Bill as Introduced

2000 SESSION

00-2801
08/09

HOUSE CONCURRENT RESOLUTION *33*

A RESOLUTION establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

SPONSORS: Rep. Burling, Sull 1; Rep. Avery, Ches 8; Rep. Nordgren, Graf. 10; Sen. Disnard, Dist 8

COMMITTEE: State-Federal Relations and Veterans Affairs

ANALYSIS

This house concurrent resolution urges the congressional delegations of New Hampshire and Vermont to seek continuation of cooperative partnerships and support from the New England Federal Partners for Natural Resources to the Connecticut River Joint Commissions for purposes of carrying out the recommendations of the Connecticut River Corridor Management Plan.

00-2801
08/09

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand

A RESOLUTION establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

Whereas, the New Hampshire state legislature established the Connecticut River Valley Resource Commission in 1987; and

Whereas, the Vermont state legislature established the Connecticut River Watershed Advisory Commission in 1988; and

Whereas, the 2 commissions started to meet jointly, and in 1990 established a nonprofit organization, the Connecticut River Joint Commissions, to carry out their cooperative educational and advisory activities; and

Whereas, the Connecticut River, from the outlet of Fourth Connecticut Lake to the Massachusetts border was adopted by the New Hampshire legislature into the New Hampshire rivers management and protection program in 1992; and

Whereas, the Vermont legislature authorized Vermont citizens from municipalities bordering the Connecticut River to serve on local river management advisory groups established pursuant to New Hampshire law; and

Whereas, the Connecticut River Joint Commissions established 5 advisory bi-state local river subcommittees comprised of representatives nominated by the governing body of their municipalities; and

Whereas, the local river subcommittees worked for 4 years to reach consensus and develop a plan, and the Connecticut River Joint Commissions published the 6-volume Connecticut River Corridor Management Plan in 1997; and

Whereas, this citizen-based plan provides advisory recommendations for agencies, communities, and the public on how to be good neighbors to a great river; and

Whereas, the New England Federal Partners for Natural Resources, a consortium of 9 federal agencies, have established action teams to aid the Connecticut River Joint Commissions in implementing the plan's recommendations; and

Whereas, the Connecticut River Joint Commissions have brought about a cooperative dialogue and partnership among diverse users of the river, local communities, organizations, state agencies, and federal agencies for improved protection of natural resources, promotion of heritage tourism and the Connecticut River Scenic Byway, opportunities for river recreation, marketing of agricultural products, and understanding and safeguarding water quality; now, therefore, be it

Resolved by the House of Representatives, the Senate concurring:

That the house of representatives and senate of the state of New Hampshire, and the house of representatives and senate of the state of Vermont, ask the congressional delegations of New Hampshire

and Vermont to seek continuation of cooperative partnerships and support from the New England Federal Partners for Natural Resources to the Connecticut River Joint Commissions for purposes of carrying out the recommendations of the Connecticut River Corridor Management Plan; and

That copies of this resolution be forwarded by the house clerk to the governor of New Hampshire, the New Hampshire congressional delegation, the governor of Vermont, and the Vermont congressional delegation.

Speakers

Fill in *ONLY* if *SPEAKING* on Bill

Bill # HCR 33 Date 3-7-00

Committee Fed-State Rel

I support the bill ✓

I oppose the bill ____

I have written testimony ____

(Number of copies) ____

Time needed to speak: 2

Name J. Charlton Vermilye Newbold

Address PO 1182

Charlestown

Phone 826-4800 / 675-2394

Representing CT River Joint Commissions

#1

SIGN UP SHEET

To Register Opinion If Not Speaking

Bill # HCR 33 Date 3/7/00

Committee State-Federal

**** Please Print All Information ****

Name	Address	Phone	Representing	(check one) Pro	Con
Sen. George F. Dionard		—	self	✓	

Hearing Minutes

HOUSE COMMITTEE ON STATE-FEDERAL RELATIONS AND VETERANS AFFAIRS

PUBLIC HEARING ON HCR33

BILL TITLE: establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

DATE: March 07, 2000

LOB ROOM: 308 **Time Public Hearing Called to Order:** 1:30pm

Time Adjourned: 1:50pm

(please circle if present)

Committee Members: Reps. Tufts, J. Gagnon, Fields, Fenton, Rubin, N. Reardon, D. Flanders, Dalianis, Marple, D. Ouellette, Priestley, Quandt, Young, Lynott, Domingo, Drabinowicz, Herman, J. McDonald, Vincent, Twardus, G. Johnson and McDonough-Wallace.

Bill Sponsors: Rep. Burling, Rep. Avery, Rep. Nordgren, Sen. Disnard

TESTIMONY

* Use asterisk if written testimony and/or amendments are submitted.

Rep. Burling, Sponsor, stated that this bill does not establish, but continues the existing legislative cooperation on issues dealing with the Connecticut River.

Chairman Tufts asked why the bill arrived so late. We attempted to move it through Legislative Rules. The present effort has produced funding to maintain this program. We lost money when a mid-western (Ohio) member of Congress felt the sums were small and therefore these monies were not needed.

Sharon Francis, ED, Connecticut River Commission stated that companion legislation has passed the Vermont Assembly. This legislation would support our congressional delegation in their efforts to enter a line item in the general budget.

Rep. McDonald asked if it was in a different budget line. Ans. – "Yes".

Rep. Pratt supports this legislation. This is a symbolic effort to that area of our state.

* **James McCartney, NHDES**, supports this legislation. This resolution will assist in the continuing cooperation on the Connecticut River.

Respectfully submitted,

James J. Fenton

James J. Fenton, Clerk

HOUSE COMMITTEE ON STATE-FEDERAL RELATIONS AND VETERANS AFFAIRS

PUBLIC HEARING ON HCR33

BILL TITLE: establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

DATE: 3-7-2000

LOB ROOM: 308 **Time Public Hearing Called to Order:** 1:30 pm

Time Adjourned: 1:50 pm

(please circle if present)

Committee Members:Reps Tufts, G. Gagnon, Fields, Fenton, Rubin, N. Reardon, D. Flanders, Dalianis, Marple, D. Ouellette, Priestley, Quandt, Young, Lynott, Domingo, Drabinowicz, Herman, J. McDonald, Vincent, Twardus, G. Johnson and McDonough-Wallace.

Bill Sponsors: Rep. Burling, Rep. Avery, Rep. Nordgren, Sen. Disnard

TESTIMONY

* Use asterisk if written testimony and/or amendments are submitted.

Public Hearing

Rm 308 HCR-33 3-7-2000

Open @ 1:30 PM

Rep Burling - Sponsor, This bill does not establish, but continues the existing Legislative cooperation on issues dealing with the Connecticut River

Rep Tufts, Why did this bill arrive this late? - We attempted to move it through Legislative Rules Chester. New Eld, (CT River Joint commission) supports. The ~~project~~ present effort has produced funding to maintain this program. We lost money when a mid-western (Ohio) member of congress felt the sums were small & therefore these monies were not needed.

Sharon Francis, E.D. Connecticut River commission. companion Legislation has passed the Vermont Assembly. This legislation would support our congressional delegation in their efforts to enter a line item in the general budget.

Rep MacDonald - That was in a different budget line? - Yes

Rep Pratt - ~~Sponsor~~ supports. This is a symbolic effort to that area of our state

Mr MacCartney - supports. (NHDSS) This resolution will assist in the continuing cooperation on the ~~Connecticut~~ Connecticut River.

Closed hearing @ 1150pm.

Testimony

State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES
6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095
(603) 271-3503 FAX (603) 271-2982

March 7, 2000

J. Arthur Tufts, Chairman
House State Federal Relations & Veterans Affairs
Legislative Office Building, Room 308
Concord, NH 03301

SUBJECT: HCR 33, establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut River.

Dear Chairman Tufts:

Thank you for the opportunity to comment in support of HCR 33. This bill urges the congressional delegations of New Hampshire and Vermont to seek continued support from the New England Federal Partners for Natural Resources in implementing the recommendations of the *Connecticut River Corridor Management Plan.*

The Connecticut River is one of twelve rivers designated for protection under the New Hampshire Rivers Management and Protection Program and one of only fourteen rivers nationwide designated at the federal level as an American Heritage River.

The *Connecticut River Corridor Management Plan* was developed locally by the Connecticut River Joint Commissions and its five subcommittees, and represents the consensus recommendations of citizens from both sides of the Connecticut River developed over a four-year period. The *Plan* provides a road map for how government agencies at all levels can best assist local citizens in maintaining and improving the unique resources of the Connecticut River.

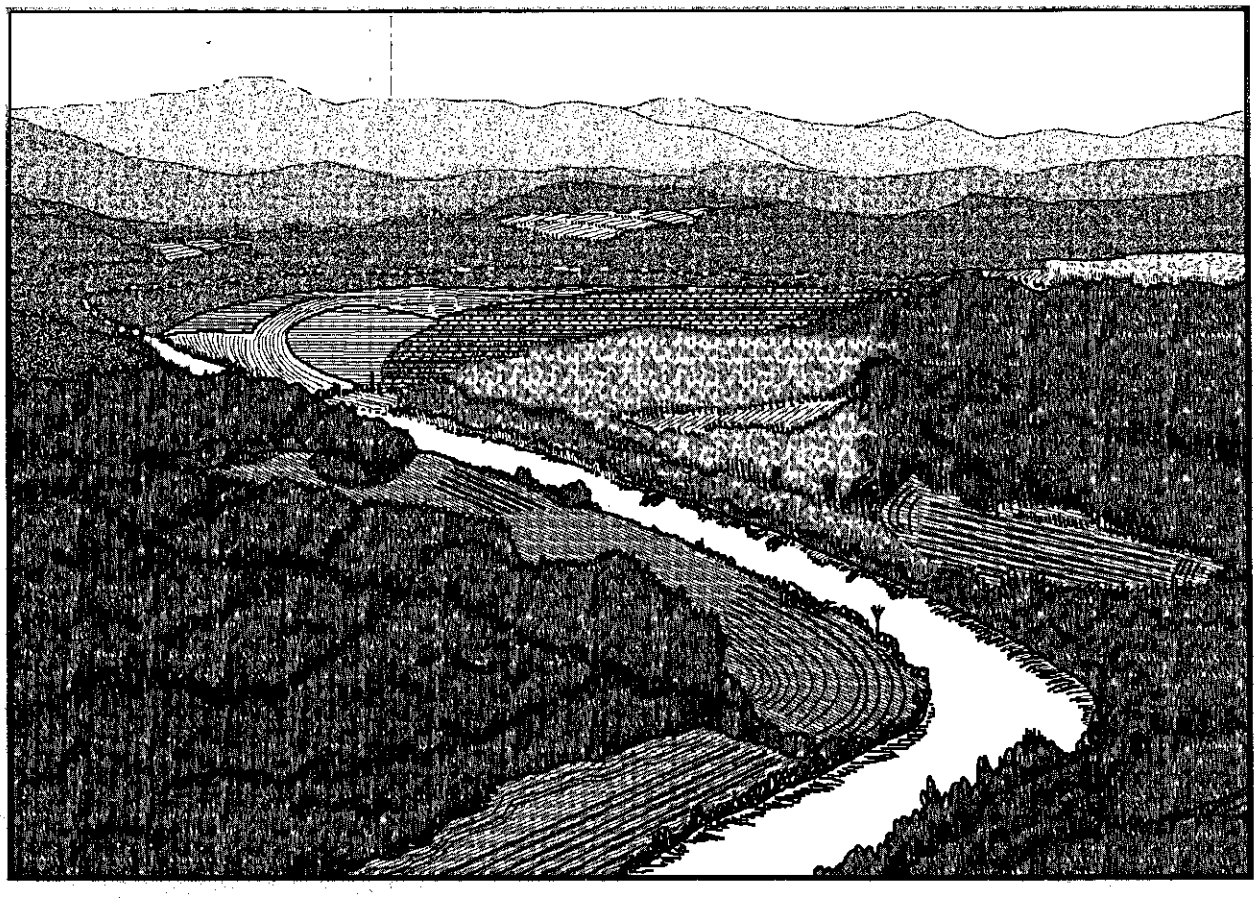
The nine agencies comprising the New England Federal Partners for Natural Resources are ideally positioned to assist the Connecticut River Joint Commissions in carrying out the recommendations of the *Connecticut River Corridor Management Plan* and are already engaged in this process. Their continued support is critical to the success of this endeavor.

