

# Connecticut River Report to the General Court 2008

## I. Introduction

The Connecticut River begins in the town of Pittsburg, New Hampshire and flows south for 255 miles before it enters into the state of Massachusetts. The main stem of the Connecticut River has been nominated by the Connecticut River Valley Resources Commission of NH and the Connecticut River Watershed Advisory Commission of VT for designation into the New Hampshire Rivers Management and Protection Program. The Connecticut River has been evaluated by the Department of Environmental Services and the Rivers Management Advisory Committee and found to qualify for designation.

The Rivers Management and Protection Program Act was passed by the General Court in 1988. The Act states in part: "It is the policy of the state to ensure the continued viability of New Hampshire rivers for the benefit of present and future generations. The state shall encourage and assist in the development of river corridor management plans and regulate the quantity and quality of instream flow along certain protected rivers or segments of rivers to conserve and protect outstanding characteristics including recreational, fisheries, wildlife, environmental, cultural, historical, archaeological, scientific, ecological, and community significance so that these valued characteristics shall endure as part of the river uses to be enjoyed by New Hampshire people."

The Act directs the Department of Environmental Services (DES) to receive and evaluate nominations for the designation of rivers or river segments to protect outstanding values and characteristics under the Rivers Management and Protection Program. The Commissioner must forward approved nominations to the General Court for review and approval.

In fulfillment of this statutory directive, the nomination of the Connecticut River is hereby forwarded to the General Court. The Department of Environmental Services recommends that the Connecticut River be designated into the Rivers Management and Protection Program and be classified as enclosed under the provisions of the protection measures outlined in RSA 483. The outstanding values and characteristics which qualify the Connecticut River for designation are described in this report.

## II. The Connecticut River Nomination

### A. Description

The Connecticut River begins at the outlet of Fourth Connecticut Lake in the town of Pittsburg, New Hampshire and flows for 255 miles along 26 New Hampshire communities and 27 communities in Vermont. The New Hampshire communities include Pittsburg, Clarksville, Stewartstown, Colebrook, Columbia, Stratford, Northumberland, Lancaster, Dalton, Littleton, Monroe, Bath, Haverhill, Piermont, Orford, Lyme, Hanover, Lebanon, Plainfield, Cornish, Claremont, Charlestown, Walpole, Westmoreland, Chesterfield, and Hinsdale. The river flows by rolling hills, forests, fields, communities, and residential areas. The river drops more than 2,480 feet in elevation as it winds down to the border of Massachusetts. The Connecticut River is the focal point of the Connecticut River Watershed, which drains 11,250 square miles, 3,928 square miles in Vermont and 3,046 square miles in New Hampshire.

Land use along the corridor of the Connecticut River is primarily rural and agricultural, with considerable land forested and undeveloped. A majority of the land along the river is zoned for limited residential use. There are infrequent commercial and industrial sites. In general, existing developments are well-screened from the river. New England Power Company owns 117 miles of river frontage and manages it for timber, wildlife, and recreation.

In 1987 the New Hampshire legislature created the Connecticut River Valley Resource Commission to "cooperate with the State of Vermont in protecting and preserving the visual, ecological, and agricultural integrity of the Connecticut River Valley while planning for and guiding the development of recreational, tourist, commercial, and residential uses of the valley. The Commission shall achieve these goals by identifying, protecting, and promoting the natural, recreational, cultural, and historic resources of the Connecticut River Valley. The commission shall seek the cooperation of the state of Vermont in achieving these goals." The Commission is made up of 15 members. In the past four years the Commission has produced a resource inventory of the river, convened a well attended conference to set an agenda for the valley, began the process to produce a film about the river valley and stewardship of its resources, gained additional federal funding for towns to implement projects to protect the river, provided technical support to communities along the river, conducted a survey of the 1400 landowners along the river and provided a forum for addressing the economic betterment and environmental stewardship of the Connecticut River Valley.

## **B. River Values and Characteristics**

The Rivers Management and Protection Program Act (RSA 483) lists nine resource values and characteristics which may qualify a river for designation into the program. The Connecticut River supports many of these natural, managed, cultural, and recreational resource values and characteristics at a level of either national, statewide or local significance. The resource values which qualify the Connecticut River for designation include: geologic, wildlife, plant and fish resources; water quality; scenic values; water withdrawals; wastewater discharges; hydroelectric resources; historic and archaeological resources; community resources; and recreational resources.

