the Towns of Granville, New York and Pawlet, Vermont also provided in-kind and financial support for the project.

As part of the project, highway crew personnel in Granville and Pawlet received training in spring 2001 on installing and maintaining basins by the New York State Soil and Water Conservation Committee. Another component of the project is to measure and evaluate the effectiveness of the basins and facilitate knowledge to other communities.

### **Upper Mettowee River Restoration**

Reforestation, sediment control, and public education awareness in the upper Mettowee River basin will be done with the help of a grant from the National Fish and Wildlife Foundation. The project will encourage farmers and other landowners to adopt improved management practices. Thermal pollution and siltation in the upper Mettowee are the two greatest threats to this river, which is listed on the impaired waters list. It is expected that by addressing these problems, cold-water fisheries habitat will be improved and wildlife that uses riparian zones will become more abundant.

Partnership members Vermont Fish and Wildlife Department, Vermont Department of Environmental Conservation, and USDA Natural Resources Conservation Service have considerable data on the most impaired reaches and have completed preliminary designs for planting and fencing projects. It is expected that very little land will be taken out of production by this project. In the long run, this work will save additional productive acreage from being washed away by the river. Funding will also go to produce informational signage at river access areas describing the objectives of the project and the kinds of activities that have been undertaken.

## **Impaired Waters Remediation Efforts**

### **Mettowee River – Impairments due to Agricultural NPS Pollution**

Impairment designation originally based on narrative/descriptive and observation-based information from the late 1980s. No pollutant specific monitoring data. No documented VT WQS violations. A 6-mile segment of the Mettowee River that is a subset of this 9-mile stretch appears on Part A of the 1998 List of Waters for temperature caused impairments.

### **Poultney River – Impairments due to Agricultural NPS Pollution**

Both the Poultney and Mettowee Rivers and their tributaries have been listed as “impaired” due to agricultural nonpoint source pollution. Agricultural waste (manure) runoff is the largest contributor to water quality impairment, contributing approximately 55% of the NPS phosphorus

loads to Lake Champlain (according to LCBP's "Opportunities for Action"). It is clear that education to non-agricultural producers continues to be a major need in watershed restoration efforts in these impaired waters.

Over-application of nutrients (fertilizer), silage leachate and manure cause excess runoff to enter surface and ground water, resulting in degraded water quality. Uneven distribution of manure application due to distance to fields from the farmstead exacerbates this problem. The primary need is for waste management systems where none currently exist. Traditionally, manure storage facilities and improved barnyards have been the solutions of choice. Lack of funding in both Rutland and Bennington counties has limited the number of farms able to install the extremely costly waste storage and barnyard runoff control facilities (source – Rutland County NRCDC Assessment).

According to the Vermont Department of Agriculture, there are 81 active dairy farms in the Poultney Mettowee Watershed (2001). Of these, 18 have manure storage facilities and 42 have improved barnyards. Of the remaining farms, a handful have contributed phosphorus (P) from agricultural waste sources at a rate greater than 100 pounds per farm. Targeting these farms would address more than 50% of the contributing P (data obtained from Lake Champlain drainage basin baseline reports).

Strategies developed to date to address impairments due to agricultural sources have relied on collaborative relationships with agricultural cooperators in the basin – to continue to work cooperatively with NRCS, Conservation Districts, VT Department of Agriculture, and landowners on increasing BMP and buffer establishment efforts. Ongoing nutrient management and whole farm planning continues to take place in order to reduce nutrient and sediment inputs through EPA 319 grant funding as well as general education and outreach. Efforts are underway to collaborate with the Agricultural Resource Specialist with the Dept. of Ag to produce the agricultural component of the basin plan.

**Source of impairment:** The impairment designation was originally based on narrative/descriptive and observation-based information from the late 1980s. No pollutant specific monitoring data. No known or documented VT WQS violations that apply to this 12-mile stretch. A shorter, more specifically defined segment of the Poultney River that is a subset of this 12 mile entry is found and appears on Part A of the 1998 303(d) list of impaired waters. The impairment designation based on data (collected in 1991 and 1997) from DEC biological monitoring efforts. Biological monitoring done by VT DEC in 1998 showed the Poultney River in the area/vicinity ABOVE the Castleton River confluence had an overall rating of "good." Such a rating indicates the Poultney River meets Class B criteria of the VT Water Quality Standards. The 0.5 mile portion of the Poultney River located BELOW the Castleton River confluence is considered to be part of Waterbody VT02-01 which remains impaired and is found on Part A of the Year 2000 303d List of Waters. 1998 EPA 303(d) Guidance does not require listing as the impairment is not due to pollutant loading and therefore is not amenable to TMDL development. Phosphorus standard applies to South Lake B segment of Lake Champlain, NOT to river. Consequently, no violation of VT WQS for phosphorus exists in the Poultney River. The South Lake B lake segment is on Part A of the 1998 list. [Rationale for 1998 de-listing] -  
POULTNEY RIVER, CASTLETON RIVER CONFL DOWN TO MOUTH

### **Impairments Due to Landfill Leachate**

The Solid Waste Division of DEC has provided oversight for the closure of the unlined Town of Pawlet Landfill, which has been listed on the State's 303(d) List as discharging landfill leachate to an unnamed tributary to the Mettowee River. Monitoring wells have revealed the mitigation of leachate. This unnamed tributary to the Mettowee River was considered "impaired" due to metals (iron, zinc), also elevated levels of Mn; needs further assessment; closure & capping (spring 2000). A landfill assessment of the old Fair Haven landfill is now underway.

