

## **Appendix B**

**Regulatory and Non-regulatory Programs  
Applicable to Protecting & Restoring Waters  
Within the White River Basin  
(including recent & anticipated DEC actions)**

## TABLE OF CONTENTS

<b>RESIDUAL WASTES PROGRAM</b> .....	<b>3</b>
<b>LAND DISPOSAL [OF WASTES] PROGRAM</b> .....	<b>3</b>
Indirect Discharge Permits .....	3
Regional Office Permits .....	4
<b>AGRICULTURAL RUNOFF CONTROL PROGRAMS</b> .....	<b>5</b>
State of Vermont Agricultural Programs .....	5
Federal Programs .....	6
Non-Governmental Programs for Agricultural Land .....	9
<b>SILVICULTURAL (LOGGING) RUNOFF CONTROL PROGRAM</b> .....	<b>10</b>
Vermont Acceptable Management Practices (AMP) .....	10
Vermont Heavy Cutting Law (Act 15) .....	10
<b>MINE RUNOFF CONTROL PROGRAM</b> .....	<b>11</b>
<b>CONSTRUCTION RUNOFF CONTROL PROGRAM</b> .....	<b>11</b>
<b>HAZARDOUS WASTE MANAGEMENT PROGRAMS</b> .....	<b>11</b>
Hazardous Waste Management Program .....	11
Underground Storage Tanks Program .....	12
<b>SOLID WASTE MANAGEMENT PROGRAM</b> .....	<b>13</b>
<b>DAM SAFETY PROGRAM</b> .....	<b>14</b>
<b>LAKES AND PONDS MANAGEMENT AND PROTECTION PROGRAM</b> .....	<b>15</b>
Lay Monitoring Program .....	15
Lake Assessment Program .....	15
Aquatic Nuisance Control Program .....	15
Lake and Watershed Protection Program.....	16
<b>HYDROLOGY PROGRAM</b> .....	<b>17</b>
<b>WETLANDS, DREDGE &amp; FILL MATERIAL CONTROL PROGRAMS</b> .....	<b>18</b>
Vermont Wetlands Protection Program.....	18
Federal Wetlands Protection Program.....	18
<b>GROUNDWATER POLLUTION CONTROL PROGRAMS</b> .....	<b>19</b>
Groundwater Protection Program .....	19
Underground Injection Control Program.....	20
Public Water Supply Program .....	20
Well Driller Program .....	21
<b>TOTAL MAXIMUM DAILY LOAD PROGRAM</b> .....	<b>22</b>
<b>EFFLUENT LIMITATIONS &amp; POINT SOURCE CONTROL PROGRAMS</b> .....	<b>23</b>
Design/Engineering Program.....	23
Discharge Program .....	25
<b>OTHER IMPORTANT NONPOINT SOURCE CONTROL PROGRAMS</b> .....	<b>27</b>
Surface Water Monitoring & Assessment Program .....	27
Geologic Surveys & Information Program.....	27
Pollution Prevention Program.....	28
Section 319 Nonpoint Source Management Program .....	30
River Corridor Management Program .....	31
Sand & Gravel Pits .....	32
Act 250.....	32
<b>FISHERIES PROTECTION REGULATIONS</b> .....	<b>32</b>

## RESIDUAL WASTES PROGRAM

### Program Description

This program oversees the management of the state's residuals, such as septage and wastewater sludge. Permits are required for treatment, storage, or disposal of these residuals and for the operation or construction of such facilities.

### Statutory Reference

10 VSA Chapter 159

### Program accomplishments in the past five years in the White River Basin:

#### A. General information (with respect to surface & groundwater):

There are several regulatory requirements for the land application of sludge (biosolids) and septage that assist in protecting surface waters and groundwater, such as required set backs and separation distances, maximum allowed slope of site, nutrient management for site, etc. In 1998, the Solid Waste Management Rules were revised to include, along with other items, the prohibition of land application of solid waste in the area of the 100 year floodway as another measure to assist in protecting surface water quality.

#### B. White River Basin:

There are currently five certifications that authorize the land application of biosolids or septage on sites located within the White River Basin. All five of these received full certification within the past five years, and three have been re-certified during the year 2000. Two of these five had land that was in the floodway and can no longer be used for the land application of biosolids and septage.

### Program activities planned in the White River Basin in the next five years:

The program is not aware of any new proposed land application activities proposed for this area. The current certifications are required to be re-certified once every five years. All five certifications, noted in the table below, will come up for renewal in the next 5 years.

<u>Permittee</u>	<u>First Full Cert. Issued</u>	<u>Recertification Issued</u>	<u>Next Recertification Anticipated</u>
Bethel	4/95	8/00	6/05
Env. Dewatering (septage)	10/95	pending	12/05
Hartford-WRJ	1/98		12/02
Randolph	2/95	10/00	9/05
Silloway Septage	6/95	7/00	6/05

## LAND DISPOSAL [OF WASTES] PROGRAM

### Indirect Discharge Permits

The Indirect Discharge Permit Section within DEC issues permits for large land-based sewage treatment systems, such as septic tanks and leachfields and also treatment plants and spray disposal systems, all of which use soil as part of the waste treatment process. Following primary and/or secondary treatment, the soil provides final effluent renovation and polishing before it reaches groundwater and, eventually, surface water. This is in contrast to direct discharge systems, which may discharge through a pipe directly to surface waters. Permits are issued for a maximum of five years. The permittee must apply for renewal to continue authorization of the indirect discharge.

### Statutory Reference

10 VSA Chapter 47

**Program accomplishments in the White River Basin in the past five years:**

There are eight (8) identified indirect discharging systems (with design sewage flows of greater than 6,499 gallons per day) in the White River Basin. Three of these eight systems serve the Town of Rochester and are located in that town along the White River. The permits for these systems were renewed in November, 1998. The latitude/longitude coordinates for the disposal fields for these systems were determined by use of a geopositioning system (GPS) unit in January, 2000. A meeting was held with Town officials and their consultants in January, 2000 to discuss options for future sewage disposal needs.

There is another system located in the Town of Rochester, which serves the Great Hawk Colony development. This system discharges indirectly to Wing Brook and the permit was last renewed in January, 1997.

One system is located in the Town of Barnard, which serves the Silver Lake State Park. This system discharges indirectly to Silver Lake and the permit was renewed in December, 2000.

There are two systems located in the Town of Hartford which serve portions of the Quechee Lakes development. Both of these system discharge indirectly to an unnamed tributary of the White River. The permits for these systems were renewed in June, 1999.

The remaining system, located in the Town of Pittsfield, serves Our World, a residential development in Stockbridge and Pittsfield. This system, last renewed in April, 1988, discharges indirectly to the Tweed River.

**Program activities planned in the White River Basin in the next five years:**

The permits for the Great Hawk Colony development and Our World development will be subject to renewal in 2002 and 2003, respectively. The lat/long coordinates for the disposal fields for these systems will be determined by use of a GPS unit in prior to renewal of the permits. As part of on-going compliance activities, the Section will review the annual engineer's report on the condition of these treatment and disposal systems.

The permits for the municipal systems located in the Town of Rochester will be subject to renewal in 2003-2004. The Indirect Discharge Section will continue to offer assistance to the Town of Rochester in their sewage disposal needs planning. As part of on-going compliance activities, the Section will review the annual engineer's report on the condition of these treatment and disposal systems.

The permits for the two systems located in the Town of Hartford will be subject to renewal in 2004. The latitude/longitude coordinates for the disposal fields for these systems will be determined by use of a GPS unit in prior to renewal of the permits. As part of on-going compliance activities, the Section will review the annual engineer's report on the condition of these treatment and disposal systems.

The permit for Silver Lake State Park will be subject to renewal in 2006. The lat/long coordinates for the disposal field for this system will be determined by use of a GPS unit in prior to renewal of the permit. As part of on-going compliance activities, the Section will review the annual engineer's report on the condition of these treatment and disposal systems.

Rulemaking for a complete revision of the Indirect Discharge Rules is currently underway and will continue through 2001. These rules apply statewide and will affect all indirect discharging systems in the basin.

**Regional Office Permits**

This section issues water supply and subsurface wastewater disposal permits required for all buildings other than single family homes and all permits for subdivisions, sewer line extensions, mobile home parks and campgrounds which have flows less than 6,500 gallons per day. Any subdivided lot under 10 acres is regulated by this process. If the subdivision involves 10 or more lots, it may be regulated by Act 250. Engineers in five regional offices examine applications and approve permits. The Springfield and Barre Regional Offices cover the basin.

**Statutory Reference**

10 VSA Chapter 61

18 VSA Section 1218

**Program accomplishments in the White River Basin in the past five years:**

While the basin boundaries do not follow town boundaries the following towns are representative of the work done in the basin. The towns of Roxbury, Granville, Brookfield, Chelsea, Braintree, Randolph, Tunbridge, Hancock, Rochester, Bethel, Pittsfield, Royalton, Sharon, Stockbridge, Barnard, and Pomfret were reviewed and a combined total of 130 new lots were created and a total of 140 actions were taken under the Water Supply - Wastewater Disposal Permit Program. The WW permits included new projects, conversion of use, and replacement of failed water and wastewater systems.

Each of these actions resulted in protection of the watershed by ensuring that new and replacement systems were constructed in accord with the applicable rules and that any conversion of use did not overload existing systems, thereby causing pollution.

**Program activities planned in the White River Basin in the next five years:**

It is expected that the existing activities will continue during the next five years. The number of projects will likely increase a small amount, based on the general trend in growth in these areas, however the economy has a strong linkage to the number of projects. The Department is seeking additional jurisdiction over water and wastewater systems, which if granted in the next legislative sessions, will significantly increase the number of systems reviewed and will greatly increase the percentage of the total number of systems constructed that must be permitted under the state rules.

## **AGRICULTURAL RUNOFF CONTROL PROGRAMS**

### **State of Vermont Agricultural Programs**

**A. Accepted Agricultural Practices (AAP)** are statewide restrictions designed to reduce nonpoint pollutant discharges through implementation of improved farming techniques rather than investments in structures and equipment. The law requires that these practices must be technically feasible as well as cost effective for farmers to implement without governmental financial assistance.

AAPs are intended to reduce, not eliminate, pollutants associated with nonpoint sources such as sediments, nutrients and agricultural chemicals that can enter surface water and groundwater that would degrade water quality. AAPs are a group of farmland management activities, which will conserve and protect natural resources. These practices will maintain the health and long-term productivity of the soils, water, and related plant and animal resources and reduce the potential for water pollution from agricultural nonpoint sources. Accepted Agricultural Practices include these practices among others: erosion and sediment control, animal waste management, fertilizer management, and pesticide management. AAPs are basic practices that all farm operators must follow as a part of their normal operations.