### **1. Natural Resources**

a. Geologic Resources: The Connecticut River and its valley offer a rich history in geology and geomorphic features. The valley is internationally renowned in the research of glacial geology for the deposition of sediments that occurred in Lake Hitchcock as the ice sheet receded. Bedrock exposures and cuts are used as field study sites by the academic institutions throughout the valley. These exposures are the principal source of observation and collection for scientific research and refinement of the geological history of the Appalachian Mountains. The river course is important to scientists in developing quantitative models of erosional dynamics such as meandering. The sedimentary deposits of Lake Hitchcock provide a record of lake chronology and a source of information about crustal rebound as the ice receded. The geologic history of the region has also resulted in the formation of various aquifers in the Connecticut River Basin which communities use for water supply.

b. Wildlife Resources: The Connecticut River and its corridor provides a variety of habitats for wildlife. The river travels through boreal spruce-fir forests in its headwaters, northern hardwood and mixed forests in the central sections, and drier oak forests in the southernmost part of the state. Other important wildlife habitat is located in the rich agricultural lands along the river. The

diverse habitats of the river and its corridor provide breeding habitat for nearly 300 species of native vertebrate animals. Because of its great length, north-south course, abundant wetlands and geographic location in the northeast, the Connecticut River is an important travel corridor for migratory birds. A complete listing of wildlife in and along the Connecticut River is included in the Connecticut Valley Inventory, Volume II. There are also several endangered and threatened species that are present in the Connecticut River Valley. The dwarf wedge mussel is one of the federally endangered species found in the valley. The Connecticut River boasts the largest population of this species in the world. The remaining endangered and threatened species are listed in the Connecticut Valley Inventory, Volume I.

c. Plant Resources: The Connecticut River Valley supports a rich and diverse selection of plant communities. From the spruce-fir coniferous forests to the hardwood forests of the lower valley the corridor supplies us with several endangered and threatened species of plants as well. Of particular mention is the Jesup's milk-vetch, a federally listed endangered species in which the only known occurrences are along the Connecticut River. A complete listing of endangered and threatened plant species in the valley is found in the Connecticut Valley Inventory, Volume I. Associated with the plant communities noted above are specific areas found in the river corridor that are considered to be significant because of their unique character and species composition. These habitats provide some of the rarest and most remarkable ecological communities in all of New England. These communities include the (1) floodplain forests, seasonally-flooded riverside forests, which provide nesting sites for unusual warblers and bald eagles and where ostrich fern and green dragon inhabit the forest floor; (2) riverside seeps and outcrops, gravelly and sandy bank areas kept moist by seeping groundwater, which host some of the rarest plants in New England including the Jesup's milk-vetch; and (3) calcareous wetlands, calcium rich wetland areas, which grow many rare orchids.

d. Fish Resources: Several species of fish reside in the Connecticut River, ranging from warm water perch, bass, pickerel, walleye and pike to cold water trout. The river also sustains a population of anadromous fish such as shad, alewife and salmon. In much of the main stem of the river below Lancaster warm water species may be found. Cold water species are found in the northern stretches of the river as well as in areas below Lancaster at the mouths of tributaries. In the river north of Lebanon cold water species were originally found. South of this area both cold and warm water fish were originally found. This general pattern holds true today, but is influenced by the major dams, which change the habitat in their upstream pools. One of the most active Atlantic salmon restoration efforts is being conducted on the Connecticut River. NH Fish and Game stock approximately 150,000 salmon fry each year in tributaries to the Connecticut river. An aggressive fish ladder program is also being carried out on the river. To date, fish ladders have been installed as far upstream as Wilder Dam in Lebanon. Additional ladders are scheduled to be installed further upstream in the future. In addition to stocking Atlantic salmon, NH Fish and Game stock approximately 33,750 trout into the Connecticut River each year.

e. Water Quality: The Connecticut River has been designated a Class B water by the New Hampshire General Court. Approximately 147 miles of the 255 total miles is not meeting this standard. Bacteria has been cited as the standard that has been violated in all but one section. The maintenance of water quality meeting the Class B standard and the enhancement of water quality not presently meeting the standard is critical to the river's future use for water supply and recreational purposes, as well as the river's ability to support high quality wildlife and plant habitat.

f. Scenic Values: The Connecticut River and its valley provide the state with some of its most valuable scenic views. The river provides views of long stretches of whitewater, surrounding wetlands full of wildlife, views from the river of distant peaks, town hall steeples, vast agricultural fields and farmlands, and traditional New England homes such as those in Orford. The River Road, north of the East Thetford Bridge to the Orford town line, has been designated a town scenic road. Also of scenic value to the river is the Cornish-Windsor covered bridge, the longest covered bridge in the nation, and the St. Gauden's National Historic Site, with its commanding view of Mt. Ascutney.