Thank you for the opportunity to comment on this important legislation. If you have any questions or need additional information, please contact Jim MacCartney, Rivers Coordinator, or me at 271-3503.

Sincerely,

Robert W. Varney
Commissioner

Working in Partnership



The Partnership Program of the Connecticut River Joint Commissions

Partnership Program Grant Award Winners, 1992 - 1998

1992

Ashuelot River Nomination, Harris Center, Hancock, NH • Basin Farm Land Protection, Rockingham County Community Land Trust, Bellows Falls, VT • Clay Brook Canoe Campsite, Upper Valley Land Trust, Hanover, NH • Cow Mountain Land Protection, Granby Conservation Commission, Granby, VT • Creative Landscape Planning Publication, Aiken Resource Conservation & Development Council, Randolph, VT • Fall Mt. High School River Monitoring, Fall Mountain Regional High School, Langdon, NH • Archeological Excavation, Fort at No. 4, Charlestown, NH • Fullington Streambank Restoration, Hanover Conservation Council, Hanover, NH • Glory Days of Railroads, River City Arts, Hartford, VT • Hanover Trails, Hanover Conservation Commission, Hanover, NH • Hartford Development Corporation, Town of Hartford, Hartford, VT • Hartford H. S. Riverwatch, Hartford High School, Hartford, VT • Horse Meadows Canoe Campsite, Upper Valley Land Trust, Norwich, VT • Keene Brooks/Earn-It Project, Keene Conservation Commission, Keene, NH • Land Management & Protection, Society for the Protection of NH Forests, Concord, NH • Passumpsic River Streambank Stabilization, Caledonia County Natural Resources Conservation District, St Johnsbury, VT • Piermont Canoe Campsite, Upper Valley Land Trust, Hanover, NH • Randolph Greenway, Town of Randolph, Randolph, VT • Sharon Recreation and Natural Area, Sharon Conservation Commission, Sharon, VT • Southwest Trailhead, Friends of Pisgah, Chesterfield, NH • Springfield-Charlestown Conference, Springfield Trails Association, Springfield, VT • St. Johnsbury Three Rivers Path, St. Johnsbury Path Committee, St. Johnsbury, VT • Sugar River Historic Tour, Sunapee Historical Society, Sunapee, NH • Thetford Academy Trail, Thetford Academy, Thetford, VT

1993

Bellows Falls Canal Improvement, Town of Rockingham, Bellows Falls, VT • Black River Initiative, Connecticut River Watch Program, Montpelier, VT • Connecticut River Primitive Campsite Project, Upper Valley Land Trust, Norwich, VT • Cady Brook Trail Repairs, Hartland Conservation Commission, Hartland, VT • Canaan Water Quality & River Access, Canaan Memorial High School, Canaan, VT • Connecticut River Erosion Control Brochure, Grafton County Conservation District, Woodsville, NH • Conte Refuge Outreach Program, Connecticut River Watershed Council, Easthampton, MA • Dimes for Digging Archeological Dig, Springfield Park School, Springfield, VT • Feasibility Study: Cut Flowers, VT Cut Flower Council, Marlboro, VT • Fort Hill Line Greenway, NH Nature Conservancy, Concord, NH • Goat Farm Improvement Program, VT Dept. of Agriculture, Montpelier, VT • Hanover High School River Watch Program, Hanover High School, Hanover, NH • Interstate 91 Connecticut River Valley Corridor, Rockingham Community Land Trust, Bellows Falls, VT • Leach Stream Improvement Project, Northern VT Resource Conservation & Development Area, Berlin, VT • Moore Reservoir Planning Project, North Country Council, Littleton, NH • Newbury Canoe Campsite Project, Newbury Conservation Commission, Newbury, NH • North American Greenway Conn. Tour, Open Space Institute, Inc., Stowe, VT • Norwich - Neighborhood Greenway Project, Trust for Appalachian Trails Land, Lyme, NH • Oliverian Valley Trail & Conservation, Pike School, Haverhill, NH • Plainfield Town Hall & Maxfield Parrish Restoration, Plainfield Historical Society, Plainfield, NH • Prehistory of Connecticut River Valley, NH Archeological Society, Concord, NH • QLF Riverkeepers Ensemble, Atlantic Center, New Ipswich, MA • RIVER-WORK—Multi School River Monitoring, Riverwork, Yershire, VT • Rails to Trails, Claremont Conservation Commission, Claremont, NH • Ranney Farm Conservation Project, VT Land Trust, Dummerston, VT • River Campsite, Fairlee Conservation Commission, Fairlee, VT • River's Week, Randolph Union High School, Randolph, VT • Outdoor Classroom Project/NH Conservation Corps, Student Conservation Association, Charlestown, NH • Sarah Moore River Access, Piermont Conservation Commission, Piermont, NH • Thetford Academy/Hill Site Forest Trail, Thetford Academy, Thetford, VT • West River Basin Environmental Education Program, River Watch Network, Montpelier, VT • Wetlands Inventory, Norwich Conservation Commission, Norwich, VT • Whetstone Brook Pathway Project, Brattleboro Planning Dept., Brattleboro, VT • Wrights Mountain, Bradford Conservation Commission, Bradford, VT • Zebediah Stone's Mill: Gristmill, American Precision Museum, Windsor, VT

1994

Aesthetic Guidelines for Bicycle and Pedestrian Facilities, VT Land Trust, Stowe, VT • Ascutney Basin Project-Phase III, West Windsor Conservation Commission, Windsor, VT • Barley and Hops Production in the Connecticut River Valley, VT Dept. of Agriculture, Montpelier, VT • Caledonia and Essex Counties Streamco Willow Nurseries, Caledonia County Natural Resources Conservation District, St Johnsbury, VT • Canoe Campsite and Riverfront Trail, Thetford Conservation Commission, Thetford, VT • Conceptual Model: Fort Hill Management Plan, Friends of Pisgah, Chesterfield, NH • Connecticut River Bank Stabilization Project, Colebrook Academy, Colebrook, NH • Connecticut River Primitive Campsites, Upper Valley Land Trust, Hanover, NH • Cow Mountain Pond Parcel, Cow Mountain Pond Management Committee, Granby, VT • Cross VT Trail, Cross VT Trail Committee, Waterbury, VT • Discover Our Forests, Northern VT Resource Conservation & Development Inc, Berlin, VT • Hartland Rivershore Project, VT Chapter, The Nature Conservancy, Montpelier, VT • Journey Through Time in the Connecticut River Valley, VT Center for Geographic Information, Burlington, VT • Mt. Prospect Scenic Byway Corridor Management Plan, Weeks State Park Association, Jefferson, NH • NH Conservation Corps Community Conservation Project, Student Conservation Association, Charlestown, NH • Needs Assessment for Meat Processing Facility in Connecticut River Valley, Southern Windsor County Regional Planning Commission, Ascutney, VT • Norwich-Hartford Neighborhood Greenway Project, Appalachian Trail Conference, Lyme, NH • Passumpsic Village Canoe Access Site, Passumsic Valley Land Trust, St Johnsbury, VT • Refortification of Charlestown-1994, Charlestown Economic Development Association, Charlestown, NH • Riparian Educational and Service Program, VT Leadership Center, Island Pond, VT • State of the Rivers Public Information Campaign, Conn. River Watch Program, Lebanon, NH • Toward Cultural/Heritage Tourism Itineraries: An Expanded Inventory of the Historical-Architectural-Cultural Resources of NH & VT Connecticut River Towns, Inherit NH Inc, Concord, NH • West River Basin Water Quality Monitoring Project, Bonnyvale Environmental Education Center, Brattleboro, VT • Wetlands Inventory 2, Norwich Conservation Commission, Norwich, VT • What's A River For? Newbury Elementary School, Newbury, VT