Implementation of AAPs by Vermont agricultural operators creates a rebuttable presumption of compliance with Vermont Water Quality Standards. The presumption that the use of Accepted Agricultural Practices complies with Vermont Water Quality Standards may be overcome by water quality data or results from a water quality study deemed conclusive by the Secretary. These rules, however, do not exempt farmers from the obligation to comply fully with the Vermont Water Quality Standards and the provisions of the Clean Water Act.

**B. Best Management Practices (BMP)** are more restrictive than Accepted Agricultural Practices and are site-specific practices to correct a problem on a specific farm. BMPs typically require installation of structures, such as manure storage systems, to reduce agricultural nonpoint source pollution. While farmers may realize an economic benefit from BMPs, it is unlikely that they will be affordable without governmental cost sharing.

The Vermont BMP program was created to provide state financial assistance to Vermont farmers in support of their voluntary construction of on-farm improvements designed to abate nonpoint source agricultural

waste discharges. The program makes maximum use of federal financial assistance and seeks to use the least costly methods available to accomplish the abatement required.

The Vermont Department of Agriculture, Food, and Markets (DAF&M) grants are limited to a cap of 35 percent of the total actual costs of the system in cases where either the federal government or other entities cost share the system, or 50 percent on projects with no other source of cost share assistance. Combined federal, state and other cost share participation may not exceed 85 percent of the eligible costs, ensuring grant recipients pay at least 15 percent of the total cost of each BMP. Awards of funding for BMP implementation shall require that the BMP be operated and maintained under contract or agreement for the design life of the practice under contract or agreement, but not to exceed 10 years.

It is a policy of the State of Vermont to assist farmers with the implementation of BMPs that will protect and maintain water quality by reducing agricultural nonpoint source pollution. The implementation of Best Management Practices is subsequent to the implementation of Accepted Agricultural Practices.

**C. Large Farm Operations** The purpose of the Large Farm Operations (LFO) program is to require farms with more than 950 animal units to be pro-actively managed in accordance with the accepted agricultural practices and to prohibit a direct discharge from their barnyard and environments commonly known as the facility. Farms which are following the regulations for LFOs should adhere to a technical standard to assure that they will not discharge to waters of the state. If farms chose to ignore the LFO rule or to create a discharge, they are required to obtain a National Pollution Discharge Elimination Systems permit (issued by DEC).

There are at present no farms in the White River watershed which require an LFO permit.

#### **D. Conservation District Technical Assistance Program & “Farm\*A\*Syst”**

Free technical assistance and information is provided to help farmers meet the requirements of Vermont's AAP regulations. Technical assistance for manure and nutrient management, runoff potential, floodway determinations, streambank stabilization, vegetative buffer strips and soil erosion potential are all addressed by the program. Agricultural Resource Specialists (ARS) work with landowners on strategies specific to their farms and provide information and referrals for State and Federal cost-share programs. **“Farm\*A\*Syst”** is a free drinking water protection program for farms based on voluntary assessments to determine how current practices and structures may pose a risk to drinking water. Voluntary farm assessments provide information that help ARS staff offer farm-specific suggestions for protecting the farm's drinking water. **Crop Consultants** are available to assist farmers in developing nutrient management plans and record-keeping systems in order to maximize the benefit from fertilizer and manure applications while minimizing the impact of excess nutrients on water quality. The Crop Consultant program is available in part of the White River watershed and is being reviewed for expansion into the remaining areas.

### **Federal Programs**

#### **(US Department of Agriculture & US Fish & Wildlife Service)**

**A. Environmental Quality Incentives Program (EQIP)** provides technical, educational, and financial assistance to eligible farmers working to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. This USDA program provides assistance to landowners in complying with Federal and State laws, and encourages environmental enhancement. Protection of surface and groundwater resources is the major focus of EQIP.

The program offers cost-share payments of up to 75% of costs up to \$50,000, to implement one or more eligible practices. Five to ten-year contracts are made with producers to use and maintain cost-shared practices and require a conservation plan be created and carried out for the length of the contract. Priority is given to livestock operations and targeted locations within the State. Applications are ranked on a point system and awarded by rank.

**B. Conservation Reserve Enhancement Program (CREP)** is a State-federal USDA conservation partnership program targeted to address specific State and nationally significant water quality, soil erosion and wildlife habitat issues related to agricultural use. The program uses financial incentives to encourage farmers and ranchers to voluntarily enroll in contracts of 10 to 15 years in duration to remove lands from agricultural production. This community-based conservation program provides a flexible design of conservation practices and financial incentives to address environmental issues. The state is considering enhancing the program to include 30 year easements on marginal pastureland where forested buffers would be required. At present, CREP is not available to farmers within the White River Basin.

**C. Conservation Reserve Program (CRP)** is a voluntary program of USDA that offers long-term rental payments and cost-share assistance to establish long-term, resource-conserving cover on environmentally sensitive cropland or, in some cases, marginal pastureland. Converting highly erodible and/or environmentally sensitive cropland to permanent vegetative cover reduces soil erosion, improves water quality, and enhances or establishes wildlife habitat. CRP contracts are for a term of 10 years. However, for land devoted to certain practices such as hardwood trees, wildlife corridors, or restoration of cropped wetlands or rare and declining habitat, participants may choose contracts of up to 15 years. Incentives include annual rental payments of up to \$50,000 per year, cost-share payments of up to 50% of the cost for establishing cover, plus special incentive payments for wetland restoration.

**D. Wildlife Habitat Incentives Program (WHIP)** is a voluntary program that provides financial incentives to develop habitat for fish and wildlife on private lands. The USDA program provides both technical assistance and cost sharing help to participants who agree to implement a wildlife habitat development plan. Participants work with USDA's Natural Resources Conservation Service to prepare a wildlife habitat development plan in consultation with a local conservation district. The plan describes the landowner's goals for improving wildlife habitat, includes a list of practices, a schedule for installing them, and details the steps necessary to maintain the habitat for the life of the agreement.

USDA pays up to 75% (usually no more than \$10,000) of the cost of installing wildlife practices. USDA and program participants enter into a cost-share agreement that generally lasts a minimum of 10 years from the date the contract is signed.

**E. The Agricultural Management Assistance (AMA)** program provides cost share assistance to agricultural producers to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations. Producers may construct or improve water management structures or irrigation structures; plant trees for windbreaks or to improve water quality; and mitigate risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. Vermont's AMA program priorities are waste storage facility construction and streambank stabilization.

**F. The Forest Land Enhancement Program (FLEP)** is a new cost-share program to be carried out through state foresters. The initiative will provide financial, technical, educational and related assistance to state foresters to help non-industrial private forest landowners address a variety of multiple, watershed-based forestry resource objectives.

**G. The Conservation Security Program (CSP)** is a voluntary program to assist agricultural producers implementing and maintaining new or maintaining existing conservation practices on working lands. All producers and all private agricultural lands including cropland, improved pasture land, rangeland, and forested land that is an incidental part of an agricultural operation are eligible for enrollment.

The purpose of the CSP is to provide incentive payments to producers who adopt and/or maintain conservation practices on private working lands. Producers may choose from one of three tiers of conservation practices and systems, with the more complex and comprehensive tiers receiving higher incentive payments. CSP contracts are from five to 10 years. Contract payments are based on five, 10 and 15 percent of a national land rental rate

per acre for Tiers I, II and III, respectively. In addition to incentive payments, producers will receive cost-share assistance to install practices, annual practice maintenance fees and potentially a bonus to encourage participation in the program. Maximum annual payments are \$20,000, \$35,000 and \$45,000.

Tier I contracts must include conservation practices that, at a minimum, address at least one significant resource of concern for the land enrolled.

Tier II contracts must include conservation practices that, at a minimum, address at least one significant resource of concern for the entire agricultural operation.

Tier III contracts must include conservation practices that, at a minimum, apply a resource management system that meets appropriate nondegradation standard for all resources of concern of the entire agricultural operation.

**H. The Grassland Reserve Program (GRP)** establishes a grassland reserve program for the purpose of restoring and conserving two million acres of grassland, rangeland, and pastureland. GRP uses up to 30-year rental agreements and 30-year or permanent easements. GRP lands may be used for haying and grazing under a conservation plan.

Rental and easement payments are based on a percentage of the fair market value of the land less the grazing value of the land for the period during the contract or easement period. Restoration costs are cost shared at up to 75 percent.

**I. Wetlands Reserve Program (WRP)** of USDA is a voluntary program offering landowners a chance to receive payments for restoring and protecting wetlands. Marginal agricultural land that is too wet to produce, previously drained wetlands or land damaged by flooding are typical sites for WRP funding. Landowners retain control over access to their property and compatible uses such as haying, grazing, timber harvest, fee hunting, and trapping may be permitted upon request. Land can be resold. The program offers landowners three options:

- 1) Permanent Easement. USDA will pay up to the agricultural value of the land and 100% of the costs of restoring the wetlands and uplands.
- 2) 30-Year Easement. USDA will pay 75% of what would be paid for a permanent easement and 75% of the restoration costs.
- 3) Restoration Cost-Share Agreement. USDA will pay 75% of the cost of restoring a wetland in exchange for a minimum 10-year agreement to maintain the restoration. No land use payment is provided.

Easements and restoration cost-share agreements establish wetland protection and restoration as the primary land use for the duration of the easement or agreement. Restored wetlands improve water quality, filter sediment, reduce soil erosion, provide habitat for wildlife and endangered species, reduce flooding and provide outdoor recreation and education opportunities.

**J. Farmland Protection Program (FPP)** of USDA provides funds to help purchase development rights to keep productive farmland in agricultural uses. Since 1960, an average of 1.0 million acres of farmland have been converted to other uses each year, often resulting in permanent loss of valuable topsoil and agricultural land. The FPP was designed to help protect quality farmland with prime, unique, or other productive soil, from urban growth.

USDA provides up to 50 percent of the costs of purchasing easements. For the FPP, a conservation easement is an assigned right prohibiting any development, subdivision or practice that would damage the agricultural value or productivity of the farmland. To be selected for participation in the FPP, a pending offer must provide for the acquisition of an easement or other interests in land for a minimum duration of 30 years, with priority given to those offers providing permanent protection.

**K. Watershed and River Basin Planning and Installation - Public Law 83-566 (PL-566)**

Technical and financial assistance is provided in cooperation with local sponsoring organizations, state, and other public agencies to voluntarily plan and install watershed-based projects on private lands. The program empowers local people or decision makers, builds partnerships and requires local and state funding contributions. The purposes of watershed projects include watershed protection, flood prevention, water quality improvements, soil erosion reduction, rural, municipal and industrial water supply, irrigation water management, sedimentation control, fish and wildlife habitat enhancement and creation and restoration of wetlands and wetland functions.

Watershed plans involving an estimated Federal contribution in excess of \$5,000,000 for construction, or construction of any single structure having a capacity in excess of 2,500 acre feet, require Congressional committee approval. Other plans are approved administratively. After approval, technical and financial assistance can be provided for installation of works of improvement specified in the plans.

