

PART ONE: EXECUTIVE SUMMARY/OVERVIEW

Overall description

The water quality of Vermont's rivers and streams and lakes and ponds is considered good. This overall water quality rating has not changed from the overall rating level reported in the 2002 305b Report. The US Environmental Protection Agency has requested states to also assess the state's water quality considering the fish consumption advisory for mercury which was issued by the Vermont Department of Health in June 1995 and most recently revised in June 2000. The advisory was issued as the result of fish tissue sampling that showed mercury in the tissue of all fish, particularly in walleye and lake trout, and also PCBs in lake trout¹ in Lake Champlain. Taking the fish consumption advisory into consideration, the overall water quality of all the state's waterbodies would be rated as fair. Deposition of mercury from the atmosphere is the predominant source believed to be responsible for elevated levels of mercury in fish.

For Vermont's wetlands, their water quality is believed to be generally good. This characterization is speculative as Vermont does not have a specific program of assessing and monitoring wetland water quality. Since personnel and financial resources are limited, it has been incumbent upon the state to insure important wetland functions and values are protected from being lost or compromised to development or other destructive practices.

No comprehensive studies have been completed on the quality of Vermont's groundwater. The quality of this vast resource is believed to meet drinking water standards for most of its consumers. An accurate assessment of groundwater quality, however, requires a program with sufficient staff and other resources to characterize the resource.

Assessment Findings

Three basin assessment reports were completed and a fourth was essentially completed in the two years since the 2002 305b report. An assessment report for Basin 13 (the Lower Connecticut River watershed) was completed in April 2002; a report for Basin 1 (the Battenkill, Walloomsac, Hoosic watershed) was completed in August 2002; and a report for Basin 12 (the Deerfield River watershed) was completed in March 2003. Each basin assessment report is available upon request. Basin 5 (the Northern Lake Champlain watershed) is undergoing final revisions as of this writing.

Rivers & streams

The assessment of Vermont's river and stream surface water quality and aquatic habitat conditions has been updated from the 2002 305b assessment with water quality information and data from waters monitored and assessed during the 1/1/01 to 12/31/03 reporting period. There is a substantial difference, however, between the use support determinations in the 2004 statewide assessment summary and those of past 305b reports. As described above and in the

¹ The 1989 advisory issued for PCBs (polychlorinated biphenyls) in Lake Champlain remains in effect.

appendix containing the Assessment Methodology, miles of rivers and streams are placed into one of four categories by degree of support to designated uses – full support, stressed, altered or impaired. This categorization differs from the categories of full support, full support/threatened, partial support, and non-support used in all earlier 305b assessment reports. The 2004 biennial report contains rivers and streams that have been re-assigned to the new categories to the extent possible. However, the current assessment categories do not directly equate to the former categories across all rivers and streams. The assessment category of these rivers and streams will be determined as DEC gets to them in the assessment rotation. *The numbers provided in use support categories as well as the miles of rivers and streams affected by different causes and sources need to be considered as transitional until a complete re-assignment and re-assessment has been done.*

Vermont has approximately 7,100 miles of perennial rivers and streams. Of the 5,479 river and stream miles assessed for this report, overall approximately 88% of those miles are in compliance with the state’s water quality standards and support designated uses, and 12% do not meet water quality standards or do not fully support the designated uses. About 1,636 river and stream miles were not assessed for this report.

Lakes & ponds

Inland lakes & ponds

All lakes and ponds within the borders of Vermont are considered as inland lakes or ponds except for the 11 segments of Lake Champlain. Moore Reservoir and Comerford Reservoir (found along the upper Connecticut River), Lake Memphremagog and Wallace Pond are transboundary waters that are reported as “inland lakes.”

Of the 55,342 inland lake/pond acres that were assessed for this report, 35,908 inland lake acres support uses and 19,434 inland lake acres do not support uses.

Although all inland lake/pond waters are impacted by mercury pollution and are subject to fish consumption advisories, Vermont’s assessment methodology indicates the need for waterbody-specific tissue data to indicate non-support of fish consumption. Accordingly, when assessed following the methodology, 85% of inland lake acres support fish consumption use. This proportion reflects that there are only a relatively small number of Vermont lakes from which actual fish tissue data are available.

Lake Champlain

In Lake Champlain and due to the combined effects of trace metal contamination, nutrient accumulation and non-native species, none of Lake Champlain’s 174,175 acres found in Vermont fully support designated uses.

No acres in the Vermont portion of Lake Champlain support fish consumption use due to elevated levels of mercury and polychlorinated biphenyls (PCB) in fish tissue.

Wetlands

The Vermont Wetlands Program within DEC administers the Vermont Wetland Rules which regulate most palustrine wetlands that have been mapped on the Vermont Significant Wetland Inventory maps. Mapped wetlands have a higher level of protection than unmapped wetlands.

Some years ago, the Vermont Agency of Natural Resources digitized all the National Wetland Inventory (NWI) maps for the state. This effort identified a statewide total of 232,000 acres of palustrine wetlands. These wetland areas are considered significant and are designated as Class Two wetlands under the Vermont Wetland Rules. Wetland inventories conducted in selected towns around Vermont indicate there is considerably more acres of wetland than identified by the NWI project. The wetlands that do not appear on the NWI maps are considered Class Three by the Vermont Wetland Rules. The area of Class Three wetlands is estimated as 90,000 acres.

A recent analysis of all completed projects reviewed by DEC showed there has been a total of 330 acres of documented wetland loss and 491 acres of documented wetland impairment over the period between 1990 and 2002. The analysis also showed there were about 590 acres of wetlands saved during the same period.

Groundwater

During the reporting period, a variety of groundwater concerns were addressed. These concerns included the occurrence of naturally occurring arsenic and radionuclides. The wastewater disposal issue regarding radionuclides at public drinking water systems is particularly problematic. MTBE (an additive by refiners to gasoline) is also of major concern regarding groundwater and about 75,000 private wells near hazardous waste sites have been sampled for MTBE. More than 250 wells have MBTE detections across the state.

Approximately 80 public community water systems were identified during the 2001-2003 period with simple 3,000 foot radius circles for Source Protection Areas. Appropriate hydrogeologic calculations and principles were used to provide a hydrogeologically-based Source Protection Area for some water systems. Of the 80 areas identified, 9 reports have been completed and another 10 are under development.

In 2002, the on-site sewage statute was reformed to provide universal jurisdiction over all on-site sewage (septic) systems. This was a major event in the protection and improvement of Vermont's groundwater quality.

Listings of Waters

Development of the Year 2004 List of Impaired Waters (a reporting requirement under Section 303d of the Clean Water Act) is a concurrent process to the development of the 2004 305b report. Consequently, the final 2004 303d List of Impaired Waters is not included in this report. The 2004 303d List of Impaired Waters will be finalized and made available separately.

Vermont's 2002 303d List of Impaired Waters was approved by the New England regional office of EPA during the reporting period (approval on July 28, 2003). The 2002 listing identified a total of 182 waters as being impaired (111 river/streams and 71 lakes/ponds).

During the 2004 305b reporting period, the New England regional office of EPA approved 41 Total Maximum Daily Load determinations completed by DEC.

Concerns & Recommendations

There are several concerns and recommendations that have been identified which relate to the management and improvement of Vermont's water quality and water resources. Concerns and recommendations have been prepared for the following topics and are described in Chapter 9:

Atmospheric deposition of pollutants
Hydrologic modifications in lakes and rivers
Exotic aquatic species as pollutants
Eutrophication of lakes
Nutrient criteria
Stormwater management
Polluting discharges from large farms
Lack of strategic statewide vegetated buffer requirements
Groundwater