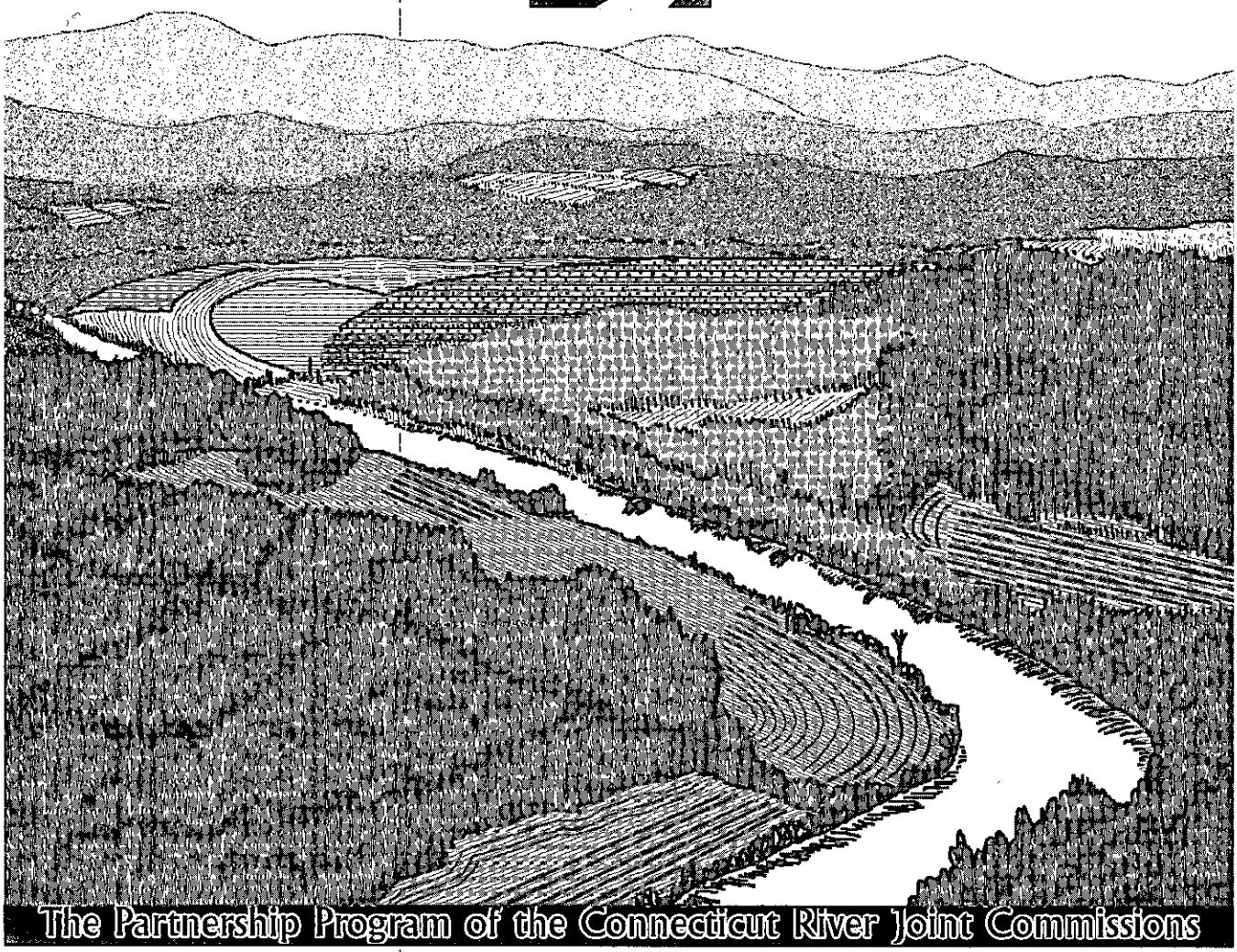
1995

A Guide to Connecticut River Trails, Connecticut River Watershed Council, Easthampton, MA • Artists of the Cornish Colony Laser Disk, Cornish Historical Society, Cornish, NH • Connecticut River Valley Grazing Conference, University of NH Cooperative Extension, North Haverhill, NH • Connecticut River Inventory, Coos County Conservation District, Lancaster, NH • Connecticut River Primitive Campsites, Upper Valley Land Trust, Hanover, NH • Connecticut RiverFest '95, Connecticut RiverFest, White River Junction, VT • Conservation Plant Nursery, Ottauquechee Natural Resources Conservation District, White River Junction, VT • Cultural/Heritage Tourism Itineraries Phase II, Inherit NH, Inc, Concord, NH • Feasibility Study for a Connecticut River Valley Farmer's Market, Upper Valley Land Trust, Hanover, NH • Friends of the West River Trail Nonprofit Status, VT Land Trust/Friends of the West River Trail, Jamaica, VT • Grass Roots River Conservation Project, NH Rivers Council, Concord, NH • Journey Through Time in the Connecticut River Valley, VT Center for Geographic Information, Inc, Burlington, VT • Kingdom Trails, Kingdom Trails Association, Inc, Montpelier, VT • Lower Symes Pond Land Conservation Project, VT Land Trust, Montpelier, VT • Maxfield Parrish: Mechanic, Artist, Artisan, American Precision Museum Association, Inc, Windsor, VT • Networking the Connecticut River Valley, Claremont Middle School, Claremont, NH • Northeast Kingdom Youth Conservation Service Corps, VT Leadership Center, Island Pond, VT •

Continued on Inside Back Cover

Working in Partnership

CONNECTICUT RIVER JOINT COMMISSIONS



The Partnership Program of the Connecticut River Joint Commissions

Building for the Future



Bonnyvale Environmental Education Center

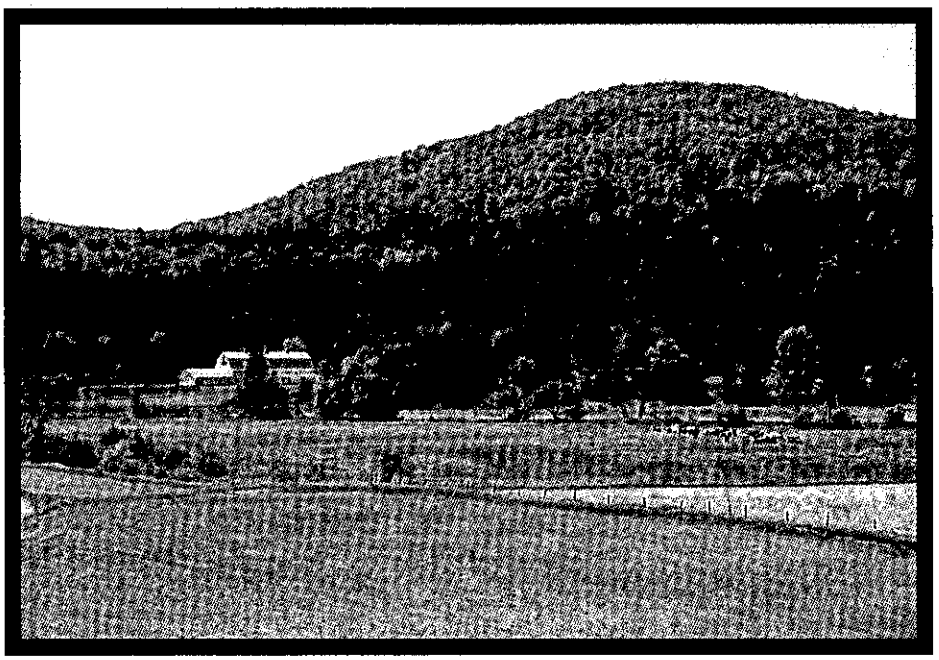
Residents of the Connecticut River Valley recognize the importance of creating opportunities for economic growth while conserving the natural resources that underpin the region's economy and quality of life. But recognition alone is not enough. To help community activists, businesses, conservationists, educators and others act on this challenge, the Connecticut River Joint Commissions, in partnership with the Rivers, Trails, & Conservation Assistance Program of the National Park Service, created the Connecticut River Valley Partnership Program.

Since its inception in 1992, the Partnership Program has responded to the needs of the 271-mile, bi-state, Upper Connecticut River Valley by funding scores of projects aimed at recreational development, water quality and shoreline protection, marketing and economic development, and land conservation and agriculture. Projects focus on the region's scenic beauty, its lure for visitors, and the need to engage and

educate visitors and residents about the Valley's abundant historic, cultural, and natural resources.

The Partnership Program succeeds in its mission by combining locally initiated projects with funding from the National Park Service. Awards of $500 to $5,000 support innovative, community-generated projects that address economic and conservation challenges in ways that are compatible with the river valley's historic, scenic and natural resources.

The program's strength is that each project originates in the minds and dreams of Connecticut River Valley residents and business people. The Partnership Program enables these individuals and organizations to act on their vision of creating a prosperous region that respects its environment, culture and history.

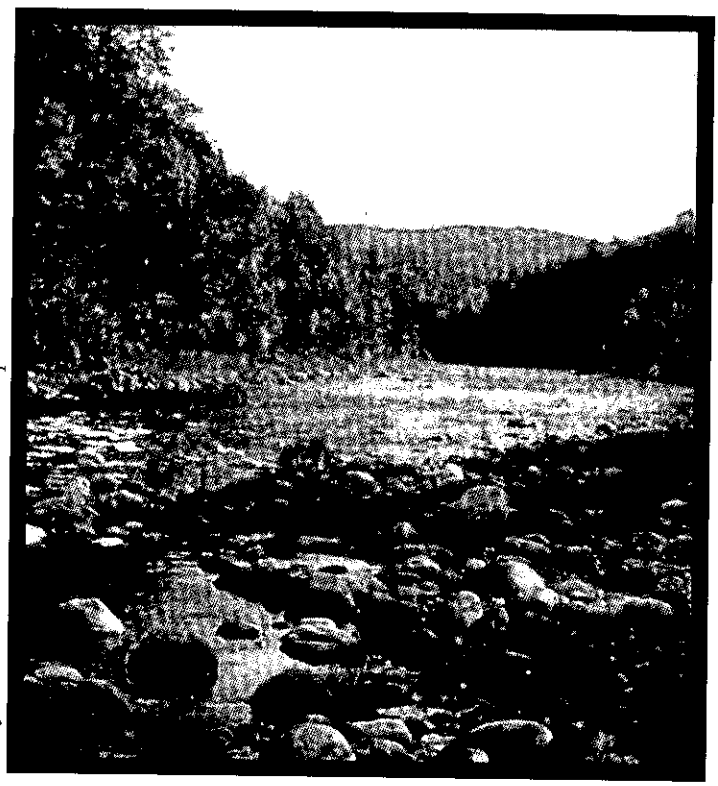


Ag-Innovations photo

Photos: At left, future river stewards at play in the West River. Right, agriculture and dairying in the Connecticut River Valley

The Partnership Program

In 1992, the Joint Commissions and the New Hampshire and Vermont staff of the Rivers, Trails & Conservation Assistance program teamed up to bring the Partnership Program to the Upper Connecticut River Valley. Through strong leadership from the Vermont and New Hampshire's Congressional delegation, more than one-half million dollars have been earmarked for the Valley over the first six years of this unique and highly competitive award program. Projects funded in the first six years generated economic activity in the Valley that is 10 times greater than the cash awards.



Bonnyvale Environmental Education Center photo

A Connecticut River tributary

The Partners

The Connecticut River Joint Commissions

The New Hampshire Connecticut River Valley Resource Commission and the Vermont Connecticut River Watershed Advisory Commission joined together in 1989 to protect the ecological, scenic, recreational, historic, cultural, and fish and wildlife resources of the Connecticut River Valley while guiding the growth and development of its traditional agricultural, recreational, and tourism-based economy.

Thirty state-appointed River Commissioners from Vermont and New Hampshire and more than 130 subcommittee members from riverfront towns volunteer their time to help the Joint Commissions achieve their ambitious and essential mission. These are business people, landowners, farmers, conservationists, and citizens who live and work in the Valley and are committed to its future.

The Rivers, Trails, & Conservation Assistance Program

The National Park Service's grassroots assistance program—the Rivers, Trails, & Conservation Assistance Program (RTCA)—helps communities protect rivers and establish trails by bringing conservation assistance to local efforts that can achieve tangible community conservation goals.

River Study Provokes Awareness

Recipient:
Claremont Middle School
Riverside School

Project:
Networking the Connecticut River Valley

Location:
Claremont, New Hampshire

Year:
1995

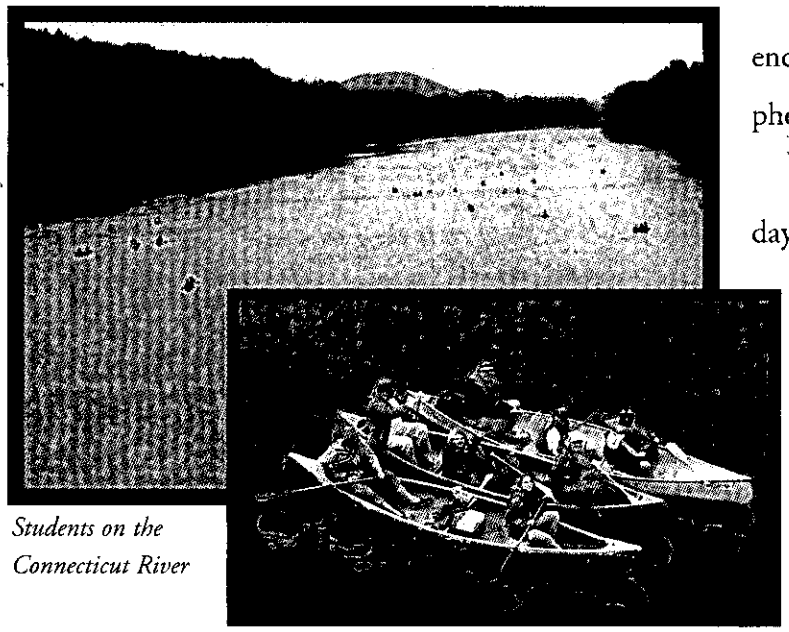
Category:
Education

Claremont Middle School teacher Sylvia Sivret used her creative energy, a year's sabbatical, and $2,300 funding from the Partnership Program to design a rich, multi-disciplinary curriculum that provides students and the community with an awareness of the Connecticut River Valley as a watershed and important environmental resource. Ms. Sivret and her colleagues have integrated science and social studies, language arts and outdoor skills, fine art and high-tech communications to reach thousands of students, teachers and others along the river from Piermont, N.H. and Springfield, Vermont, to Old Saybrook, Conn.