Project sponsors are provided assistance in installing planned land treatment measures when plans are approved. Surveys and investigations are made and detailed designs, specifications, and engineering cost estimates are prepared for construction of structural measures. Areas where sponsors need to obtain land rights, easements, and rights-of-way are delineated. Technical assistance is also furnished to landowners and operators to accelerated planning and application of needed conservation on their individual units. There are presently over 1600 projects in operation. At present, the White River basin has not been designated as a PL-566 project area.

**L. Partners for Fish and Wildlife Habitat Restoration Program** provides technical and financial assistance to private landowners interested in voluntarily restoring or otherwise improving native habitats for fish and wildlife on their lands. This US Fish and Wildlife Service (USFWS) program focuses on restoring former and degraded wetlands, native grasslands, stream and riparian areas, and other habitats to conditions as natural as feasible. The program emphasizes the reestablishment of native vegetation and ecological communities for the benefit of fish and wildlife in concert with the needs and desires of private landowners.

The assistance that the USFWS offers to private landowners may take the form of informal advice on the design and location of potential restoration projects, or it may consist of designing and funding restoration projects under a voluntary cooperative agreement with the landowner. Under the cooperative agreements, the landowner maintains the restoration project as specified in the agreement for a minimum of 10 years. While not required, a dollar-for-dollar cost share is usually sought on a project-by-project basis.

## **Non-Governmental Programs for Agricultural Land**

The National Fish and Wildlife Foundation conserves healthy populations of fish, wildlife and plants, on land and in the sea, through creative and respectful partnerships, sustainable solutions, and better education.

The Foundation meets these goals by awarding challenge grants to projects benefiting conservation education, habitat protection and restoration, and natural resource management. The National Fish and Wildlife Foundation supports the conservation of native fish, wildlife, plants and their habitats by attracting diverse investments to conservation and encouraging locally supported stewardship on private and public lands. Congress created the Foundation in 1984 to benefit the conservation of fish, wildlife, and plants, and the habitat on which they depend. Federal and private funds contributed to the Foundation are awarded as challenge grants to on-the-ground conservation projects. The Foundation does not support lobbying, political advocacy, or litigation.

The Foundation fosters partnerships among federal, tribal, state, and local governments, corporations, private foundations, individuals, and non-profit organizations. Funds have been awarded to more than 1,100 grantees, including government agencies, educational institutions, and domestic and international conservation organizations. Challenge grants require that the funds awarded be matched with non-federal contributions, maximizing the total investment delivered to conservation projects. For every dollar that Congress provides to the Foundation, an average of \$3 in on-the-ground conservation takes place. The Foundation has made more

than 4,400 grants, committing over \$165 million in federal funds, matched with non-federal dollars, delivering more than \$500 million for conservation.

**Land Trust Programs** The Vermont Land Trust, the Upper Valley Land Trust, the Nature Conservancy and other local trusts often provide avenues for preserving farmland through either the donation or purchase of development rights or the donation or purchase of land and the reselling or leasing of farmland to producers who agree to continue active agriculture on the property.

## **SILVICULTURAL (LOGGING) RUNOFF CONTROL PROGRAM**

### **Vermont Acceptable Management Practices (AMP)**

Acceptable Management Practices (AMPs) for maintaining water quality on logging jobs in Vermont became effective on August 15, 1987. Since adoption of the AMPs, the Department of Forests, Parks and Recreation (DFPR) has worked with the Vermont forest industry to support Agency of Natural Resources Enforcement Division in an effort to eliminate discharges resulting from logging operations.

In 1990, a Memorandum of Understanding between the Enforcement Division and the Department of Forests, Parks and Recreation was developed which establishes a process that the DFPR and the forest industry may use to assist loggers or landowners when there is a discharge while maintaining the legal enforcement responsibilities assigned the Enforcement Division.

According to the agreement, five AMP Technical Advisory Teams were created to directly assist any logger or landowner when there is a potential discharge, complaint or request for assistance. Enforcement would be pursued in instances where:

- there is substantial failure to comply with the AMPs which has resulted or is likely to result in substantial environmental degradation;
- efforts to obtain voluntary compliance have been unsuccessful; and
- there is a history of non-compliance with the AMPs coupled with discharges to State waters.

### **Statutory Reference**

10 VSA Section 1259

### **Program Accomplishments in the White River Basin**

During the year 2000, four complaints were investigated in the White River Basin out of 49 complaints received statewide. In 1999, six complaints were investigated in the White River basin out of a total of 43 received statewide.

### **Vermont Heavy Cutting Law (Act 15)**

The Vermont Legislature passed the so-called heavy cutting law in 1998. The purpose of the law is to monitor and regulate the amount and approach to heavy cutting being done in Vermont. Heavy cutting is defined as cutting below the "C" line in excess of forty acres or 80 acres in a two-mile radius. The "C" line is a silvicultural stocking level provided for in US Forest Service guidelines for managing various forest types. This level establishes the minimum stocking for stands of trees that would allow stands to return to a fully stocked condition. The AMPs (see above) are among the requirements of this law.

### **Statutory Reference**

10 VSA Section 2625

### **Program accomplishments in the White River Basin during the last five years**

The program is now in its third year. Statistics are not kept on a river basin basis. There have been limited numbers of authorized heavy cuts within the basin. Most of them are associated with the 1998 ice storm. Some owners are salvaging severely damaged stands. It is expected that heavy cutting in the Basin will be a very small part of the heavy cutting that occurs across Vermont, both in numbers of cuts and numbers of involved acres. Through December 2000 and on a statewide basis, 234 "Notice of Intent to Cut" applications were filed. Most of these fell under one of the exempt categories. They were covered in an approved forest management plan, agricultural clearing, a chip harvester operation approved by Vermont Fish and Wildlife Department or approved by Act 250. Thirty-five applications required an issuance of a "Notice of Intent to Cut." All of the applications were reviewed by Department foresters for adherence to the appropriate silvicultural guidelines.

#### **Future program activities in the White River Basin in the next five years**

It is expected that the small number of heavy cut applications within the watershed will decline even more as the ice storm fades into the past. The program of assisting landowners and reviewing applications for heavy cuts will continue. The impact of heavy cutting on the White River watershed will be minimal.

## **MINE RUNOFF CONTROL PROGRAM**

Refer to Hazardous Waste Management Program.

## **CONSTRUCTION RUNOFF CONTROL PROGRAM**

Sediment discharges to waterbodies is a critical stormwater issue. The Department, through the Vermont Geological Survey, developed a guidance document for erosion and sediment control related to construction activities (*Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites*, Vermont Geological Survey, 1982, rev. 1987). This document is frequently used by developers and their consultants for project planning and responses to Criterion 4 of the Act 250.

DEC routinely reviews Act 250 applications for adequacy of the erosion control plans and stream buffer protection.

## **HAZARDOUS WASTE MANAGEMENT PROGRAMS**

### **Hazardous Waste Management Program**

The Hazardous Waste Management Program within DEC establishes the regulatory framework for all hazardous waste generated in Vermont and provides a "cradle-to-grave" tracking system for these wastes. The program establishes the standards for proper management of hazardous waste while also addressing the environmental and human health problems that arise from the mismanagement of hazardous waste. Improper management of hazardous waste can pollute vast areas of land, rivers, streams and lakes, and can lead to unacceptable human exposure to these materials. The program is a prevention program -- when it is successful, these impacts occur less frequently and with less severity.

### **Statutory Reference**

Title 10 VSA Chapter 159, the Waste Management Act.

Specific sections include 10 VSA 6601, 6602, 6604, 6605f, 6606, 6606a, 6606b, 6607, 6607a, 6608, 6608a, 6608b, 6609, 6610a, 6612, 6615, 6616, 6617, 6618.

**Program accomplishments in the White River Basin in the past five years:**

Over the last five years the program has succeeded in keeping to a schedule that has every Large Quantity Generator (LQG) of hazardous waste inspected every four years. LQGs generate more than 2,200 lbs of hazardous waste per month. Small Quantity Generators (SQGs) have been inspected approximately every 6-10 years. SQGs generate between 220 and 2,200 lbs of hazardous waste per month. The last category of generators, Conditionally Exempt Generators (CEGs) generate less than 220 lbs per month. The program visits 40 to 80 of these generators per year, often in a complaint response or assistance mode. The program now has virtually all LQGs, and approximately 70% of SQGs, in a computerized overlay mapping system or GIS. The program has settled over 25 formal enforcement actions since 1995. The program has also provided assistance in the field and from the office on a regular basis. The program has approximately 8 sites in Resource Conservation and Recovery Act corrective action, for which all but one have met the EPA's Government Performance and Reporting Act goals for corrective action codes of CA725 (human exposures controlled) and CA750 (migration of contaminated groundwater controlled).

**Future program activities planned in the White River Basin in the next five years:**

Although the program's activities are not currently broken down by watershed and since the program inspects all LQGs in the state every four years, the program must get to every LQG in the basin in that same timeframe. The program intends to keep GIS as current as possible, maintaining a near 100% rate for LQGs and 80-90% for SQGs (who are a more dynamic population). The program plans to do cooperative work with the DEC Environmental Assistance Division and the metalworking sector. This would have an impact on some generators in the White River Basin. Although the program is interested in having more direct connections to the resources, it is designed to protect the small number of program staff will likely limit such connections to sub-basin efforts.

**Underground Storage Tanks Program**

All Vermonters depend on clean water. Leaking underground storage tanks (USTs) pose a substantial threat to both human health and the environment, because substances leaked from these tanks are one of the most significant contaminants polluting ground and surface water supplies. In densely developed areas, releases from underground tanks pose an additional risk, since gasoline vapors can accumulate in basements and crawl spaces, posing health hazards as well as fire dangers.

The goal of the UST Program within DEC is to protect human health and the environment by eliminating releases of hazardous materials from underground storage tanks, and fostering proper management of underground tanks in Vermont. By regulating the installation, operation, and closure of USTs, the Underground Storage Program protects the state's water resources and prevents vapor impacts to buildings.

**Statutory Reference**

10 VSA Chapters 59 and 159

**Program accomplishments in the White River Basin during the past five years:**

Although the program has not placed any particular emphasis on the White River Basin in the past, several significant events have occurred. In 1999, the Program learned that the Town of Hartford had backup generators located at each of five separate pump stations for their municipal sewer system. Each generator was served by a small, unpermitted, underground tank. These tanks did not meet the required standards. The staff of the UST Program worked closely with Town officials as well as staff from the Wastewater Division to ensure these tanks were removed from the ground as quickly as possible, but making sure the pump stations had backup power available in the event of a power failure. The Program staff also worked closely with officials from the Towns of Sharon, Randolph, Bethel, and Tunbridge to assist in removing old, high risk tanks from town- or school system-owned properties.