## **2. Managed Resources**

a. Impoundments: There are 13 dams on the main stem of the Connecticut River that impound water either for storage or for hydroelectric power production purposes. They range from a 10 foot dam that impounds 4 acres to a 106 foot dam that impounds 1,895 acres and a 56 foot dam that impounds 2,800 acres. Four of these dams are used solely for storage and flow augmentation. The management of these facilities affects the flow of the river in the northern reaches. The purpose of these dams are primarily for the storage and release of water to aid in the hydropower operations downstream.

b. Water Withdrawals: Water withdrawals from the Connecticut River are used for industrial and agricultural purposes. Two of these use more than 20,000 gallons per day and are recorded with the Department of Environmental Services. These withdrawals are the Glazier Hollow Nursery withdrawal in Haverill (46,000 gallons/day), and the Lebanon Crushed Stone withdrawal in Lebanon (1,782,000 gallons/day). These figures represent the average daily withdrawal.

c. Wastewater Discharges: There are several discharges to the Connecticut River, including discharges from wastewater treatment plants, industrial facilities, research laboratories, and combined sewer overflows. There are nine facilities that have been granted a wastewater discharge permit to the Connecticut River from the NHDES, including seven wastewater treatment facilities, one industrial discharge and one research laboratory discharge. Additional discharges originate in Vermont.

d. Hydroelectric Resources: The Connecticut River is a highly managed river, featuring thirteen active dams, including nine hydroelectric facilities and four storage facilities. Many of the dams operate as a unit to produce significant amounts of peaking power for the New England power grid. There are approximately 1,250,000 MW hours of annual production from the facilities on the Connecticut River. New England Power Company's Moore Station, capable of generating 200,000 kilowatts, is the largest conventional hydroelectric plant in New England. From Second Lake to the Massachusetts border approximately 73% of the head of the river is captured for hydroelectric production.

## **3. Cultural Resources**

a. Historical/Archeological Resources: There are numerous archeological sites along the Connecticut River. Large sites tend to occur near confluences with tributaries. Some of the locations exist in Lancaster near the Israels River, in Haverhill near Oliverian Brook, in Hanover near Blood Brook, in Claremont near the Sugar River, in West Chesterfield near Indian Brook and in Hinsdale near the Ashuelot River. Other large sites occur along the Connecticut River in Orford, Plainfield, Charlestown, Walpole and North Walpole. There are many more smaller sites

along the river. Two of particular mention are a rock engraving of a fish at the falls in North Walpole and a burial site in Lyme.

The earliest permanent European settlement took place in 1743 at Fort #4 in what is now Charlestown. In the 1790s and early 1800s a system of canals were built on the Connecticut River that allowed access upstream to Woodsville. After the canals came the railroads and then the road system including the many covered bridges spanning the river. There are ten bridges on the Connecticut River that are registered with the National Register of Historic Places including the famous Cornish-Windsor Bridge.

There are several communities along the Connecticut River that boast areas that are registered with the National Register of Historic Places. They include Haverhill Corner, Orford Street, Lyme Center, Lyme Common, Colburn Park in Lebanon, three areas in Claremont and Main Street in Charlestown. There are numerous homes and other single buildings that have also been included on the National Register but they are too numerous to mention in this report. For a full listing of the buildings please refer to the Connecticut Valley Inventory, Volume II.

b. Community Resources: Several communities along the Connecticut River have established town or state parks in the river corridor. In addition, thirty-three towns, thirteen in New Hampshire and twenty in Vermont, have instituted shoreland or floodplain regulations in their community. The river is viewed as a community resource through activities such as annual fishing derbies, educational programs along the river and annual river trips.