"The river is immediate, local, accessible, important and long lasting," says Sivret with the kind of energy that keeps middle school students focused. "It's a great way to combine study and experience, to create lessons that will stick with the students." About 50 schools have contacted Sivret so far for information about the network, and a student-generated World Wide Web page will spread news of the program.

The positive effects of Networking the Connecticut River Valley, an ongoing program and school curriculum, are rippling through Claremont and other participating towns. Teachers have found a valuable teaching tool that takes water testing and macro invertebrate studies out of the lab and into the real world. The Networking project also gives aspiring young artists and writers an opportunity to collaborate on a cal-

Wayne Carter photos



Students on the Connecticut River

endar about the river, illustrated with their photography and poetry.

Sivret's students look forward to RATS days—River Awareness Training Sessions—that take them to drinking water treatment facilities and waste water treatment plants, and teach them basic orienteering, macro invertebrate collecting, and tree identification. In the classroom, they've delved deep into issues such as ski area water withdrawal and the use of biosolids in farming.

"We want to provoke an awareness," says Sivret. "We want the kids to realize they can have an impact on the environment; that they have to take care of it in the future. Now they know that everything in the watershed will affect the river.

"I cannot even begin to say how much the Partnership Program grant has meant," says Sivret. "We used the money for scientific equipment to test water quality, and for field guides and books. Now our classrooms are prepared to teach kids. The money also funded our annual river trip. Seeing the students come down the river is a powerful sight."

Networking the Connecticut River Valley is training a new generation of citizens whose daily actions and decisions will affect the overall environmental quality, aesthetic beauty, and accessibility of the river. The lessons students learned while collecting water samples, canoeing, and reflecting on the river through art and writing should profoundly influence their ability to be good stewards of the river and its ecosystem.

Campsites Draw Paddlers

Recipient:
Upper Valley Land Trust

Project:
Connecticut River Primitive Campsites

Location:
Many towns in Vermont & New Hampshire

Years:
1993, 94, 95

Category:
Recreation

Imagine enjoying several days paddling on the Connecticut River, spending nights at a series of small, carefully tended campsites along its shore. The Partnership Program has taken a major role in funding just such a dream, and now local paddlers and visitors can camp at 17 campsites along the Connecticut River Watertrail.

By the early 1990s, a new rush of interest in river recreation was making it difficult for paddlers to find campsites along the Connecticut. To help meet this demand and encourage low-impact recreation, the Upper Valley Land Trust developed the concept of primitive, public campsites accessible from a 150-mile-stretch of this mighty river, from the Comerford Dam to the Massachusetts border. The Land Trust now works in cooperation with landowners and local groups that manage the sites, and provides an overall framework for the campsite system and its administration.

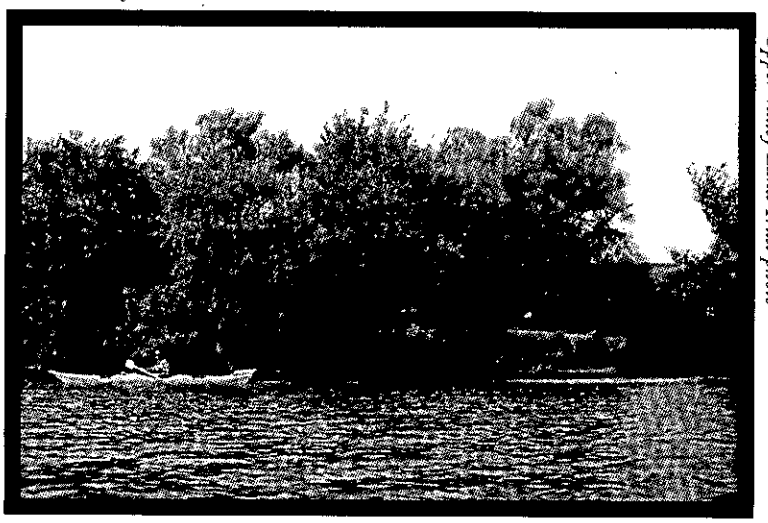


Upper Valley Land Trust photo

Campsites serve solo paddlers, families, Valley residents and tourists for day and overnight trips

Partnership funding has enabled the Land Trust and its partners to establish and promote the campsites with a new brochure featuring a

map of the Watertrail, generating a steady stream of inquiries from potential river valley visitors. Valley outfitters and guides have seen new business as a direct result of paddlers using the Connecticut River Watertrail.



Upper Valley Land Trust photo

Setting out from Birch Meadow Campsite in Fairlee, Vermont

"The campsites have raised people's awareness of the river," says Bill Bridge, Stewardship & Recreation Coordinator for the Land Trust. "I know of a number of people who had never been on the river who have gone to the sites to picnic. They've discovered the resource."

The influence of the first Partnership Program grant that launched the primitive campsites project goes beyond the river's edge. "The project has definitely given us a leg up in addressing a whole new range of stewardship issues related to public access on conservation land," says Bridge. "The Land Trust always advocated for public access, but didn't always have resources to follow through on it. Without the Partnership grant, the watertrail and campsite project would have sat for a long time."

In addition to serving the long-standing users of the river, Bridge says that the campsites have attracted new interest, bringing families onto the river, as well as people who had never canoed there before.

By promoting responsible recreational use of the river resource, the Connecticut River Primitive Campsite system is building a larger constituency for river conservation and ensuring free public access to a tremendous community asset. "Just knowing the campsites are there creates a sense of ownership for local people," says Bridge.

Dairy Sheep Build New Market

Recipient:
Ag-Innovations

Project:
Vermont Dairy Sheep

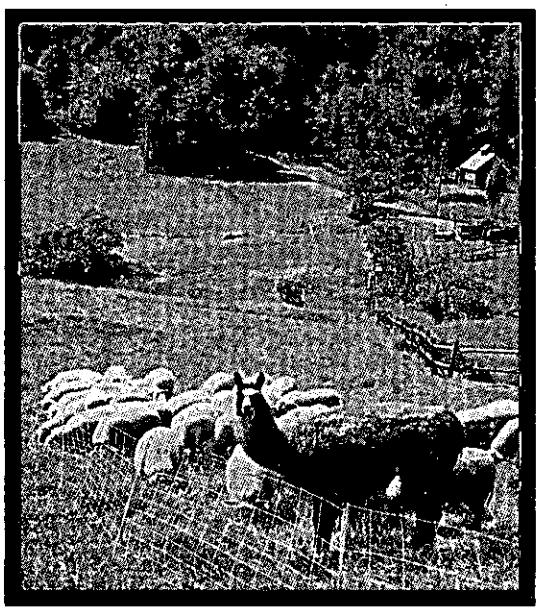
Location:
Warren, Vermont

Year:
1995

Category:
Agriculture

The Partnership Program invested $4,500 in an innovative program to ensure that dairying—a tradition in Connecticut River Valley agriculture—will be part of its future as well. This project adds a bit of variety to the classic scene of picturesque Vermont hill farms dotted with cows. Instead of cows, look for new flocks of genetically superior dairy sheep.

Ag-Innovations, a small agricultural company owned by Linda and Dr. Lawrence Faillace, used the Partnership Program's support to pioneer sheep imports from some of the most select stocks of dairy sheep in Europe, where the woolly creatures sustain an important industry. Despite America's fondness for sheep dairy products—we are one of the world's largest consumers of sheep milk cheese, including Roquefort, Feta, and Pecorino Romano—the American dairy sheep industry has been slow to take hold. The European imports produce ten times the amount of milk available from US breeds.



Ag-Innovations photo

First flock of imported Belgian sheep at home in Vermont with a friend

The Faillaces' first 64 imported sheep arrived in 1996, and

have given birth to a second generation of 78 lambs. In their first year of milking, 45 sheep produced 200 pounds a day of their precious milk, which sells at a price several times higher than does cows' milk. In addition, explains Linda Faillace, the higher fat and protein content of the sheep's milk requires less volume to create the final cheese product.



Ag-Innovations photo

A flock of Koster ewes in Belgium

"The Partnership Program grant was so important to us when we first started," says Ms. Faillace. "It enabled us to do our first research trip to Europe, and it gave us more credibility. We also used some of the grant toward our first livestock purchase."

Ag-Innovations, with the backing of the Vermont Department of Agriculture and the Vermont Dairy Shepherd's Association, and the cooperation of the US Department of Agriculture, is hoping to boost US sheep milk production by continuing to import stock from superior European milk breeds. With these animals, Northeastern dairy farmers, including those in the Connecticut River Valley, will be able to establish new flocks of highly productive dairy sheep.

Exemplary of the creative projects supported by the Partnership Program, this project helps the valley build new economic opportunities while holding on to the agricultural past, an important part of the region's social and environmental culture. By supporting experiments in sustainable farming and animal husbandry, the Partnership Program helps the valley retain its pastoral character as well as the open space we all enjoy as a result of farming.

Project Activates Citizens

Recipient:
Bonnyvale Environmental Education Center

Project:
West River Water Quality

Location:
Brattleboro, VT

Years:
1994 & 1996

Category:
Water Quality

In 1994, the Bonnyvale Environmental Education Center took charge of a 10-year-long water monitoring program on the West River in southern Vermont. With a $2,500 grant from the Partnership Program, Bonnyvale staff rekindled community commitment to the scientific study of the river's condition, and documented and restructured the program to ensure its continuation.

A second grant in 1996 helped Bonnyvale expand the program. Every month now, 13 local residents monitor the quality of the West River, another dozen check on the Whetstone Brook, and six more monitor the Saxtons River, a major Connecticut River tributary just north of the West River, near Bellows Falls.



The scientific data the volunteers gather are often the best argument for environmental action: people won't swim in polluted rivers, nor eat contaminated fish, and the loss of even the smallest organisms can topple the dominoes of a river system's food chain.

The West River Watch Project knows this, and has put its data collection to work to realize

improvements in how the river and its feeder streams are treated within the 423-square-mile watershed, which drains into the Connecticut River. The project sends the results of each year's monitoring to town select boards, the state, and other interested parties. When volunteers find a problem, they educate local authorities, and call in the local health officer and the state if necessary.

"Many people swim in the river, and they're very concerned about water quality," says Deb Smith, water quality program coordinator at Bonnyvale. "Folks call us in the summer to check on the river's condition."

Over the years, program volunteers have worked with developers to reduce runoff contamination in the northern part of the watershed, won an upgrade for the Kidder Brook to the highest water quality classification, and secured designation for Pike's Falls as an Outstanding Resource Water. Recently, they discovered hot spots of E. coli bacteria, as well as other water quality violations.



Bonnyvale Environmental Education Center photos

Photos: At left, Marlboro Elementary students analyze their findings. Above, monitoring projects tip off activists about the river's health

Bonnyvale used its Partnership Program grant to host a West River Congress in which area students compared their testing results and projects, and Bonnyvale staff trained teachers in new testing methods.

The West River Watch Program shows how citizen volunteers and students can provide a valuable community service, documenting their river's health, building public awareness about river ecology, and identifying causes and potential resolutions to river contamination.

Shoreline Opens Public Access

Recipient:
Vermont Land Trust

Project:
Lower Symes Pond
Land Conservation

Location:
Ryegate, VT

Years:
1995

Category:
Land Conservation

All too often, the few remaining parcels of undeveloped shoreline on our lakes and rivers are sold to the highest bidder. Bulldozers herald the change in ownership, and a permanent change in the landscape and the area's ecological balance.

Happily, Lower Symes Pond in Ryegate, Vermont is an exception. Landowner Helen Rutherford knew that her 75 acres and half-mile of undeveloped shorefront deserved to be protected for future generations to enjoy. She worked with the Vermont Land Trust to protect her land, adding it to the state's 1,327-acre Roy Mountain Wildlife Management Area.