### **Future program activities planned in the White River Basin in the next five years:**

Over the next five-year period, the UST Program staff will continue its efforts to work with communities in the White River Basin as UST issues arise. The Program will also focus special attention on working with land owners in the White River Basin to encourage the removal of old abandoned underground tanks that have been out of service for many years, but that have not been removed from the ground.

## **SOLID WASTE MANAGEMENT PROGRAM**

### **Program Description**

The Solid Waste Management Program within DEC regulates the treatment, storage and disposal of solid waste, with the exception of the land management (diffuse disposal) of biosolids and septage which is regulated by the DEC Wastewater Management Division. In order to receive a certification, a facility must demonstrate that it complies with applicable siting, design, operation, closure and post closure requirements and standards included in the Vermont Solid Waste Management Rules. The Solid Waste Management Program also assists the Enforcement Division in illegal dumping/disposal cases.

The protection of water related resources are specifically addressed in the Vermont Solid Waste Management Rules ("SWMR"), Vermont Groundwater Protection Rule and Strategy, and Agency Procedures applicable to solid waste management facilities (with the exception of biosolids or septage diffuse disposal). These requirements are to be addressed in a solid waste facility application for certification and may be specifically addressed in the requirements of a certification issued by the Agency.

- Solid Waste Disposal Facilities must be in compliance with the Vermont Ground Water Protection Rule & Strategy and the Vermont Water Quality Standards to receive certification - '6-303(d) of the SWMR, Vermont Groundwater Protection Rule and Strategy, 2/8/99 Procedure Addressing Requirements For Municipal Solid Waste Landfills To Demonstrate Compliance Of The Landfill Design With Water Quality Standards, and 2/8/99 Procedure For A Combined Solid Waste Certification and Indirect Discharge Permit.
- The SWMR identifies various types of water related resources as prohibited areas for the siting of solid waste management facilities - '6-309(c)(6), '6-502(a) and '6-1104(b)3(b)(3) of the SWMR.
- Facilities must meet performance standards in order to assure that siting of the facility will have the least possible reasonable impact on the environment, including groundwater, surface water or waters of the state. '6-503 of the SWMR and 9/12/95 Procedure Addressing the Numerical Criteria For The Distance To Drinking Water Sources From Discrete Disposal Facilities.
- Site characterization on which a facility is to be located must address groundwater and surface water - '6-603 of the SWMR.
- Facilities must be designed and operated to protect the environment, including ground water and surface water - '6-604(a)(4), '6-606(a)(3), '6-701, '6-1104(c)(2)(E) and '6-1203&1204 of the SWMR. Most landfills must be lined with leachate collection and off-site treatment and must control run-on and run-off - '6-606(b)(2) of the SWMR and 6/9/94 Procedure Addressing Requirements For Run On/Run Off Control System for Municipal Solid Waste Landfills.
- Facilities are to be monitored as deemed appropriate to detect the discharge of contaminants to groundwater and surface water. For landfills, monitoring continues through the operational life of the landfill and the post closure period (20 years for unlined landfills that closed since 1989, 30 years for lined landfills which operated since 1994) - '6-604(a)(4) and '6-606(a)(3) of the SWMR. 2/8/99 Procedure Addressing Ground Water Quality Monitoring and Ground Water, 2/8/99 Remedial Action at Municipal Solid Waste Landfills, Procedure Addressing Post-Closure Care and Post Closure Certification At Solid Waste Landfills.
- A response involving corrective action for ground water impacts by a solid waste landfill can be required - Vermont Groundwater Protection Rule and Strategy and 2/8/99 Procedure Addressing Corrective Action & Financial Responsibility For Corrective Action At Solid Waste Landfills.

- Any discharge that poses a threat to the environment must be reported within 24 hours to the DEC - '6-703(c) of the SWMR.
- Facilities must be closed in a manner that prevents discharges to surface water during and after closure - '6-1001 of the SWMR.

### **Statutory Reference**

10 VSA Chapter 159 (Waste Management)

10 VSA Chapter 48 (Groundwater Protection)

### **Program accomplishment in the past five years in the White River Basin:**

Regulatory oversight and review of ground water and surface water quality data at the Randolph and Bethel/Royalton landfills (ground water only at Bethel/Royalton).

Remediation oversight of a landfill cap failure at the Randolph unlined landfill.

Remediation oversight of an old dump in South Royalton village which was being eroded by the river.

### **Future program activities planned in the White River Basin in the next five years:**

Continued regulatory oversight of closed landfills in the Basin which are certified (Randolph, Bethel/Royalton), including review of ground water and surface water data.

Establishment of regulatory oversight and monitoring of groundwater and/or surface water at the closed Chelsea and Twitchell landfills.

Cleanup of illegal dump sites as they become known.

## **DAM SAFETY PROGRAM**

### **Program Description**

The Dam Safety Section administers the State Dam Safety program, operates and maintains the Winooski Valley Flood Control Reservoirs, and periodically inspects the 85 state-owned dams and plans found throughout Vermont for their repair/improvement needs. The section operates a permit program for construction and alteration of non-hydroelectric dams (the Public Service Board regulates hydroelectric dams) to serve the public good and provide adequately for the public safety. The section inspects privately-owned dams on a resources-available basis, maintains an inventory of dams, and provides technical assistance to dam owners.

Permit Program: A permit is required to alter any dam, pond or impoundment not related to generation of electric energy for public use or part of a public utility system which is or will be capable of impounding more than 500,000 cubic feet of water or other liquid, as measured to the top of the dam. Requires submittal of completed application form, fee, plans and specifications and design data. May require public information meeting.

### **Statutory Reference**

Permit program: 10 VSA Chapter 43 (Dams).

### **Program accomplishments in in the White River Basin the past five years:**

The program has conducted miscellaneous dam inspections. During the year 2000 the following dam-related activities occurred:

- 1) Day Farm Pond Upper Dam - Sharon (private owner). Owner removed dam on DEC recommendation after partial failure during high water:
- 2) Middle Dam breached fully during event.
- 3) Sunset Lake Dam - Brookfield (private owner). State reconstructed dam after partial failure in 1998

**Program activities planned in the White River Basin in the next five years:**

No specific activities are planned. The program will address issues and problems that may arise including the conduct of dam inspections as appropriate.

## LAKES AND PONDS MANAGEMENT AND PROTECTION PROGRAM

**Program Description:** The Lakes and Ponds Management and Protection Program monitors the water quality, aquatic biota, and aquatic habitat of Vermont lakes; seeks to prevent water quality problems or habitat degradation; determines the causes of problems that arise; and in collaboration with others, develops management or restoration plans to address problems. Technical and financial assistance is provided to municipalities, lake associations, and individuals to help them implement lake management and protection activities. The Program also administers permits for aquatic nuisance control activities and encroachments into lakes, and assists other state programs with lake-related issues such as water level management, Act 250 review, point source discharge permitting, Use of Public Waters rulemaking by the Water Resources Board, and near-shore waterski course regulation by the Vermont State Police. Public information and education is an important part of the Lakes and Ponds Management and Protection Program, and educational materials for all ages on a wide variety of lake and watershed-related topics are available from the Program. Elements of the Program of particular relevance to the White River Basin include the Lay Monitoring Program, the Lake Assessment Program, the Aquatic Nuisance Control Program, the Lake and Watershed Protection Program, and the Information/Education Program (Project WET).

### Lay Monitoring Program

Volunteers are equipped and trained to monitor lake water quality on a weekly basis during the summer months. The program enables the VTDEC to obtain detailed water quality information on a larger number of lakes than would otherwise be possible, while educating volunteers about lake ecology and lake protection. Participation ensures the VTDEC has long-term seasonal data on lakes in the Basin, and accordingly, emerging water quality problems can be caught more quickly.

### Lake Assessment Program

The program consists of a variety of monitoring projects that range from simple one-day site visits to long-term diagnostic studies. The results of these monitoring projects help the VTDEC characterize current water quality conditions, detect trends, and determine which lakes are supporting their designated uses. Ongoing special projects of basin-wide significance include a project to determine lakes most likely to exhibit mercury contamination in fish, and an effort designed to characterize expected biological communities in lakes of differing types, under varying degrees of human disturbance.

### Aquatic Nuisance Control Program

The goal of the is to prevent or reduce the environmental and socio-economic impacts of nuisance (primarily non-native) aquatic plant and animal species. Many species are included in the Program; however the priority species at this time are Eurasian watermilfoil, water chestnut, zebra mussels, and purple loosestrife. The Program's components include control technology research, environmental monitoring, control and spread prevention projects and technical assistance, a permit program, a grant-in-aid program for municipalities, and public information/education.

*Environmental monitoring* is conducted to monitor the populations of priority aquatic nuisance species (ANS) in Vermont lakes, detect new infestations as quickly as possible, and monitor the effectiveness and environmental

impact of various control programs. The ANS Watchers Program, through which volunteers learn to identify and search for non-native nuisance species, is of particular importance to the White River Basin. The lakes in the Basin are not known to be infested with Eurasian watermilfoil, water chestnut, or zebra mussels at this time, and the early detection of new infestations is critical to prevent nuisance conditions from occurring. The *grant-in-aid program* can help with projects designed to prevent nuisance infestations by providing grants to municipalities, and to local volunteer groups through the municipalities, for up to 75% of the cost of the projects.

*Public information and education* is also an essential part of the Aquatic Nuisance Control Program. It is critical that lake users understand the serious impacts that nuisance aquatic species can have on the state's aquatic resources and on people's use of those resources, and are aware of what can be done to prevent the spread of nuisance species to uninfested waterbodies. In the case of nuisance aquatic species, an ounce of prevention is truly worth a pound of cure.

### **Lake and Watershed Protection Program**

Provides technical and financial assistance to local governments and volunteer groups for a wide variety of lake protection activities. Groups are provided information and guidance to help them conduct lake and watershed surveys to identify pollution sources and develop plans to correct problems found during surveys. Assistance grants are available through the state's Conservation License Plate Watershed Grants Program for conducting these surveys and developing and implementing remediation plans. The VT Better Backroads Program provides more targeted assistance to enable municipalities to reduce erosion and sediment-laden runoff from gravel roads. Information and technical assistance is also available regarding local planning and zoning options to enhance water quality protection.

*Information/Education:* The Lakes and Ponds Management and Protection Program understands that educating Vermont's citizenry about water quality issues is critical to long-term water quality protection. The Program handles countless information requests annually, on issues ranging in scale from small pond management to providing information for national-level environmental policy decisions. Moreover, educating today's youth is crucial to protecting lake water quality in the future. The Water Quality Division is the Vermont sponsor of the national Project WET (Water Education for Teachers) Program. Project WET is an interdisciplinary water education program for kindergarten through twelfth graders to promote awareness, appreciation, knowledge and stewardship of Vermont's water resources. Project WET workshops are conducted throughout Vermont during the year to introduce and train formal and informal educators in the use of the Project WET Curriculum and Activity Guide. There is a per-person cost for the workshop and Activity Guide. Interested schools, districts, and other organizations can request on-site Project WET workshops with a minimum of ten participants.