#### **4. Recreational Resources**

a. Fishing: The Connecticut River is a nationally recognized trout fishing river, cited in national magazines such as Fly Fisherman. Hundreds of people from across the country and Canada visit New Hampshire each year to fish in the Connecticut River. Cold water fisheries are commonly found in the northern stretches while warm water fisheries are more commonly found in the southern regions. There are approximately 32 species of fish that the Connecticut River is home to.

b. Boating: The Connecticut River offers boaters a wide variety of boating opportunities from the Third Connecticut Lake to Long Island Sound. In New Hampshire boating begins in Pittsburg with whitewater stretches for expert kayakers and continues down to Hinsdale where hundreds of people enjoy flat water boating and motorized boating. Two of the popular whitewater sections include the runs through Lyman Falls and Sumner Falls. There are approximately 50 access sites along the river in New Hampshire and 36 in Vermont.

c. Other Recreation: There are several recreational activities that take place in and along the Connecticut River. Snowmobile trails are very popular in the northern reaches of the river while bike trails are cited in almost every town from Littleton to Walpole. Other popular activities include wildlife observation, camping, swimming, equestrian trails, picnicking, waterskiing, cross-country skiing and hiking. The trails on Mount Pulaski, Percy Peaks and the Appalachian National Scenic Trail offer scenic views of the river. New England Power offers several recreational opportunities on their property. Visitor centers offer viewing windows and their recreation areas offer swimming, hiking, ball fields and picnic sites.

### **III. Local Support**

The high degree of public support for this nomination, including support from businesses and industries along the river is extremely impressive. Public hearings along the river brought out approximately 216 people to comment on the nomination. An overwhelming majority of the comments were in support of the nomination. In addition, the Department has received written testimony from over 600 people in support of the nomination. The Connecticut River Valley Resource Commission distributed 1,400 questionnaire's to riparian landowners along the Connecticut River. Twenty-nine percent of the landowners responded to the survey. Ninety-eight percent of the respondents felt that the river contributed to the quality of life in their community. River values that were recognized as very important were scenic quality, water quality, wildlife and waterfowl habitat, and recreational opportunities on the river.

### **IV. Summary and Recommendations**

The Connecticut River possesses a variety of significant federal, state and local resources which qualify the river for designation into the Rivers Management and Protection Program. To better protect and manage these resources, the Department of Environmental Services recommends the following:

Recommendation 1: The General Court should adopt legislation which designates the main stem of the Connecticut River into the Rivers Management and Protection Program and classifies the river as outlined on the following page.

Under the provisions of the protection measures in RSA 483, a designation will provide increased protection for the river against damaging channel alterations, water quality impairment, the siting of solid and hazardous waste facilities and, in some instances, against new dam construction. A designation will also require the establishment of a protected instream flow to maintain a minimum amount of water in the river in order to safeguard public trust resources, including fisheries, water quality, recreation, hydroelectric energy production and scenic values. A Local Rivers Management Advisory Committee will be established to coordinate local issues related to the protection and management of the river and will provide local residents with a direct avenue for formal input to state decisions that affect the river. Finally, a designation will result in the development of a long-range management plan for the river that coordinates state planning and management of fisheries, water quality and quantity, and recreation.

Recommendation 2: The communities along the river should continue to work toward the protection of the Connecticut River through the adoption of local river corridor management plans, including comprehensive shoreland protection ordinances.

While a state designation will improve the protection and management of the river itself, continuing local efforts will be needed to address the use and conservation of the river corridor. With the help of the efforts of the Connecticut River Valley Resource Commission in New Hampshire and the Connecticut River Watershed Advisory Commission in Vermont local committees will be able to address these issues in a coordinated and cooperative manner. Citizen concern should be reflected in the decisions and actions of local government officials. Upon request, the Department of Environmental Services will provide technical assistance to the towns along the Connecticut River on the development of local river corridor management plans and comprehensive shoreland protection ordinances.

In summary, the establishment of a clear policy and specific instream protection measures by the General Court and a continuing commitment on the part of local governments and residents to manage and protect the river corridor through sound land use decisions will ensure that the outstanding resources of the Connecticut River will "endure as part of the river uses to be enjoyed by New Hampshire people."

## CLASSIFICATIONS

RURAL: Outlet of the Fourth Connecticut Lake to a point .03 mi. above Second Connecticut Lake Dam. 0.6 mi. Map 6.

RURAL: From the point below McIndoes Falls Dam to a point 0.3 mi. above the Ryegate Dam 3.4 mi. Map 35

COMMUNITY: From the point above Second Connecticut Lake Dam to a point 0.3 mi. Below Second Connecticut Lake Dam. 0.6 mi. Map 6.