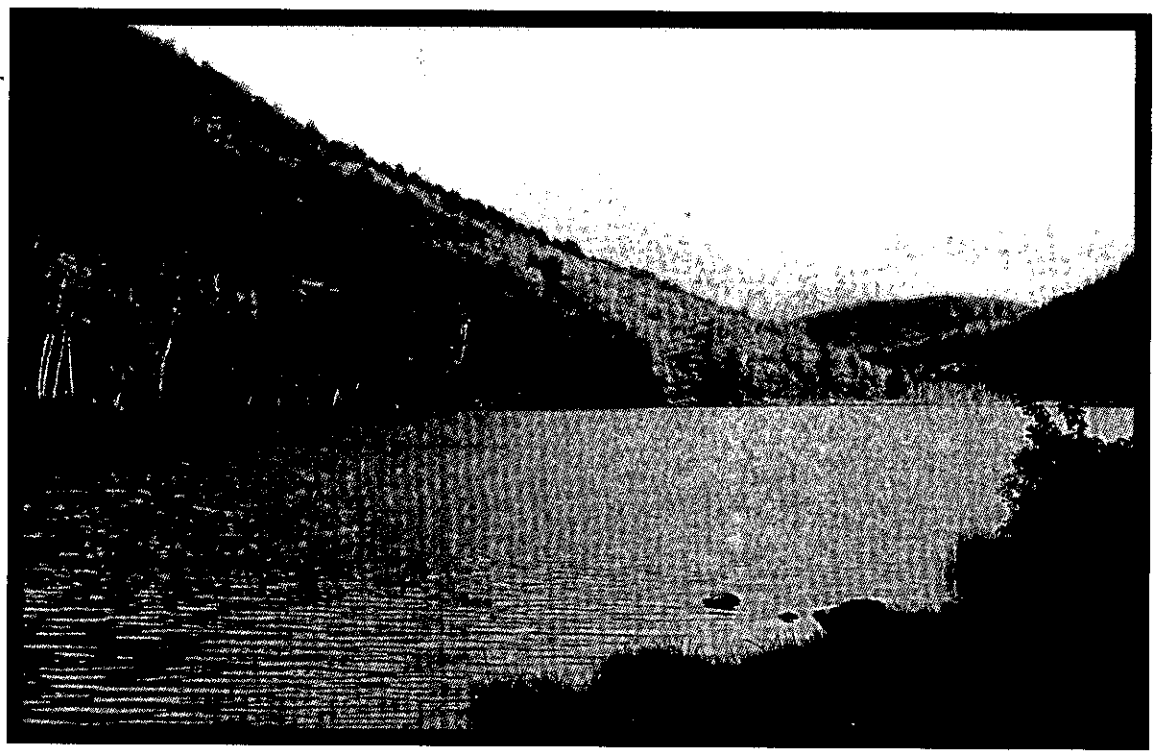
"This is the sort of property that is important to save for the public," says Mark McEathron, Central Vermont director of the Vermont Land Trust. "The property, along the western shore of Lower Symes Pond, is almost entirely wooded, and the pristine lake gives a sense of wilderness, although it's very accessible. It's really a special landscape in that part of the state."

The $4,500 Partnership Program grant awarded to this project sparked a successful fundraising effort that raised the $85,000 needed to purchase a conservation easement to protect the property forever. "The Partnership grant was important to help leverage other private and public money," explains McEathron, who calls the project a perfect example of the benefits of public-private partnerships. "Small New England towns have trouble paying for important land conservation projects by themselves, because they have so

many other funding priorities."

Today, the Rutherford lake-front property is open for residents and visitors to enjoy as part of the Wildlife Management Area, and it safeguards several significant natural features along Upper and Lower Symes Pond, including five unusual plants and an important natural lowland bog community. Ryegate benefits too, for, as Ted Clark, chair of the Ryegate Select Board points out, "Lower Symes Pond is an important scenic and recreational resource for Ryegate. The conservation of the Rutherford parcel is good for the community."

Vermont Land Trust photo



A Partnership Program grant for the Lower Symes Pond conservation project sparked a successful fundraising drive that protected the lake and public access

Exhibit Revives Museum

Recipient:
The American Precision Museum Association

Project:
Exhibit: Maxfield Parrish: Machinist, Artisan, Artist

Location:
Windsor, Vermont

Year:
1995

Category:
Heritage Tourism

With the backing of a $4,500 seed grant from the Partnership Program, the American Precision Museum in Windsor, Vermont mounted a special exhibit that surpassed even its most ambitious goals for promoting the museum and heritage tourism in the Connecticut River Valley.



American Precision Museum photo

Maxfield Parrish's trademark gnome

Through its exhibit commemorating machinist and artist Maxfield Parrish, and in cooperation with other organizations celebrating the 125th anniversary of Parrish's birth, the museum attracted seven times its annual average of visitors, sold nine times its average in museum sales, built a dedicated group of volunteers, and gained new members. The museum's good fortune extended to the local economy, which earned $80,000 in direct spending from the exhibit, and took in $400,000 in tourist dollars.

"The exhibition transformed the museum completely from a static collection of antique machine tools, which attracted machine hobbyists, but not tourists," says director Roberto Rodriguez. "Now we tell stories to bring the machines to life, and suddenly we're a nifty muse-

um that's attracting families, schools, and all kinds of other visitors.



American Precision Museum photo

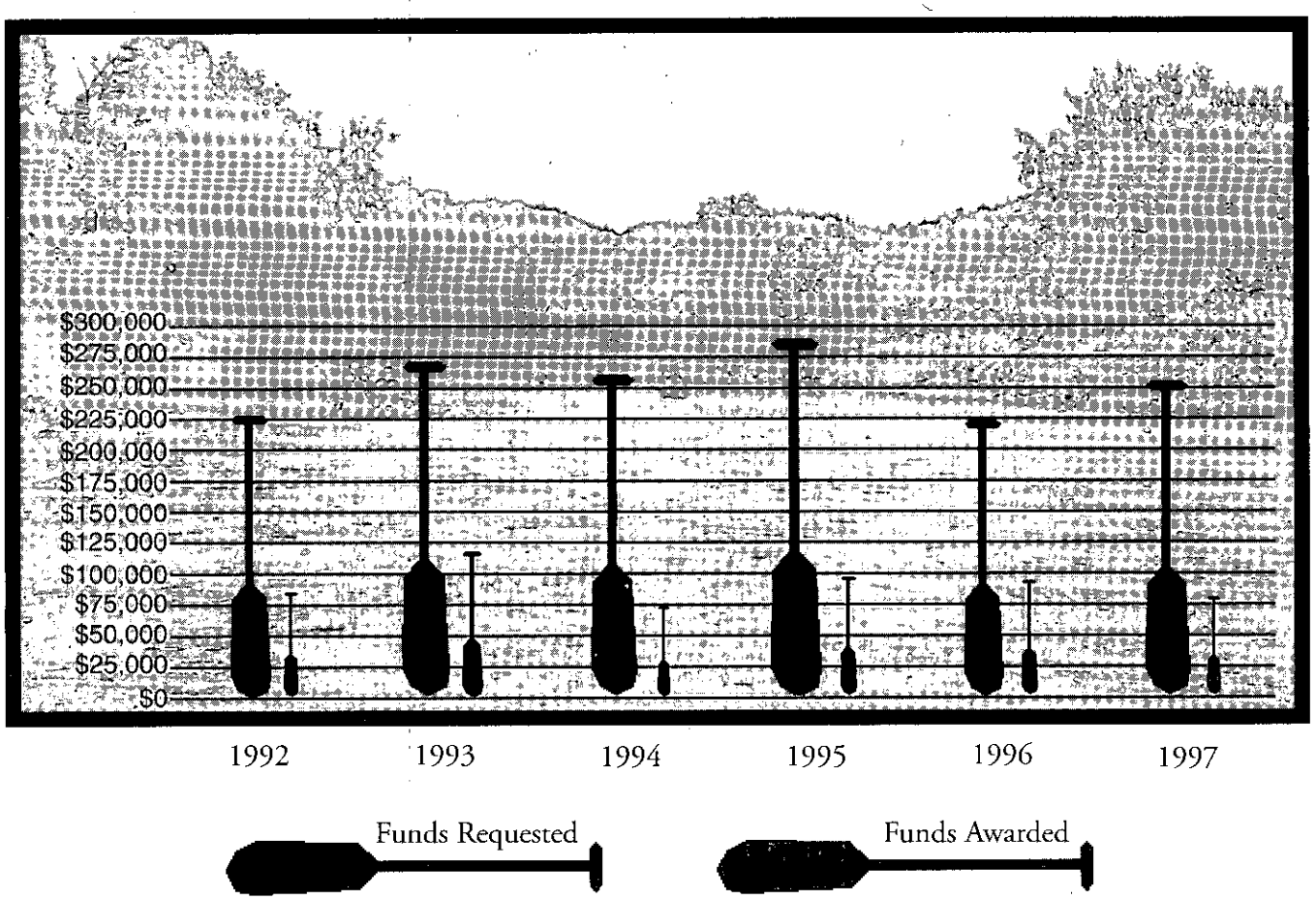
The American Precision Museum, in Windsor, Vermont

"The exhibit never would have happened without the Partnership grant," says Rodriguez. "The museum was in financial difficulty at the time, and the effect of the Partnership grant was extraordinary. It gave us the confidence to involve the community and the ability to raise the remaining money for the exhibit." In the end, the museum raised $63,000 in grants, and earned more than $35,000 from admissions and sales.

Partnership Program dollars funded the museum's effort to create a volunteer program and oral history exhibit, and to provide speakers and properly conserve its Parrish artifacts. The volunteer program attracted 455 hours of volunteer labor, and the oral history project captured the memories of a number of individuals who had known Parrish, adding great depth to what was known about this famous artist and intriguing creator.

The Maxfield Parrish: Machinist, Artisan, Artist exhibit has had a lasting effect on the American Precision Museum and its community. Long known as the "birthplace of Vermont," Windsor has grown in popularity as a tourist destination, and is beginning to realize the vast potential of heritage tourism as a means of sustainable economic development in the river valley. "Many of the people here are descendants of machine tool workers," says Rodriguez. "The museum is now a source of pride for them."

Program Potential



Each year since the Partnership Program's inception in 1992, the people of the Connecticut River Valley have requested more than twice as much funding for their innovative projects than was available. Many good ideas must be bypassed each year. Expanded funding for the Partnership Program would help meet the needs of the Valley for recreational development, water quality and shoreline protection, marketing and economic development, and land conservation and agriculture.

The Challenges Ahead

The energy and commitment of the region's people to the ideals of a strong economy and healthy environment are evident every year, when thoughtful, creative applications for funding flood the Partnership Program, which can support fewer than half of the requests made each year.

The needs in the River Valley are persistent: cultural and historical assets await restoration and rediscovery; agriculture searches for new ways to thrive without depleting the land's resources or tainting the river; non-point source pollution continues; recreational opportunities require access and maintenance. The list goes on with new projects to prevent river bank erosion, to monitor water quality, fish, and wildlife health, and to educate a new generation about the immeasurable treasures that the river delivers to us each day.

The Partnership Program is an asset to the River Valley, and the bi-state Connecticut River Joint Commissions are uniquely suited to conduct the program, which recognizes that the natural resources surrounding and including the Connecticut River cross municipal, county and state lines.

Funding from the Partnership Program often serves as seed money for new projects, which can then draw investments from other public and private sources. The half-million dollars the Partnership Program invested in projects in its first six years helped generate $5 million in economic activity in the river valley. The people of the Valley have demonstrated their ability to effectively implement their projects—whether to conserve a special place, to broaden public awareness on important local issues, or to encourage new and environmentally sensitive businesses.