**Statutory References:** 10 V.S.A. §921-923; 10 V.S.A. §1263a; 10 V.S.A. Chapters 37, 47 and 49; 29 V.S.A. Chapter 11; Act 250; Clean Water Act § 314, 319, 401 and 404; Vermont Water Quality Standards.

**Contact:** The primary contact person varies, depending on which program element is involved. Contact the Lakes and Ponds Section at 241-3777. Primary contacts most pertinent to the White River Basin are: Lay Monitoring Program - Amy Picotte; Lake Assessment Program - Neil Kamman; Aquatic Nuisance Species Spread Prevention Program - Michael Hauser; Lake and Watershed Protection Program - Susan Warren; and Project WET - Amy Picotte. Also see the Water Quality Division's web page at [www.vtwaterquality.org](http://www.vtwaterquality.org) for more information on these programs.

### **Program accomplishments in the past five years:**

Lay Monitoring Program

- Volunteer monitors from Silver Lake have participated in the Lay Monitoring Program since 1997 (and for many years prior to 1994 as well).

Lake Assessment Program

- Three lakes were surveyed for mercury contamination; biological characterizations were performed on two lakes; four lakes were visited for general assessment purposes; and seven spring nutrient measurements were made on six individual lakes.

#### Aquatic Nuisance Control Program

- Public service announcements were distributed to local radio and television stations.
- Volunteer participation in the Aquatic Nuisance Species Watchers Program has been encouraged.

#### Lake and Watershed Protection Program:

- Onsite technical assistance regarding road erosion and aquatic plant growth was provided to lakeshore and community residents at Silver Lake in Barnard.
- Approximately ten Better Backroads grants were awarded to towns in the Basin to enable them to correct road erosion problems or conduct road inventory and budgeting projects.

#### Information/Education:

- Hundreds of information requests were filled (the exact number of information requests is not tracked).
- New lake and pond information was made available over the internet and existing information on the Water Quality Division's web page was redesigned

#### **Future program activities planned in the White River Basin in the next five years:**

- Volunteers will continue to be offered an opportunity to monitor Silver Lake under the Lay Monitoring Program.
- Spread prevention education on priority nuisance species will be continued.
- Aquatic nuisance species "watch" programs and increased citizen involvement in spread prevention activities will be encouraged.
- Aquatic nuisance control grants for spread prevention activities will continue to be available to towns in the Basin.
- Technical assistance and funding will continue to be provided as needed and available to the Silver Lake Association on a variety of watershed issues.
- Vermont Better Backroads grants and technical assistance will continue to be available to towns in the Basin.
- Schools in the White River Junction area were targeted for attendance at Vermont's 2001 Make A Splash with Project WET Water Festival on September 21, 2001. Make A Splash is an educational, fun, and interactive water celebration where students explore a diversity of water-related topics.

## **HYDROLOGY PROGRAM**

### **Program Description**

This program within DEC reviews all projects that may alter the natural flow of rivers and streams, such as hydroelectric projects and all manner of water withdrawals. These reviews may take place under a number of regulatory programs, including Act 250, Agency dam orders and stream alteration permits, and projects subject to federal licenses or permits (under Section 401 of the Clean Water Act). In addition, the Hydrology program evaluates projects subject to Act 250 for riparian protection provisions, erosion control measures, and general consistency with Vermont Water Quality Standards.

### **Statutory References**

10 V.S.A. Chapter 41 (Regulation of Stream Flow)

10 V.S.A. Chapter 43 (Dams)  
10 V.S.A. Chapter 151 (Act 250)  
Section 401 of the Federal Clean Water Act (33 U.S.C. §1341)

**Program accomplishments in the White River Basin during the past five years:**

Participation in Act 250 hearings and related proceedings.

**Program activities planned in the White River Basin in the next five years:**

Working with a wide range of stakeholders, staff is identifying dams that are obsolete and are good candidates for removal. The program will continue its routine evaluation of projects seeking land use permits.

## **WETLANDS, DREDGE & FILL MATERIAL CONTROL PROGRAMS**

### **Vermont Wetlands Protection Program**

The overall goal of the program is to achieve no net loss of wetland functions and values. The program consists of three components: a regulatory component, a scientific component, and an education and outreach component. The regulatory aspects of the program include administering the Vermont Wetland Rules, making determinations of Water Quality Certification under the Clean Water Act and the Vermont Water Quality Standards, providing project review concerning wetlands in Act 250 land use permitting, and assisting in compliance and enforcement. Inventories and scientific investigations are carried out as special grant projects and include both the biomonitoring section of the division, and biologists in the Department of Fish and Wildlife, Nongame and Natural Heritage program. Education and outreach is provided through technical assistance, workshops and presentations to towns, stakeholder groups, conservation commissions, schools, and other Agency programs.

**Statutory references:**

Sections 404 and 401 of the Clean Water Act  
Section 104(b)3 of the Clean Water Act  
Act 250  
Title 10 VSA Chapter 37, Sec. 905 (7-9).

**Program accomplishments in the White River Basin during the past five years:**

- Site visits to projects involving wetlands in the watershed, with resulting no net loss of or undue adverse impacts to wetland functions and values of Class Two wetlands.
- Support to the Heritage Program for inventory work in the basin for significant natural communities.
- Education programs for schools, workshops for real estate agents, loggers, and towns in the watershed.

**Future program activities planned in the White River Basin in the next five years:**

- Emphasis on including wetlands in the basin assessment and plan.
- Continuation of the above activities with addition of wetland assessment for status and trends.
- Seek opportunities for wetland restoration and enhancement.

### **Federal Wetlands Protection Program**

The Corps of Engineers permit is required for all work beyond ordinary highwater in or above navigable waters of the United States under Section 10 of the Rivers and Harbors Act of 1899 (33

U.S.C. 403). In New England, for the purpose of Section 10, navigable waters of the United States are those subject to the ebb and flow of the tide and a few major waterways used to transport interstate or foreign commerce. Permits are required under Section 404 of the Clean Water Act for those activities involving the discharge of dredged or fill material in all waters of the United States, including not only navigable waters of the United States but also inland rivers, lakes, streams and wetlands. In inland waters Corps jurisdiction under the Clean Water Act extends landward to the ordinary high water mark or the landward limit of any wetlands. The term "discharge" in this context may include the redepositing of wetlands soils such as occurs during mechanized land clearing activities, including grubbing, grading and excavation.

The term "wetlands," used above, is defined by Federal regulations to mean "...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions..." (33 C.F.R. Part 328.3 (b), as published in the November 13, 1986 Federal Register). Wetlands generally include swamps, marshes, bogs and similar areas.

The term "fill material," used above, is defined by Federal regulations to mean "...any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a waterbody. The term does not include any pollutant discharged into the water primarily to dispose of waste..." (33 C.F.R. Part 323.2 (b), as published in the November 13, 1986 Federal Register).

## **GROUNDWATER POLLUTION CONTROL PROGRAMS**

### **Groundwater Protection Program**

The Groundwater Protection Rule and Strategy is the groundwater management and protection strategy for the State of Vermont. The Rule outlines the principles, directives and goals relating to groundwater protection. The

Rule also contains groundwater quality enforcement standards and outlines the four classes of groundwater. The Groundwater Coordinating Committee, an interagency committee, oversees the groundwater reclassification efforts and provides a forum for interagency coordination on groundwater issues. The DEC Water Supply Division provides administrative and technical support to the Committee. The program reviews weekly Act 250 applications for potential water supply and groundwater impacts. The Water Supply Division also serves as a clearinghouse on groundwater protection information. Through their regulatory and outreach programs, other divisions also protect groundwater and provide information on groundwater protection issues.

### **Statutory Reference**

10 VSA Chapter 48

### **Program accomplishments in the White River Basin during the past five years:**

All of the groundwater in the White River Basin is currently classified as Class III. This means the groundwater is "Suitable as a source of water for individual domestic water supply, irrigation, agricultural use and general industrial and commercial use." Using the Groundwater Quality Enforcement Standards as standards in various permit programs, groundwater quality has been

protected in the watershed. Act 250 permit applications have been reviewed for potential groundwater and water supply impacts.

**Program accomplishments in the White River Basin in the next five years:**

In addition to continuing the activities discussed above, the Groundwater Coordinating Committee will review any groundwater reclassification petitions submitted for the White River Basin.

**Underground Injection Control Program**

This program within DEC regulates all non-sanitary sewage discharges to the groundwater. It is a federally delegated program. If the discharge receives a permit from another DEC program, the UIC permit is not required.

**Statutory Reference**

10 VSA Chapter 47 and Section 1422 of the Federal Safe Drinking Water Act.

**Program accomplishments in the White River Basin in the past five years:**

No UIC permits are issued for projects in the White River Basin.

**Program activities planned in the White River Basin in the next five years:**

- Review existing floor drains and close out or permit them.
- Rule revisions, including the prohibition of cesspools as a method of disposal.

**Public Water Supply Program**

The DEC Water Supply Division is responsible for the regulation of all public water systems in the state of Vermont. A public water system has fifteen connections or serves an average of twenty-five people at least sixty days a year. Examples of public water systems include municipalities, mobile home parks, schools, restaurants, motels. The major program functions involve permitting construction and operation, approving new sources of drinking water, review of monitoring data, technical and financial assistance, enforcement, source water protection, operator certification, enforcement, and inspections.

**Statutory Reference**

Federal Safe Drinking Water Act Amendments of 1996

10 VSA Chapter 56 Public Water Supply

10 VSA Chapter 55 Aid to Municipalities for Water Supply, Pollution Abatement, and Sewer Separation

24 VSA Chapter 120 Special Environmental Revolving Fund.

**Program accomplishments in the White River Basin during the past five years:**

The White River Basin has 18 Public Community Water Systems, 13 Non-transient, Non-community Public Water Systems, 20 Transient Non-Community Public Water Systems, and 2 Bottled Water Systems. Through sanitary surveys (inspections), on-site visits of all public community and non-transient, non-community water systems were completed in the watershed.

The program investigated contaminant incidents occurring in public water systems, both chemical and bacteriological in nature, and provided technical expertise to assist in alleviating associated public health risks.

New public water sources and source protection areas were developed which included opportunities for public comment. Source Protection Plans were developed by 26 water systems for review and approval by the program.

Drinking Water State Revolving Fund provided monies for water system improvements. Water system operators were certified and provided with training opportunities. The program has helped new public water systems acquire the technical, financial, and managerial ability or capacity to provide safe drinking water.

**Future program activities planned in the White River Basin during the next five years:**

Sanitary surveys will be conducted for all public water systems on a cyclical three to five year basis, including transient, non-community water systems for the first time.

Program staff will increase its educational efforts with the transient water systems.