COMMUNITY: From the point above Ryegate Dam to a point 0.2 mi. below Ryegate Dam. 0.5 mi. Map 35.

RURAL: From the point below Second Connecticut Lake Dam to a point .3 mi. Above First Connecticut Lake Dam. 6.8 mi. Map 8.

RURAL: From the point below the Ryegate Dam to the Ammonoosuc River in Bath, NH. 3.8 mi. Map 37.

COMMUNITY: From a point above First Connecticut Lake Dam to a point 0.3 mi. below First Connecticut Lake Dam. .6 mi. Map 8.

COMMUNITY: From the Ammonoosuc River to the point where Routes 135 and 10 meet in Haverill, NH. 1.9 mi. Map 37.

RURAL: From the point below First Connecticut Lake Dam to a point 0.3 mi. above Murphy Dam 7.8 mi. Map 10.

RURAL: From the intersection of Routes 135 and 10 to Storrs Pond Brook in Hanover, NH. 40.0 mi. Map 46.

COMMUNITY: From the point above Murphy Dam to a point 2.0 mi. below Murphy Dam 2.3 mi. Map 10.

RURAL COMMUNITY: From Storrs Pond Brook to Dothar Brook outlet in Hartford, VT. 4.3 mi. Map 48.

RURAL: From the point below Murphy Dam to Bishop Brook in Stewartson, NH. 5.7 mi. Map 12.

COMMUNITY: From Dothan Brook to 0.3 mi. Below the Wilder Dam. 1.3 mi. Map 48.

COMMUNITY: From Bishop Brook to Leach Creek in Canaan, VT. 3.8 mi. Map 13.

RURAL COMMUNITY: From the point below Wilder Dam to the Lebanon/Plainfield town line. 4.7 mi. Map 50.

RURAL: From Leach Creek to Wheeler Stream in Brunswick, VT. 24.2 mi. Map 19.

RURAL : From the Lebanon/Plainfield town line to Blow-Me-Down Brook in Cornish, NH. 9.1 mi. Map 52.

NATURAL: From Wheeler Stream to the Maidstone Stratford bridge. 7.8 mi. Map 20.

RURAL COMMUNITY: From the Blow-Me-Down Brook to the northern end of Chase Island in Cornish, NH. 1.9 mi. Map 53.

RURAL: From the Maidstone-Stratford bridge to a point one mile above the breached Wyoming Valley Dam in Northumberland, NH. 10.9 mi. Map 22.

RURAL: From the N. End of Chase Island to

COMMUNITY: From one mile above the breached Wyoming Valley dam to one mile below the Wyoming Valley dam in Northcumberland. 2.0 mi. Map 22.

RURAL: From one mile below the breached Wyoming Valley Dam site to a point 0.3 mi. above the Simpson Paper Co. Dam between Gilman, VT and Dalton, NH. 18.6 mi. Map 28.

COMMUNITY: From the point Simpson Paper Co. Dam to 0.3 mi. below the Simpson Paper Co. Dam 0.6 mi. Map 28.

RURAL: From the point below the Simpson Paper Co. Dam to a point 0.4 mi. above Moore Dam 10.2 mi. Map 31.

COMMUNITY: From the point above Moore Dam to a point 0.6 mi. Below Moore Dam. 1.0 mi. Map 31.

RURAL: From the point below Moore Dam to a point 0.3 mi. above Comerford Dam 9.5 mi. Map 34.

COMMUNITY: From the point above Comerford Dam to a point 0.2 mi. Below McIndoes Falls dam. 2.3 mi. Map 34.

the southern side of the Williams River in Bellows Falls, VT. 22.7 mi. Map 59.

COMMUNITY: From the Southern side of the Williams River to the Saxtons River in Westminster, VT. 3.4 mi. Map 60.

RURAL COMMUNITY: From the Saxtons River to the bridge between Westminster Station and Walpole, NH. 3.1 mi. Map 61.

RURAL: From the bridge at Westminster Station to the Brattleboro/Dummerston, VT town line. 16.7 mi. Map 66.

RURAL COMMUNITY: From the Brattleboro/ Dummerston town line to Sprague Brook in Hinsdale, NH. 8.7 mi. Map 68.

COMMUNITY: From Sprague Brook to a point 0.3 mi. below the Vernon Dam. 1.4 mi. Map 68.

RURAL: From the point below the Vernon Dam to the Massachusetts border. 5.3 mi. Map 69.