Investing in the Future

No program, no matter how successful, can depend indefinitely on federal appropriations alone. It is imperative for the good of the region that the Partnership Program expand its sources of funding. Individuals, private foundations and corporations, and appropriate public funders can take advantage of this opportunity to underwrite the Partner-ship Program and ensure its continued success.

The people of the Connecticut River Valley have benefited immensely from the Partnership Program's holistic approach to conserving the ecological, cultural and historical resources of the region while looking for new opportunities to encourage responsible economic activity. The Partnership Program has enhanced the two states' long traditions in farming, tourism, and scenic beauty. The Program has enabled school children and entrepreneurs, artists and farmers, businesses and non-profit agencies to implement their own visions of how to sustain their Valley.

Now is your opportunity to be part of the Program's success. To find out more about supporting the Partnership Program financially, please write to: Sharon Francis, Connecticut River Joint Commissions, PO Box 1182, Charlestown, NH 03603.



Bonnyvale Environmental Education Center photo

The Joint Commissions gratefully acknowledges the support and partnership of the Rivers, Trails & Conservation Assistance Program of the National Park Service

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Partnership Program Grant Award Winners, 1992 - 1998

Norwich-Hartford Greenway Project, Appalachian Trail Conference, Lyme, NH • Passumpsic River Conservation Project, Passumpsic Valley Land Trust, St Johnsbury, VT • Restoration & Preservation McIndoe Falls, McIndoe Falls Historical Alliance, McIndoe Falls, VT • Rockingham Historic Signage Program, Town of Rockingham, Bellows Falls, VT • Springfield Greenways Path Trailhead Design, Springfield Trails & Greenways, Springfield, VT • Land Use Plan, Dummerston Planning Commission, Dummerston, VT • Lawrence Farm Project, Strafford Board of Selectmen, Strafford, VT • Mapping of Upper Valley Protected Land, Upper Valley Land Trust, Hanover, NH • VT Dairy Sheep Industry Development, Aiken Resource Conservation & Development Area, Randolph, VT • Waste Stream Assessment & Composting, Hanover Consumer Co-op Society, Inc, Hanover, NH • West River Watch Program, Bonnyvale Environmental Education Center, Brattleboro, VT • Windham Region Protected Lands Mapping, Connecticut River Watershed Council, Easthampton, MA • Working Farms of Windham County, Windham County Natural Resources Conservation District, Brattleboro, VT •

1996

Abenaki Wigwam Reconstruction, Student Conservation Association, Charlestown, NH • Brochure for Maxfield Parrish Stage Set, Plainfield Historical Society, Plainfield, NH • Connecticut River Historic Sites Database-Phase II, Terra Nova Trust, Jaffrey, NH • Connecticut River Erosion Control Crew, Student Conservation Association, Charlestown, NH • Connecticut RiverFest '97, Connecticut River Watershed Council/RiverFest, Easthampton, MA • Grant Brook Conservation Project, Upper Valley Land Trust, Hanover, NH • Historic Rockingham Museums Poster, Rockingham Historic Preservation Society, Bellows Falls, VT • Kingdom Trail, Kingdom Trail Association, East Burke, VT • Machine Tool Exhibit, Economic Corporation of Newport, Newport, NH • Marketing Brochure Placemat, Coos County Conservation District, Lancaster, NH • Networking the Connecticut River Valley, Claremont Middle School, Claremont, NH • Northeast Kingdom Conservation Service Corps, VT Leadership Center, Island Pond, VT • Norwich-Hartford Greenway Project, Trust for Appalachian Trail Lands, Lyme, NH • Passively Aerated Compost Project, Ottauquechee Natural Resources Conservation District, White River Junction, VT • Passumpsic Village Canoe Landing-Phase II, Passumpsic Valley Land Trust, St Johnsbury, VT • Pasteurizer Lending Program, Small Dairy Project, Bradford, NH • Photo Exhibit: Safe Agriculture Practices, Essex Natural Resources Conservation District, Guildhall, VT • Public Education Pamphlets: Pocket Atlas Ashuelot River, Southwest Regional Planning Commission, Keene, NH • Ridgeline Trail & Wildlife Reserve, Windmill Hill Pinnacle Association, Putney, VT • Sackett's Brook Conservation Site, Town of Putney, Putney, VT • The Siege of 1747, The Fort at No. 4, Charlestown, NH • Upper Valley Land Trust GIS Mapping Project of Protected Lands, Upper Valley Lake Sunapee Regional Planning Commission, Lebanon, NH • Water Quality Monitoring: Windham County, Bonnyvale Environmental Education Center, Brattleboro, VT • Watershed Education Project, Caledonia County Natural Resources Conservation District, St Johnsbury, VT • Weeks Memorial Library Second Century Project, Weeks Memorial Library, Lancaster, NH • West Bank Project: Ashuelot River Park, Friends of Ashuelot River Park, Keene, NH • Window Repair-1837 Guilford Center Meeting House, Guilford Historical Society, Guilford, VT

1997

Brattleboro Downtown Riverfront Access, Town of Brattleboro, Brattleboro, VT • Cobb Brook Bridge, Friends of the West River Trail, Jamaica, VT • Cold River Corridor Mapping: Natural Resources, Friends of the Cold River, Acworth, NH • Connecticut River Watershed Education Project, VT Leadership Center, Island Pond, VT • Connecticut River Watershed Nutrient Management Project, Windham County Conservation District, Brattleboro, VT • Connecticut River Youth Stewardship Corps, Upper Valley Land Trust, Hanover, NH • Coos County Grown & Raised Brochure, Coos Cooperative Extension Farm Bureau, Lancaster, NH • Covered Bridges of the Upper Valley Brochure, Town of Hartford, Hartford, VT • Development of Environmental Area, Meeting Waters YMCA, Bellows Falls, VT • Guilford Community Resources Project, Guilford Historical Society, Guilford, VT • Hames Park, Sunapee Riverwalk Committee, Town of Sunapee, Sunapee, NH • Heritage Guide to Orford, NH, Orford Historical Society, Orford, NH • Maplewood Natural Resource Education Project, Cheshire County Cooperative Extension, Keene, NH • Maps and Kiosks for Multiuse Trails in Charlestown, Charlestown Economic Development Association, Charlestown, NH • NH Cooks Entrepreneurial Program, NH Cooks, Barrington, NH • Oliverian Brook Water Monitoring Project, Grafton County Conservation District, North Haverhill, NH • Oral History of Windsor/Springfield Machine Tool Industry, American Precision Museum, Windsor, VT • Pemberton Dig & Interpretive Exhibit, Stonewall Farm, Keene, NH • Publication of Ashuelot Corridor Plan & Workshop, Ashuelot Local Advisory Committee, Sullivan, NH • Putney Central School Forest Mapping Project, Putney Conservation Commission, Putney, VT • Rehabilitation of Haverhill-Bath Covered Bridge, Haverhill Historical Society, Haverhill, NH • Sullivan County Natural Resources Education Area, Sullivan County Conservation District, Newport, NH • Third Annual Connecticut River Valley Grazing Conference, UNH Cooperative Extension, North Haverhill, NH • Prehistoric Inventory & Mapping Project, Two Rivers Ottauquechee Regional Commission, Woodstock, VT • Windham Region Historic Bridges Brochure, Windham Regional Commission, Brattleboro, VT • Winter in Windsor: Birthplace of VT, Windsor Historic Preservation Commission, Windsor, VT

1998

Bank Inventory Project, Caledonia County NRCD, Waterford to Hartford, VT • Chateauguay-No Town Conservation Project, Two Rivers-Ottauquechee Regional Comm., Barnard/Bridgewater/Stockbridge/Sherburne, VT • Connecticut RiverFest's Riverdays Educational Project, White River Conservation District, multi-community, NH & VT • Connecticut River Floodplain Mapping, Northeastern VT Development Assn., multi-community, VT • Derry Farms/Preserving Working Lands, Mountain Valley Community Challenge, Londonderry, VT • Easement Acquisition & Trail Management Plan, Friends of the West River Trail, Inc., Brattleboro, VT • Elizabeth Mine Remediation Project, Elizabeth Mine Study Group & White River NRCD, South Strafford, VT • "Exploring Your Watershed...Your Home" Interactive Lecture and Field Days, White River Partnership (George D. Aiken RC&D), White River watershed, VT • Fourth Connecticut Lake Trail Restoration and Public Outreach Project, The Nature Conservancy of NH, Pittsburg, NH • Great Brook Project, Upper Valley Chapter Trout Unlimited, Lebanon, NH • Improving Pesticide Management In Field Corn, UNH Cooperative Ext./Grafton Co., multi-community NH & VT • Jamaica Village Water Quality and Septic Study, Jamaica Planning Comm., Jamaica, VT • Lancaster Historical Inventory, Lancaster Main Street Program, Lancaster, NH • Machine Tool Trail, Windsor Historic Preservation Comm., Windsor/Springfield/Ascutney, VT • Maplewood Natural Resource Education Project, UNH Cooperative Ext./Cheshire Co., Westmoreland, NH • Market Proposal, Caledonia Farmer's Market Assn., Caledonia Co., VT • NH Volunteer Rare Plant Monitor Program, New England Wild Flower Soc./NH Chap., multi-community, NH • Passumpsic Valley Riverway Initiative, Passumpsic Valley Land Trust, multi-community, VT • Peacham Keeping Track, Peacham Conservation Comm., Peacham, VT • Renovation of the Lyme Center Academy Building, Lyme Historians, Lyme Center, NH • Rivendell Schools River-Oriented Curriculum, Orford School, Orford, NH and Fairlee, W. Fairlee, & Vershire, VT • Supporting Local Agriculture Display and Directory, Stonewall Farm, Keene, NH • Upper Valley Connecticut River Wetlands Project, Upper Valley Land Trust, Thetford/Norwich, VT & Lyme, NH • Water Quality Plan, Southern Windsor County Regional Planning Comm., multi-community, VT • West River Water Quality, Londonderry Planning Comm., Londonderry, VT • West River Watershed Planning Inventory, Windham Regional Comm., West River watershed, VT • Windmill Mountain Nature Reserve and Trail Conservation Area Map, Putney Mtn. Assn./Windmill Hill Pinnacle Assn., multi-community, VT

"I cannot even begin to say how much the Partnership Program grant has meant."

"Without the Partnership grant, the watertrail and campsite project would have sat for a long time."

"Now our classrooms are prepared to teach kids."

"It gave us the confidence to involve the community and the ability to raise the remaining money for the exhibit."

"The effect of the Partnership grant was extraordinary."

"The Partnership Program grant was so important to us when we first started."

"It enabled us to do our first research trip to Europe, and it gave us more credibility."



PO Box 1182 • Charlestown, NH 03603

CONNECTICUT RIVER
Corridor Management Plan

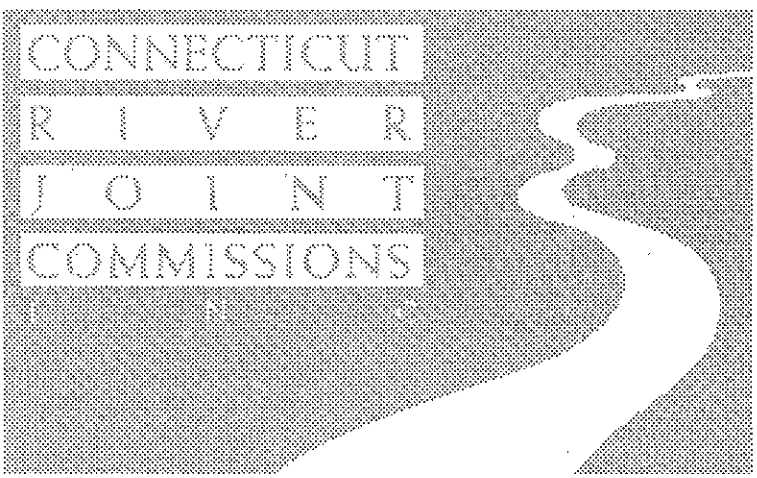


Volume I

Riverwide Overview

Upper Connecticut River in New Hampshire and Vermont

CONNECTICUT RIVER Corridor Management Plan



Volume I

Riverwide Overview

Upper Connecticut River in New Hampshire and Vermont

Prepared & edited by
Sharon F. Francis & Adair D. Mulligan

to the RIVER ...