Loan funding will continue to be available, with small community water systems given preference. Source Water Assessments of all Transient, Non-community Systems will be conducted and all other water systems will develop a Source Protection Plan.

Operator training opportunities will increase.

Existing systems will have assistance to develop the technical, financial and managerial ability to provide safe drinking water.

**Well Driller Program**

Any person who intends to engage in the business of drilling wells must obtain a license to do so. This includes both water well drillers and monitoring well drillers. Licensing is intended to protect public health and prevent degradation of groundwater quality through competent drillers appropriately applying industry standard well construction and abandonment procedures in their work. A license may be renewed if appropriate continuing education is demonstrated on a three year basis.

**Statutory Reference**

10 VSA Chapter 48

**Program accomplishments in the White River Basin during the last five years:**

The program streamlined data entry by digitizing the well locations into a GIS format and by entering the well completion records into a computer database (around 81,000 records statewide). To preserve the non-alphanumeric information on the reports for easy access after they have been sent to public records, the paper files have been scanned to a CD-ROM. Additionally, GPS locations for new wells drilled are being accepted along with the use of the E-911 addresses. This has greatly improved the well location accuracy.

**Future program activities planned in the White River Basin for the next five years:**

The Well Driller Licensing Rule and the Well Construction Standards within the Water Supply Rule, Title 10 VSA Chapter 21, are planned to be revised within this time frame. The GIS maps which are cross-indexed to the well log database will be accessible on the internet where the general public can view them without needing to reserve a viewing time and physically visit the Water Supply Division in Waterbury office where the paper copies were filed.

## **TOTAL MAXIMUM DAILY LOAD PROGRAM**

### **(Vermont's Wasteload Allocation Process & Federal Requirements for TMDLs)**

#### **Program Description**

The primary goal of the Total Maximum Daily Load (TMDL) program is to develop solutions to restore those waters which do not meet Vermont Water Quality Standards and will not meet those standards even after all minimum required Best Practicable Treatment (BPT) alternatives are applied. To fulfill the requirements of the Clean Water Act, the program works in two phases and is dependent on several other programs within the Agency of Natural Resources to fulfill its goal. First, water quality monitoring data is gathered and analyzed to identify the condition of the State's waters. Those waterbodies that show a clear and documented violation of the Water Quality Standards substantiated by data collected through chemical, biological or physical monitoring are placed on the State's List of Impaired Surface Waters. The second phase is to develop TMDL plans for those waters that are Water Quality Limited Segments, defined as waters that will not achieve water quality standards even after BPTs are applied to all discharges. These plans essentially are a budget for the pollutant causing the impairment. Following investigations, all pollutant sources are identified that contribute to the impairment and each receives an allocation as to how much it can contribute to the total pollutant load. This is usually accomplished by determining from what sources reductions are necessary. The TMDL plans are structured in accordance with Clean Water Act regulations and EPA guidance. These plans involve public participation and ultimately need approval from EPA to verify their satisfaction of Clean Water Act requirements. The third phase is to implement the TMDL plan and conduct water quality monitoring to evaluate the effectiveness of implementation and document achievement of Water Quality Standards.

#### **Statutory reference**

Section 303(d) of the Clean Water Act  
40 CFR §130.7

#### **Program accomplishments in the White River Basin in the past five years:**

As a result of the continuing Monitoring and Assessment programs, data has been gathered that resulted in the inclusion of four waterbodies on the List of Impaired Waters (refer to July 2000 list). Inclusion on this list focuses attention on developing solutions to restore the waters. TMDLs are currently being developed for the lakes and ponds impaired by acid precipitation, of which two are located in the White River Basin. A management plan is in the planning stages for Adams Brook, and continued monitoring is anticipated to better define the impairment of Jones Pond Brook, if any.

#### **Future program activities in the White River Basin in the next five years:**

The TMDL program will continue to identify and list waters that are not meeting the Vermont Water Quality Standards by working closely with State and federal agencies and with citizen based monitoring activities. Restoration plan development for these impaired waters will continue and will look to take advantage of local water quality planning opportunities.

## EFFLUENT LIMITATIONS & POINT SOURCE CONTROL PROGRAMS

### Design/Engineering Program

Vermont municipalities need various wastewater treatment facility and conveyance system construction and improvement projects including: original treatment facility and collection line construction; enlargement and/or refurbishment of existing facilities; implementation of nutrient removal or sludge and septage treatment improvements at existing facilities; combined sewer overflow abatement; or collection line extensions. These projects enable the municipalities to meet the effluent limits in their NPDES permit in order to meet Vermont Water Quality Standards and comply with statute; provide for centralized treatment to replace problem individual on-site systems; and provide desired wastewater treatment capacity to enable municipal growth and development.

The municipalities can take advantage of the state and federal capital funds appropriated for municipal pollution control projects, which the program administers. The program assists grant and loan recipients in developing capital planning and financing plans; assists in defining project scopes to meet the technical, regulatory, and funding requirements; assures the design of appropriate facilities; oversee facility construction; and monitor the first year's operation.

### Statutory Reference

**STATE:** Title 10 VSA Chapter 55 Aid to Municipalities for Water Supply, Pollution Abatement and Sewer Separation. Title 24 VSA Chapter 120 Special Environmental Revolving Fund.

**FEDERAL:** Clean Water Act Title VI - State Water Pollution Control Revolving Funds.

### Program accomplishments in the past five years in the White River basin:

Town of Randolph Combined Sewer Overflow abatement project implemented.

### Program activities planned in the White River Basin in the next five years:

No new municipal waste treatment works are anticipated in the White River Basin nor is there any planned expansion to accommodate flow increases in the existing treatment works. The Town of Chelsea is currently in planning for a future project to make improvements to the wastewater treatment facility disinfection system. Table 1 outlines the status of wastewater facility planning in the basin (current as of March 2002).

Permits are issued for each facility every five years. Permit conditions specify effluent limitations for biochemical oxygen demand, total suspended solids, settleable solids, *E. coli* bacteria, total residual chlorine and pH.

Table 1. Wastewater Facility Planning in the White River Basin as of March 2002

Town	Discharging Wastewater Treatment Facility	Comments	Discharge Permit Number and Expiration Date
Brookfield	No	Wastewater facilities not planned	
Chelsea	Yes	Disinfection system refurbishment project possible, no capacity increase planned  No overflows present	# 3-1197 3/31/05

<b>Town</b>	<b>Discharging Wastewater Treatment Facility</b>	<b>Comments</b>	<b>Discharge Permit Number and Expiration Date</b>
Washington	No	Talking about a plant for the village area, but in the Winooski, not White River, basin	
Granville	No	Wastewater facilities not planned	
Braintree	No	Wastewater facilities not planned	
Randolph	Yes	Plant improvements but no capacity increase CSO abatement project recently implemented Some overflows remaining.	#3-1198 3/31/01
Tunbridge	No	Wastewater facilities not planned	
Hancock	No	Wastewater facilities not planned	
Rochester	No	Indirect systems - (3) in village area (renewed 1998). Town is currently conducting soils and groundwater investigation on a parcel of land for an indirect system to replace the existing system. Indirect system - (1) Great Hawk Colony (renewed 1997)	
Bethel	Yes	No upgrade planned No CSOs	#3-1280 12/31/02
Bethel	Yes	White River National Fish Hatchery	#3-1142 6/30/02
Royalton	Yes	No upgrade planned. No CSOs.	#3-1165 12/31/04
Sharon	No	Wastewater facilities not planned	
Pittsfield	No	Wastewater facilities not planned Indirect system - (1) Our World (renewed 1998)	
Stockbridge	No	Wastewater facilities not planned	
Barnard	No	Wastewater facilities not planned Indirect system - (1) Silver Lake State Park (renewed 2000)	
Pomfret	No	Wastewater facilities not planned	
Hartford	Yes	White River Junction plant discharges to Connecticut River. Improvements planned, but does not include change to permitted flow. Indirect systems - (2) serve portions of Quechee Lakes Development (Renewed 1999)	#3-1225 3/31/98
Chittenden	No	Wastewater facilities not planned	
Roxbury	No	Wastewater facilities not planned	

Town	Discharging Wastewater Treatment Facility	Comments	Discharge Permit Number and Expiration Date
Williamstown	Yes	Plant in Winooski Basin, not in White River Basin No upgrade planned	
Strafford	No	Wastewater facilities not planned	
Norwich	No	Wastewater facilities not planned	
Killington	Yes	Sherburne plant in Ottauquechee basin, some flows to Rutland.	
Ripton	No	Wastewater facilities not planned	
Vershire	No	Wastewater facilities not planned	
Mendon	No	Pipeline to Rutland runs through	
Bridgewater	Yes	Plant in Ottauquechee basin	
Goshen	No	Wastewater facilities not planned	

### Discharge Program

**Sanitary, Commercial and Industrial Wastewater:** The Wastewater Management Division issues sanitary wastewater permits and performs oversight functions of municipally owned wastewater treatment facilities. In addition, the Division issues permits to privately owned treatment and pretreatment facilities: pre-treatment of wastewater from some manufacturing processes is required before the wastewater is sent to municipal wastewater treatment facilities. In addition to performing certification and training programs, the Division does periodic discharge sampling for permit compliance checks, and laboratory evaluations. Assistance is also provided to operators and municipal officials in the proper operation, maintenance and budgeting of their wastewater facilities.

**Stormwater:** The Vermont Stormwater Management Section of the Water Quality Division regulates discharges of stormwater from impervious surfaces to waters of the state per 10 V.S.A. 1264, and administers some Federal Stormwater programs.

#### State Program

The Vermont Stormwater Management Manual (April, 2002) provides the technical requirements for the design of stormwater treatment practices.

The requirement to obtain a permit is specified in the 1997 Stormwater Procedures. Currently, projects that create between one and two acres of impervious surface that discharges to waters of the state may need a permit depending on the size of the receiving water. Projects that create more than two acres of impervious surface that discharge to waters of the state are required to obtain a permit.

The Agency will propose new Stormwater Rules prior to January 2003. The new rules will likely set the threshold for needing a permit at one acre of impervious surface, regardless of the size of the receiving water.

The Stormwater Management Section currently issues individual permits for projects that discharge stormwater from impervious surfaces. The Section is moving towards a system of general permits in order to decrease permit review time, and in order to devote more resources to education, technical assistance, and enforcement.

#### State-Administered Federal Programs

The Stormwater Section administers the EPA Phase II Multi-Sector General Permit, and the Municipal Separate Storm Sewer Systems (MS4).

The MS4 will apply to the eight or nine largest cities in Vermont, all located in the Lake Champlain basin. The permit will require the affected communities to address erosion control and pollution prevention by 2003.

The Multi-Sector General Permit will require many industries and municipally owned facilities to develop pollution prevention plans designed to segregate stormwater from potentially polluting materials. The final Multi-Sector General Permit is scheduled for 2002.