### **Impairments Due to Pathogens from WWTF Overflows**

The following municipal wastewater treatment plants have either recently undergone phosphorus removal projects (either through phosphorus reduction upgrade, advanced waste treatment, correction of CSOs, control of toxics, pollution prevention activities, and facility enlargements) or are in the process of doing so:

- **Castleton**, wastewater treatment plant expansion and upgrade, with addition of phosphorus removal.
- **Fair Haven**, wastewater treatment plant upgrade, with addition of phosphorus removal.
- **Fair Haven**, wastewater collection system rehabilitation, including abatement of Adams Street pump station overflow.
- **Poultney**, wastewater treatment plant expansion and upgrade, with addition of phosphorus removal.

It is anticipated that these upgrades will alleviate high levels of pathogens as sources of water quality impairments.

### **Additional Water Quality Improvement Efforts**

#### **Municipal Water Quality Improvement Efforts**

The Rutland Regional Issues Committee, a subcommittee of the Rutland Regional Planning Commission - representing all towns within Rutland County, has agreed to function as a review committee for the draft basin plan as it pertains to municipal and regional plans. Initial meetings with this committee have addressed state and federal requirements for including municipal and regional plans and the implications for watershed planning in this region. The premise is that data and information collected through the basin planning process can be used to update the Natural Resources section in the Regional Plan for water resource planning and watershed management that communities should consider when updating their town plans, zoning, and subdivision regulations.

An abbreviated draft version of the Poultney Mettowee Watershed Plan was reviewed by the Regional Issues Committee in April 2002. The Basin Plan will highlight water quality concerns

throughout the basin and will identify strategies to remediate or resolve impairments to surface waters in the Poultney and Mettowee River watersheds.

The Basin Plan has two primary uses:

1. It serves as a guidance document for any individual or group that works on watershed issues.
2. It serves as a guide for the Vermont Agency of Natural Resources in its effort to protect and improve State waters to the level required by the Vermont Water Quality Standards.

It is hoped that municipalities will be able to use information in the plan for guidance to local and regional planning and zoning processes. In the past, the Regional Issues Committee (RIC) has been effective in reviewing existing threats to surface waters, and has engaged in a brainstorming process to develop strategies to remediate impairments to water quality. During the next meetings of the RIC, commissioners will be asked to review chapters of the draft basin plan and have been asked to provide the municipal perspective on these sections.

Meanwhile, the Watershed Coordinator and the District Manager of the PMNRCD have been invited to attend various meetings of municipal selectboards and planning commissions to provide assistance and collaborate on local issues that basin planning can address.

The Watershed Coordinator for VTDEC will continue to meet with the Regional Issues Committee to review and revise sections of the Poultney Mettowee Watershed Plan as they are drafted. In addition to this work, the Watershed Coordinator continues to help coordinate the stormwater inventory and assessment project for the Moon and Mussey Brook watershed in Rutland City. Also, the Watershed Coordinator has reviewed draft town plans and zoning bylaws and made suggestions for revisions to these documents for the communities of Castleton, Danby, Middletown Springs, Proctor, and Tinmouth.

The 1999 RRPC 604(b) Report summarizes and compares water quality sections of each of the town plans in the Rutland Region with the corresponding zoning and subdivision ordinances where applicable. Additional 604(b) projects include an enhanced stormwater analysis project utilizing GIS technology and a more in-depth assessment of water quality protection strategies to be included in the revised Rutland Regional Plan. There are **15 towns in Basin 2** where this assessment has occurred (1999 604(b)).

## **Plans for 2002**

**Summer 2002** – Attend meetings in the community of at least the following groups to obtain comments and concerns regarding the Basin Plan, the Mettowee TMDL, and recommendations for Classification & Typing:

- Town government meetings,
- Non-profit groups, e.g.,
- State and federal resource agencies
- Agricultural community

**Summer – Fall 2002** – Hold public meetings on draft basin plan

**Watershed Plan Development**

The (rough) draft basin plan has been submitted to the LCBP as part of grant conditions for the Poultney Mettowee Watershed Partnership. Review and editing is ongoing and both the Board of the PMNRCD and the RRPC is reviewing draft sections to provide input and suggestions (PMNRCD – as it pertains to agriculture, RRPC – as it pertains to municipalities). The Watershed Coordinator will work closely with the Watershed Partnership and various partners during this collaborative process.