Powerful ◆
Majestic ◆
Flowing ◆
Serene ◆

& the tributaries... brooks...
rivulets... wetlands... vernal pools...

Givers of life.
We strive to understand.

We dedicate in respect.

VOLUME I:
Riverwide Overview
VOLUME II:
Headwaters Region
VOLUME III:
Riverbend Region
VOLUME IV:
Upper Valley Region
VOLUME V:
Mt. Ascutney Region
VOLUME VI:
Wantastiquet Region

Connecticut River Joint Commissions
P.O. Box 1182 ◆ Charlestown, New Hampshire 03603
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May, 1997

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"View from Monadnock Mountain, Vermont"

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ABBREVIATIONS

AMPs	=	Vermont acceptable management practices
ANR	=	Vermont Agency of Natural Resources
BMPs	=	best management practices
CRJC	=	Connecticut River Joint Commissions, comprised of New Hampshire Connecticut River Valley Resource Commission & Vermont Connecticut River Watershed Advisory Commission
CSO	=	combined sewer overflow
DES	=	New Hampshire Department of Environmental Services
EPA	=	Environmental Protection Agency
EQIP	=	Environmental Quality Incentives Program of USDA's 1996 Farm Bill
FEMA	=	Federal Emergency Management Agency
FERC	=	Federal Energy Regulatory Commission
GIS	=	geographical information systems - a computerized mapping system
LRS	=	local river subcommittee
NEP	=	New England Power Company
NRCS	=	Natural Resources Conservation Service (under USDA), formerly the Soil Conservation Service
RSA 483	=	New Hampshire Rivers Management and Protection Act
RSA 483-B	=	New Hampshire Comprehensive Shoreland Protection Act
USDA	=	U.S. Department of Agriculture
USFWS	=	U.S. Fish and Wildlife Service

INTRODUCTION

VISION OF A BETTER CONNECTICUT RIVER

The Great River, the one that Native Americans called the Quinatuquet, is New England's largest and most powerful river, flowing 410 miles from its source in tiny Fourth Connecticut Lake near the Canadian border to its meeting with the sea at Long Island Sound. Over most of its first 271 miles, the Connecticut River forms New Hampshire's sinuous west coast and its boundary with Vermont. While royal decree gave the river to colonial New Hampshire in the seventeenth century, well over half of its 4.5 million acre upper watershed lies within Vermont. The river remains a living thread that binds together the people of both states in one valley.

The Connecticut is a powerful river that commands respect when it releases its ice in the spring, when it floods after a storm, and when it turns turbines day after day to produce electricity for millions of people.

It is a life-giving river, blanketing its floodplain over thousands of years with the finest agricultural soils in New England. Its waters and banks provide nationally recognized fish and wildlife habitat. The river is beautiful. It draws people to live in its peaceful setting, to grow businesses and prosper, to fish and canoe, to explore the historic heritage of its nearby villages.

Excess is the enemy of a place like this. Too many people or too much exploitation can destroy the equilibrium which exists between the present and the past, between people and the sustaining environment of clean air and water, productive farms and forests.

A generation ago, people who wished to safeguard their environment turned to Congress to write laws, establish agencies, and provide funding to secure protection for water, air, wildlife and the other resources they shared and valued. The results have shown the unarguable benefits of environmental commitment. More importantly, the commitment has spread over the years from a few ardent environmentalists to trained experts, local officials, school children, homemakers, farmers, and business people.

A 1951 government report called the upper Connecticut River "damaged" and described its load of untreated domestic sewage from thousands of homes, and of untreated industrial wastes from pulp and paper mills, milk processing plants, other industries and similar loads from 24 tributaries. The poor quality of the river blighted the valley and was even considered a limitation for further industrial use. The river had earned its reputation as the "best landscaped sewer in New England."

As the twenty-first century draws near, people in the Connecticut River Valley are well aware of the asset they now enjoy. They turn to each other in carrying out their shared commitment to safeguard a good place and a good life. They do not welcome decrees from distant governmental hierarchies or corporate directors. They do need the constructive partnership of federal and state agencies and corporate citizens as they rise

to the challenge ahead of long term stewardship and prosperity. They are pioneers in a new era of citizen leadership and responsibility.

Since 1989 when the Vermont Connecticut River Watershed Advisory Commission and the New Hampshire Connecticut River Valley Resource Commission first met together and held a valley-wide conference to set an "Agenda for the Year 2000," we have been listening to people in the valley. From that conference, and the subsequent meetings, studies, and discussions that the Commissions have fostered across the river among communities and between local citizens and federal and state agencies, the Connecticut River Joint Commissions realize that aspirations for the river and its watershed are high and are widely shared.

Goals for the Connecticut River and its Environment

- That continued progress is made toward restoring and maintaining a fishable, swimmable river and healthy ecosystem with no degradation as a consequence of human activities;

- That plants, migratory birds, anadromous fish, and other native birds, fish, and wildlife continue to find the Connecticut River corridor and watershed hospitable to their unique needs for clean water and connected, protected open lands and forests;

- That river shores and floodplains remain undeveloped and that a wise public gives the river room to be a river;

- That prime agricultural lands are permanently secure from development and are farmed to meet the food needs of their New England neighbors;

- That the rural character, scenic quality, and historic heritage of the valley are appreciated and maintained;

- That valley residents and visitors can continue to enjoy the refreshment of outdoor recreation without spoiling the resources they enjoy.

Goals for the People of the Valley

- That local planning boards and commissions, historical groups, conservation commissions, land trusts, and corporations live up to their potential and exercise responsibility in acting to safeguard resources for the future;

- That voters and property owners understand their responsibility to the river and its watershed, and practice conservation out of enlightened self-interest;

- That farmers and other property owners apply best management practices to their activities on the land, and receive the assistance they need from supportive state and federal agencies;

- That visitors to the valley enjoy its heritage while respecting local property rights and land ethics;

◆ That agriculture prospers from expanded markets, and forests are a strong element in the economy because of significant value added to forest products;

◆ That people who come here to live, or to vacation, accept this river valley on its own terms and not try to homogenize it into suburbia or resorts that exist elsewhere;

◆ That a sustainable economy is developed in a manner that does no harm to our river;

◆ That local leadership is supported by partnerships of federal and state agencies, private organizations and philanthropies.

We have to be wise. . . and vigilant. . . and willing to make commitments that ensure our vision comes true for the river and valley.

The Connecticut River Joint Commissions

The Connecticut River Joint Commissions (CRJC) are a focal point for communication about the river and its valley, between the states of New Hampshire and Vermont, as well as between the federal government and its local, state, and citizen constituencies. A bi-state conference of 300 people, sponsored by the CRJC in 1989, provided the agenda for our work in the valley.

Both commissions are advisory and have no regulatory powers, preferring instead to advocate and ensure public involvement in decisions that affect the river and its valley. We are the agency for public interface, and believe that the most effective action takes place when all the players come to the same table to achieve consensus, and have restated our commitment to this approach on a local basis within our five subcommittees. We also believe that economic development need not take place at the expense of environmental health, and recognize the extraordinary quality of life our river and its valley offer our citizens. Our broad goal is to assure responsible economic development and sound environmental protection.

The thirty volunteer river commissioners, fifteen appointed by each state, are citizens who live and work in the valley and are committed to its future. Members represent the interests of business, agriculture, forestry, conservation, hydropower, recreation, and regional planning commissions on both sides of the river. The Commissions hold a joint meeting each month, and are supported by three staff: an executive director, communications coordinator, and administrative assistant.

The New Hampshire legislature created the Connecticut River Valley Resource Commission in 1987 to preserve and protect the resources of the valley, to guide growth and development within it, and to initiate cooperation with Vermont for the benefit of the valley. The Vermont legislature established the Connecticut River Watershed Advisory Commission in the following year. The two commissions banded together as the Connecticut River Joint Commissions in 1989, and also achieved the status of a non-profit organization.

"In good New England fashion, we are able to come out with a consensus position because of the variety of our points of view."

Henry Swan
NH River Commissioner, Lyme

Designation of the Connecticut River: New Hampshire Rivers Program

The Connecticut River Joint Commissions mobilized hundreds of valley residents and local officials to successfully nominate the Connecticut River into the New Hampshire Rivers Management and Protection Program, and the nomination was enacted by the legislature in 1992. Then-Governor Judd Gregg signed the law at a ceremony at the Cornish-Windsor covered bridge that joins New Hampshire and Vermont.

This new protection establishes a local avenue for river decision-making, which is represented by this plan. The law, known as RSA 483 (see Appendix A):

- recognizes that the Connecticut River is a natural resource of statewide value and significance;
- sets a protected instream flow and quality of Class B or higher, to conserve and protect outstanding characteristics (which are listed) so that these shall endure to be enjoyed by valley citizens;
- prevents the diversion of river water outside of the basin;
- keeps new landfills and hazardous waste facilities at a safer distance;
- classifies the entire length of the river in New Hampshire, mile by mile, into four categories: Natural, Rural, Rural-Community, and Community;
- prevents construction of additional dams, except on Community sections;
- identifies a single 7-mile Natural section for non-motorized boating;
- gives the authority and responsibility for river protection planning and permit reviews to the New Hampshire Connecticut River Valley Resource Commission of the CRJC and the five local subcommittees.

It is the intent of the New Hampshire legislature through RSA 483 to empower each New Hampshire Connecticut riverfront community to participate in developing a locally-conceived means of conserving the river and its shoreline. The legislature sought also that "the scenic beauty and recreational potential of [the Connecticut River] shall be restored and maintained, that riparian interests shall be respected" without preempting the land zoning authority already granted to the towns.

New Hampshire law identifies the New Hampshire Commission as the local river management advisory committee for the river, with responsibility for developing a river corridor management plan. The New Hampshire and Vermont Commissions together have delegated this responsibility to local subcommittees in order to allow the plan to best respond to the changing character of the river and the varying interests and needs of valley citizens along its 271 mile length as it flows between Vermont and New Hampshire.

"If this plan echoes a shared vision of the people in the corridor, it has as much grassroo credibility as any plan I have ever seen."

Cleve Kapa
New England Power Compa
NH River Commission

Local River Subcommittees and Their Planning Process

To ensure local leadership in implementing the New Hampshire Rivers Management and Protection Act on the Connecticut River, the CRJC established five local river subcommittees, with the specific approval of the New Hampshire legislature. The Vermont legislature also directed its 27 riverfront communities to participate in the work of these subcommittees. The CRJC asked the selectmen of all riverfront towns for nominations, and appointed up to two members and several alternates from each of the 53 towns. Some 150 citizens have thus participated in the subcommittees' work.

The five local groups are advisory, and have met monthly since January of 1993 to develop the Connecticut River Corridor Management Plan. The subcommittees are also empowered by RSA 483 to review and advise state agencies on permits that can affect the river on the New Hampshire side, and by agreement with the Vermont Agency of Natural Resources, on the Vermont side as well. Their leadership, planning, and expertise are local in nature, but their ideas now reach far beyond town boundaries as they advise the CRJC and state and federal agencies on river issues.