The Water Quality Division also administers the federally required General Permit for Stormwater Runoff From Construction Sites, or Construction General Permit. This permit requires the development of erosion control planning for larger construction sites.

#### **Statutory Reference**

10 VSA Chapter 47

#### **Program accomplishments in the White River Basin in the past five years:**

The Wastewater Management Division has conducted its ongoing oversight inspection program of municipal wastewater treatment facilities (WWTF) during the last five years (there are four municipal WWTFs in the White River Basin which discharge directly to the White River or its tributaries: Bethel, Chelsea, Randolph and Royalton). A number of technical assistance projects have been completed at municipal WWTFs in the basin, including a project in Randolph designed to improve treatment/clarification at that facility.

The Wastewater Management Division worked with the Town of Randolph and the DEC Facilities Engineering Division to eliminate combined sewer overflows from the Town's sewage collection system to Ayers Brook and the Third Branch of the White River. To date, overflows have been eliminated or substantially reduced from the majority of overflow points within the Town's collection system.

#### **Program activities planned in the White River Basin in the next five years:**

During the next five years the Wastewater Management Division will be working with the Town of Randolph to eliminate or properly treat all remaining overflows from the Town's sewage collection system.

The Wastewater Management Division will continue oversight inspections of municipal WWTFs at a minimum of once every three years and more frequently where operational and compliance records indicate ongoing problems.

The Water Quality Division will oversee the implementation of the new Stormwater Rules.

## **OTHER IMPORTANT NONPOINT SOURCE CONTROL PROGRAMS**

### **(Monitoring & Assessment, Geologic Surveys, Pollution Prevention)**

#### **Surface Water Monitoring & Assessment Program**

The overall goal of the environmental monitoring and assessment program is to ensure that good science is used to develop an understanding of the attributes of, and the forces which affect, the physical, chemical, and biological characteristics of Vermont's aquatic ecosystems, and ensure that this information is available to be used as the basis for making, and evaluating the consequences of, environmental management decisions made or influenced by DEC. The specific objectives of this program include the following:

- Determine the present and future health of aquatic ecosystems in Vermont;
- Establish empirical limits of natural variation in aquatic ecosystems in Vermont;
- Diagnose abnormal conditions to identify issues in time to develop effective mitigation;
- Identify potential agents of abnormal change;
- Assess ecological changes resulting from the implementation of environmental management activities; and
- Identify risks to human health associated with the use of aquatic resources.

In order to accomplish these objectives, this program conducts activities to monitor and assess the chemical, physical, and biological components of aquatic ecosystems. Findings relate to both ecological and human health. Activities are conducted both in response to identified issues, activities, and potential problems; and in the framework of long-term environmental status and trends monitoring.

#### **Statutory Reference**

10 V.S.A. Chapter 47

Federal Clean Water Act

#### **Program accomplishments in the White River Basin in the past five years:**

Site visits and sampling were conducted to assess aquatic resources in the Basin. Primary activities have included biological evaluations of surface water sites throughout the basin. The Biomonitoring and Aquatic Studies Section (BASS) has evaluated 16 sites in various locations within the last five years.

#### **Future program activities in the White River Basin for the next five years:**

Continued site assessments in accordance with need and DEC plans (eg rotational watershed assessments) over the next five years.

#### **Geologic Surveys & Information Program**

The Geology program conducts surveys and research related to Vermont geology, topography, and mineral resources; provides information to the public, government, industry, and other institutions which request assistance; and maintains and publishes Vermont geological information. Geologic research can illuminate the nature of ground water and the interaction of ground and surface waters that maintains stream discharge and temperature during low flow periods. Erosion studies that focus on the sources of sediment released to rivers have direct bearing on water quality.

#### **Statutory references**

3 VSA, Chapter 53, Section 2879

10 VSA, Chapter 7, Sections 101-105

**Program accomplishments in the White River Basin during the past five years:**

The Geology Division has mapped and produced a digital database for the Lincoln and Warren bedrock 7.5 minute quadrangles that cover portions of the White River Watershed.

In cooperation with the USGS, the Division has completed digital databases of USGS mapped bedrock geology for the Chittenden, Mount Carmel, Pico Peak, and Rochester 7.5 minute quadrangles.

The 1956-66 Vermont Geological Survey surficial geology maps at a scale of 1:62,500 have been digitized for the entire watershed.

A training on the "Geology of the White River Watershed" was presented to the White River Partnership.

An analysis of bank failure below the White River Ambulance Service in Bethel was completed for the Vermont Department of Emergency Management.

A completed stream geomorphic survey and natural channel design for the Upper White in the vicinity of Granville, Vermont has been used as an information base for stream restoration work.

Future program activities planned in the White River Basin in the next five years:

A surficial geologic map and fluvial geomorphic study at a scale of 1:24,000 will be conducted in the Third Branch of the White River. It will look very closely at bank erosion, channel stability and the potential for future erosion as outlined in a hazard map.

The new State bedrock geologic map compiled at 1:100,000 will be released. The surficial and bedrock geologic data will have application to ground water resource analysis.

A screening of hazard potential for the entire White River Basin will be completed and towns will be approached to incorporate erosion hazard information into town plans.

**Pollution Prevention Program**

The focus of this program within DEC is to help businesses research and identify opportunities to reduce the amount of waste generated and the amount and toxicity of chemicals used in their operations. Technical assistance may be provided on-site at the facility's request. The program is also responsible for administering Vermont's Pollution Prevention Planning Requirement affecting over 100 businesses that generate hazardous waste and/or use certain listed toxic chemicals. The Program is located in the Environmental Assistance

Division and shares a toll-free number with the Small Business Compliance Assistance Program which businesses and others can use to get answers to their environmental questions.

The program's accomplishments include the Mercury Education and Reduction Campaign (M.E.R.C), which focuses on reducing the release of mercury into the environment. The program includes education of both consumers and businesses on proper disposal of products that contain mercury, available alternatives and the health effects from the release of mercury from products and consumption of fish.

In addition, legislation enacted in 1998 requires that all mercury-added products being sold for use in the state of Vermont bear a label informing the consumer of mercury content and proper disposal instructions. This same legislation requires that mercury-added products be disposed as hazardous waste to prevent their disposal in landfills or incineration.

**Statutory reference:**

10 V.S.A. Chapter 159 Subchapter 2. Sections 6623-6632.

**Program accomplishments in the White River Basin in the past five years:**

On-site visits to 35-40 facilities per year for the purpose of providing waste reduction technical assistance and/or review of pollution prevention plans. Planned, promoted and participated in sector-specific educational workshops for vehicle service, municipal garages and lithographic printers among others. Co-developed environmental guides and fact sheets for many business sectors on applicable waste reduction strategies and compliance with environmental regulations.

Mercury Education and Reduction Campaign accomplishments include:

- School Science Lab Chemical and Mercury Clean-Out Project where 83 Vermont schools participated removing 17,000 of hazardous chemicals and 156 pounds of mercury.
- Mercury fever thermometer exchange “Catch the Fever” where 114 pharmacies pledged not only to no longer sell mercury fever thermometers but participate in a state-wide exchange.
- Educational materials were distributed along with the 33,000 digital thermometers. Pharmacies collected 45,000 mercury fever thermometers and various other mercury-added products for a total of 98 pounds that were removed from about 15% of Vermont’s households.
- Thermostat Recycling Corp.- Vermont funded 35 collection containers to be placed at wholesale contractor supply companies. Contractors and homeowners can turn in their old thermostats at no charge and the wholesaler can return the container to the manufacturer funded recycling corporation at no charge and is supplied with a new container.
- Mercury manometer replacement programs – 84 mercury manometers were replaced with non-mercury ones at working and non-working farms in the state for a total removal of mercury of about 41 pounds.
- Nearly 180 manufacturers have labeled and supplied the state with certified labeling plans.

More information about the Pollution Prevention Program is found on the Program’s website:

<http://www.anr.state.vt.us/dec/ead/eadhome/p2.htm>

**Future program activities in the White River Basin in the next five years:**

The Pollution Prevention Program will continue to offer the above services to all Vermont businesses.

Projects planned statewide for the next five years include:

- Most of Vermont’s grocers have already pledged to discontinue the sale of mercury fever thermometers in their stores. The program is ongoing and the state anticipates at least 90% participation.
- Auto switch removal programs – several salvage yard pilot programs have already begun training and removing mercury convenience lighting switches from under the hoods and trunks of salvaged vehicles. A state wide initiative to remove and replace with alternatives these same switches from state fleets has already begun.
- Appliance switch removal program – several training programs and ongoing training for removal of mercury devices from freezers, washing machines, and gas ranges and appliances are already underway. A training manual is being developed for distribution to solid waste districts, salvage yards, appliance dealers and any business that deals with white goods disposal.

- Dental – Best management practice procedures are being developed through the Department along with research regarding amalgam separators. Ongoing collection efforts and surveys are geared to reduce the use of amalgam in dental offices.
- Hospitals – Efforts are underway to proceed with mercury reduction in hospitals after the hospital survey that was completed last year. Plans for on-site visits, training and disposal assistance are being developed for various approaches to awareness and implementation of reduction plans.
- Outreach to sensitive populations is being scheduled for the coming years to educate those groups that are most affected by mercury by consuming contaminated fish. The target groups not only include children and women of childbearing age, but those population groups who normally consume large quantities of fish as their regular diet.

### **Section 319 Nonpoint Source Management Program**

Water pollution control in Vermont, as well as in other states across the nation, has tended to focus on the larger, more obvious discharges referred to as point sources of pollution. Recently, much greater attention has been directed at the more diffuse, harder to quantify, more difficult to control pollution sources known as nonpoint sources of pollution. Pollution from nonpoint sources (NPS) is the major source of water use impairment to Vermont surface and ground water resources. NPS pollution is apparent in each of Vermont's seventeen river basins. The types and extent of water quality problems associated with these sources of pollution, however, exhibit a considerable degree of variation between and within basins. To a large extent, NPS pollution control and NPS pollution prevention centers about the watershed approach, land use and land management.

NPS implementation through Section 319 has been available to Vermont since federal fiscal year 1990, the first year funding was appropriated. Over twelve years of annual funding (FFY1990-2001), Vermont has been awarded about \$11 million, which has assisted over 100 projects. Projects have been completed or are underway by a variety of interests including several towns, watershed associations and state departments, the University of Vermont and many Natural Resources Conservation Districts (refer to attached project listing). The Vermont NPS Program is involved in the following areas of concentration:

- coordination, oversight and administration of Section 319;
- influence the direction and level of NPS planning and implementation arising from other programs or funding sources (e.g. US Department of Agriculture, Lake Champlain Basin Program, Connecticut River Joint Commissions);
- assist Vermont Department of Agriculture, Food & Markets with new agricultural NPS responsibilities (as per Act 261 of 1992);
- distribution of Clean Water Act Section 604(b) pass-through planning funds to the 12 Vermont regional planning commissions; and,
- advocate the widespread adoption of certain land management practices (especially erosion/sediment control, phosphorus management and vegetated buffer strips).

#### **Statutory reference:**

Title 10 VSA, Chapter 47, the Vermont Water Pollution Control Law  
 Section 319, 1987 Amendments, Federal Water Pollution Control Act (also known as Clean Water Act)

#### **Program accomplishments in the White River Basin in the past five years:**

- Design and construction of stream habitat improvements to particular segments of the upper White River, including establishment of White River Partnership.

- Nutrient management services to particular farm operations.
- Installation of water quality protection measures on certain municipal unpaved back roads.
- Inventory and characterization of swimming use areas.

**Future program activities in the White River Basin in the next five years:**

The major future needs and goals of the Vermont NPS Program are the result of greater understanding arising from NPS implementation from two watershed projects (LaPlatte River and St. Albans Bay), from diagnostic monitoring of Lake Champlain and as a result of some 10 years of 319 program history. These needs and goals are as follows:

- Continue, to the fullest extent possible, voluntary implementation of NPS controls;
- Improve the water quality effectiveness knowledge base on certain management practices found in agricultural settings and in areas undergoing development;
- Improve the content and delivery system of information and education materials associated with NPS control and NPS management; and,
- Provide to the public on-going effective demonstrations of NPS projects and control/restoration measures.

**River Corridor Management Program**

The River Corridor Management Program provides regulatory review and technical assistance to landowners, municipalities, non-governmental organizations and other agencies to help determine the appropriate stream channel and floodplain management practices necessary to resolve and avoid conflicts with river systems. The practices selected are designed to recognize and accommodate, to the extent feasible, the stream's natural stable tendencies. The recommended conflict resolution recognizes the stream's long term physical response to past and proposed management practices. The resulting work provides increased property and infrastructure protection and maintains or enhances the ecological functions and economic values of the river system.

**Statutory Reference**

10 VSA Chapter 41

**Program accomplishments in the White River Basin during the last five years:**

- Regulatory review of most in-channel management activities and new projects like bridges, culverts or utility crossings.
- Technical support to communities and individuals in towns enrolled in the National Flood Insurance Program (NFIP) to assist in local administration of the NFIP.
- Technical and financial assistance to river restoration projects in Granville, Rochester, Hancock and Randolph.
- Development of regional geometry curves which provide a basis for river corridor management decisions.
- Initiation of a US Army Corps of Engineers Section 206 Flood Control Reconnaissance Study for the White River in Hancock.
- Assistance in recovery from a devastating flood in June, 1998.

**Future program activities planned in the White River Basin in the next five years:**

- Continuation of the above activities with addition of geomorphic assessment of rivers

## **Sand & Gravel Pits**

Nonpoint source pollution is a concern associated with the operation, maintenance, and closure of sand and gravel pits in Vermont. Surface runoff and erosion contribute to the sedimentation of waterbodies adjacent to sand and gravel pits. Vegetative cover can reduce erosion and sedimentation problems, enhancing aesthetic values, and improve nesting and cover areas for wildlife. Practices for the control of erosion can be found in: USDA Natural Resources Conservation Service Technical References:

A. Vegetating Vermont Sand and Gravel Pits- VT Technical Guide, Conservation Planning Application Technical Reference #10

B. Critical Area Planting-Conservation Practice Standards code 342: Technical Guide Chapter IV ([www.vt.nrcs.usda.gov/standards/342vt.html](http://www.vt.nrcs.usda.gov/standards/342vt.html))

## **Act 250**

Act 250 provides a public, quasi-judicial process for reviewing and managing the environmental, social and fiscal consequences of major subdivisions and development in Vermont through the issuance of land use permits. Activities include review of land use permit applications for conformance with the Act's ten environmental criteria, issuance of opinions concerning the applicability of Act 250 to developments and subdivisions, monitoring for compliance with the Act and with land use permit conditions, and public education.

In an Act 250 application, applicants need to supply sufficient information for the District Commission to make findings on the ten environmental criteria. In so doing, certifications and/or approvals from other agencies and departments, utilities, regional planning commissions and local government may be necessary.

With regard to water pollution, Criterion 1 states that the project will not result in undue water or air pollution. This criterion deals with water and air pollution potential generally and such specific matters relating to water pollution as: (A) Headwaters; (B) Waste disposal; (C) Water Conservation; (D) Floodways; (E) Streams; (F) Shorelines; and (G) Wetlands.

## **FISHERIES PROTECTION REGULATIONS**

### **Statutory references**

#### Title 10, Chapters 101 through 123, and Appendix

This is where all the laws relating directly to fish and wildlife conservation are found. It also gives the authority to the Fish and Wildlife Board to set seasons, creel limits and size limits. Most of the laws pertaining to fish are found in Chapter 111 and primarily deal with the "taking of fish." One of these laws, section 4605 (placing fish in waters) allows for the control of introductions of exotic or competing fish species as well as diseases. Section 4607 (obstructing streams) prohibits the installation of a structure that prevents fish movement, such as a rack, weir or other obstruction, unless an approval has been granted by the Commissioner of Fish and Wildlife. This statute generally is applied to small

streams with a drainage area less than 10 mi<sup>2</sup>; on larger streams Title 10, Chapters 41 or 43, is applied.

#### Title 10, Chapter 43 Dams

A certificate of public good is required before constructing any dam impounding more than 500,000 cu. ft. This law is administered by the Department of Environmental Conservation, except for projects involving the generation of hydroelectric energy, where the Public Service Board assumes jurisdiction. In public hydroelectric and flood control projects, the final authority lies with the Federal Energy Regulatory Commission or the Federal flood control program and the Vermont legislature.

Section 1084 requires the Fish and Wildlife Department to investigate the effect of any proposed project on fish and wildlife resources and to certify its findings to the Department of Natural Resources or the Public Service Board, prior to any hearing.

Section 1086 enumerates the several issue areas that must be explored before a determination of public good is made. Specifically included are recreational values; fish and wildlife; existing uses such as fishing; and the need for minimum stream flows.

#### Title 10, Chapter 47 Vermont Water Pollution Control Act

This law is administered by the Agency of Natural Resources under auspices of the Federal Water Pollution Control Act (PL 92-500). Within the Water Pollution Control Act are sections 1252 and 1258 which, respectively, set up a classification system for state waters and authorize the Agency to manage waters to attain or maintain their classification, including the regulation of discharges to state waters. Under Section 1252, Water Quality Standards are promulgated by the Water Resources Board to establish numeric and narrative standards for the management of waters. The Standards also designate all waters as to their fish habitat type - either cold water or warm water. The Standards have the force of law and set up an important framework for management of physical water quality, such as dissolved oxygen, temperature, turbidity, and toxics and for protection of other important habitat and life-stage considerations, such as nutrient control, substrate integrity, and propagation. The authority to regulate stormwater discharges is included in Section 1264. Section 1263(a) regulates activities pertaining to control of aquatic nuisances (Aquatic Nuisance Control).

#### Title 10, Chapter 41 Regulation of Stream Flow; Subchapter 1, Section 1003

This section of the statute dealing with the regulation of stream flow empowers the Department of Environmental Conservation to call to conference any dam owner that regulates natural stream flow and to require the passage of adequate flows to support the stream fishery.

#### Title 10, Chapter 41 Regulation of Stream Flow; Subchapter 1, Section 1004

Section 1004 makes the Secretary the state agent with respect to the Federal Energy Regulatory Commission (FERC) dam licensing process and with respect to the Federal Clean Water Act Section 401 administration. Under Section 401, federal agencies cannot issue licenses or permits for activities that may affect water quality until such activities have been certified as meeting state water quality standards. This Section 401 process has

proved to be a powerful tool in the review of projects subject to FERC and Corps of Engineers jurisdiction.

#### Title 10, Chapter 41 Regulation of Stream Flow; Subchapter 2 Alteration of Streams

A person may not change the cross-section of a stream or modify or alter it in any way by moving more than 10 cubic yards of material without a permit from the Department of Environmental Conservation. This subchapter does not apply to dams subject to Chapter 43 or highways and bridges subject to section 5 of Title 19. Exemptions include personal use of 50 cu. yd. of gravel/year by riparian landowners (this gravel exemption also includes streams having drainage area of less than 10 mi<sup>2</sup>) and accepted agricultural and silvicultural practices. A permit will be granted if, among other criteria, it appears the project will not significantly damage fish life. There are also special provisions for protecting outstanding resource waters.

#### Title 10, Chapter 151 Vermont's Land Use and Development Law (Act 250)

This law provides for broad protection of streams, shorelines, and water quality through criteria related to erosion control, effect on public investments, necessary wildlife habitat, and retention of the natural condition of streams and shorelines. Protection of fisheries resources has been primarily protecting stream habitat by imposing buffer strips, minimum stream flows, and stream crossings which provide unrestricted fish passage. The Act 250 district environmental commissions review development proposals to determine if they meet all the criteria of the Act (6086(a)1-10).

#### Title 29, Chapter 11 Management of Lakes and Ponds

This statute addresses encroachments into public waters, which include any structure or alteration of the lake bottom that extends beyond the mean water level of a lake or pond (the normal summer water level). Structures or activities such as retaining walls, docks, sand fill, dredging, boathouses, etc., that extend into the water require a permit from the Department of Environmental Conservation. Exemptions, if they don't unreasonably impede navigation or boating, include water intake pipes not exceeding two inches inside diameter, duck blinds, rafts, buoys, and non-commercial wooden or metal docks of a certain size, mounted on posts or floats. To grant a permit, the Department must determine that a project does not adversely affect the public good, after considering the project's impacts on water quality, fish and wildlife habitat, aquatic and shoreline vegetation, and recreational uses, among other criteria (Section 405). The Department must also make a finding that the project is consistent with the public trust doctrine. Under this doctrine, the state cannot approve a project that serves exclusively private purposes. Projects are reviewed on a case-by-case basis, using guidance provided by legal case law, to determine their consistency with the public trust doctrine.

Although there are a number of other state laws that indirectly protect fisheries resources, such as T24 Flood Plain Development and T10 Chapter 159 Solid Waste Disposal, the above are most applicable.

In addition to fisheries considerations addressed in the Federal Energy Regulatory Commission's rules, there are several other Federal regulations that can afford resource protection. Two of the most notable are:

1. Section 404 of the Federal Water Pollution Control Act amendments of 1972 give the U.S. Army Corps of Engineers the authority to regulate discharges of dredged or fill material into all waters of the U.S. including wetlands.
2. Section 10 of the Rivers and Harbors Act requires a Corps of Engineers permit for construction of any structure in or over any navigable water of the U.S. This includes dredging or disposal of dredged material, excavation, channelization or other modification. Projects can range in size from small docks to large breakwaters.