The strength of the local subcommittees' planning process lies in the diversity of their membership. These citizens, as directed by RSA 483, represent local business, local government, agriculture, recreation, conservation, and riverfront landowners. In addition, the subcommittees include members who are managers of major hydroelectric dams in each segment of the river. Therefore, the subcommittees are truly reflective of their regions, representing many perspectives and towns from both sides of the river.

All of the recommendations of each local subcommittee's version of the Connecticut River Corridor Management Plan represent the consensus of this diverse group of citizens within their region. The legitimacy of the plan they have produced is based on this consensus.

Each local subcommittee elected its own leadership and adopted rules of procedure to govern its meetings, which are always open to the public. Coordination of their work along the length of the river has been provided by the CRJC Communications Coordinator, who managed the subcommittees' communications with each other, the CRJC, and various state agencies and organizations. For four of the five subcommittees, the Communications Coordinator transcribed their discussions to construct drafts of their plan, which the members revised and approved. The Upper Valley River Subcommittee's plan was written by the chairman of that subcommittee with similar editing and approval of the group.

We honor the work of the local subcommittees. Each region's plan stands on its own as a home-grown blueprint for how all of us -- communities, landowners, businesses, agencies -- can work together to recognize and safeguard the significant asset of the Connecticut River. Each region's plan is different, yet many of the same themes emerge. In addition, the CRJC offer an overview of the issues and opportunities raised by the local subcommittees, to bring a riverwide perspective to the plan.

The CRJC Overview has had the benefit of review by both the public and collaborating state and federal agencies, the Connecticut River Watershed Council, and the regional planning commissions. A number of our statements, such as those addressing Atlantic salmon, flood control, agricultural marketing, and water quality monitoring, are based upon special public sessions held with recognized experts in these fields. Others are based upon the results of cited studies undertaken on the river. A public hearing on this overview was held on January 27, 1997, at a regular monthly meeting of the Commissions. Dozens of agencies, organizations, and individuals contributed their comments; their wisdom has been incorporated as much as possible in this plan.

"I was impressed enough with the CRJC plan. It had some reality in it."

Claremont City Councilor

Scope of the Plan

New Hampshire RSA 483 specifies that the river corridor area to be covered by the plan includes the river and the land area located within a distance of 1,320 feet (1/4 mile) of the normal high water mark or to the landward extent of the 100 year floodplain as designated by the Federal Emergency Management Agency, whichever distance is greater. While the recommendations of the plan are directed toward this area, their consideration on a more general scale could benefit the river, its tributaries, and the region as a whole.

Both states must be equal partners in protecting the Connecticut River and its watershed. In Vermont, the legislature has directed its citizens to participate with their New Hampshire counterparts in creating this plan. In Vermont towns, the plan deserves to be considered by planning commissions for adoption and inclusion in the town plan, with river protection measures to be subsequently incorporated by these local commissions in town regulations.

Adoption of the Plan

This plan makes hundreds of recommendations which touch every level of government, landowners, local business. These recommendations are not made lightly. They reflect the truth that responsibility for the well-being of the Connecticut River is widely shared. The Connecticut River Joint Commissions and our five local subcommittees urge that this plan be adopted by every Connecticut River front community in New Hampshire and Vermont.

The mechanism for adoption is the conventional local planning process; planning boards and commissions review the plan and adopt it as an adjunct to the town master plan. They then select recommendations to bring to townspeople for approval. For towns without planning boards, this responsibility is in the hands of selectmen.

The Connecticut River is presently exempted from New Hampshire's Comprehensive Shoreland Protection Act, RSA 483-B(see Appendix B) which prevails on rivers not included in the Rivers Program before 1993. The exemption from the Comprehensive Shoreland Protection Act does not divorce New Hampshire communities from their responsibility to adopt appropriate shoreland protection measures. In fact, RSA 483-B is clear that "in the event that...the cities and towns along designated rivers or segments thereof do not adopt the proposals made by their local river management advisory committees, the house and senate shall re-examine the exemption provided in RSA 483-B:20 and propose minimum standards as defined by this act."

Assessment of the Plan

This plan should be reviewed annually, to note progress and to identify new actions to be taken. Priorities must be set and a work plan must be developed for implementation. The CRJC are committed to working with state and federal agencies, business, and non-profit organizations to address riverwide opportunities raised in this plan, and with the LRS and their communities to identify local priorities to move forward with this diverse and important agenda.

"We found the Overview to be a very comprehensive, well-written documen that covers all the major issues facing the Connecticut Rive corridor and contains very practical, results-oriented recommendations for state and federal agencies, as well as local communities."

EPA, Region

"The implementation of the Plan will have a positive impact, not only in New Hampshire and Vermont, but in Massachusetts, Connecticut, and Long Island Sound."

U.S. Fish & Wildlife Servic

Going Forward Together

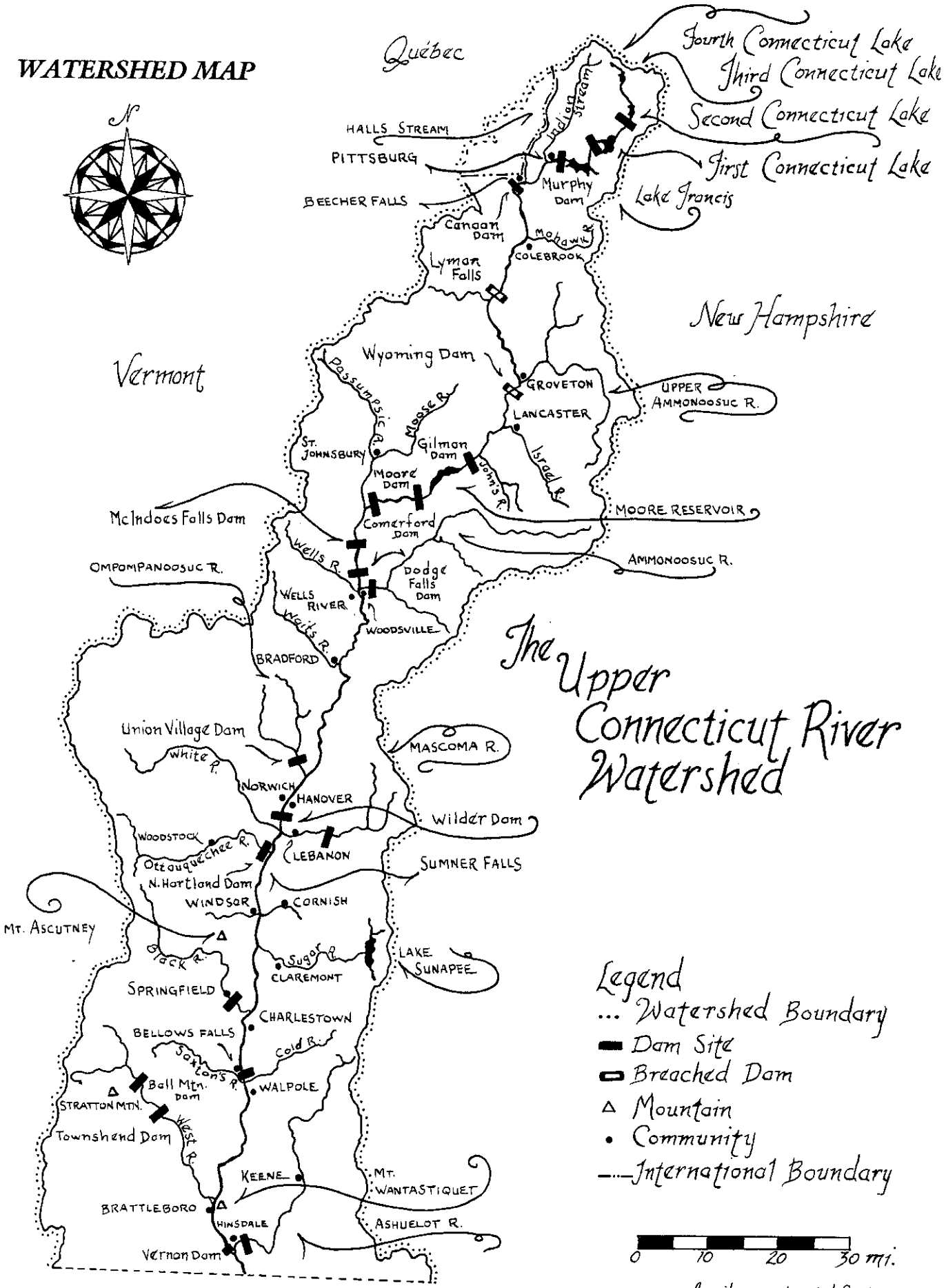
1. Encourage leadership among local citizens.
2. Enforce existing regulations.
3. Educate valley residents and visitors about how they can reduce nonpoint pollution and use the river respectfully.
4. Concentrate on the many possibilities for protecting the river and traditional compatible land uses, through local stewardship and control.
5. Recognize that upstream landowners and communities can have direct effects upon their counterparts downstream.
6. Provide better coordination between the States of Vermont and New Hampshire, particularly in the areas of water quality monitoring, fisheries management, flow management, agricultural marketing, tourism, and recreation.
7. Expand opportunities for cooperation between the managers of hydroelectric facilities and valley agencies, communities, and landowners.
8. Stimulate partnerships, such as those the CRJC is forging through the Connecticut River Valley Partnership Program, which bring different interests to the same table to achieve a mutual agenda.
9. Continue to support the Clean Water Act, and funding which can help local communities and landowners to address water quality problems that require efforts beyond their means.
10. Seek ways to continue land conservation in the river valley, and invite the conservation community to work with communities, businesses, government agencies, and interested landowners to concentrate on threatened lands whose development could destroy prime agricultural soils, important wildlife and plant habitat, archeological or historic sites and landscapes, and scenic views.
11. Insist that agencies and organizations from outside the valley respect local opinion when considering actions that could affect the river and its valley.
12. Encourage local communities to consider the river in their master plans, and to underwrite their expressed vision for the river with guidelines in their regulations.

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The CRJC and the local river subcommittees agree on these key actions

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WATERSHED MAP



PERSPECTIVE ON ISSUES & OPPORTUNITIES

RIVER QUALITY AND POLLUTION PREVENTION

Water Quality Progress

Issue: All across the country, and right here in the Connecticut River Valley, over the last 25 years, people have experienced the increasing benefits of a commitment to pollution control and water quality. Billions of dollars have been spent by government and industry on wastewater treatment, and billions have been gained in real estate value, tourism, outdoor recreation, and public health. Architect of these achievements is the federal Clean Water Act, a law whose goals have shaped the expectations of a generation. The law's aim of no water quality degradation still challenges us today.

As directed by Section 305(b) of the federal Clean Water Act, Vermont and New Hampshire have prepared statewide assessments of water quality and have reported to Congress every two years since 1976. Vermont and New Hampshire cooperated in 1992-4 to prepare a special bi-state Connecticut River watershed report for the Connecticut River Joint Commissions. Written for the interested public, it answers commonly asked questions about water quality and uses of the mainstem and tributaries in the CRJC's five local river subcommittee regions. In preparing this report, the water quality agencies for both states had an opportunity to explore the significant differences that exist in their approaches to water quality assessment. These differences are both philosophically and legislatively based.

In general, New Hampshire's approach until recently was to assess water quality based upon chemical, physical, and bacteriological sampling at fixed locations, and did not include biological monitoring. The sampling was traditionally done during lower flow summer months. The results are compared with New Hampshire Water Quality Standards established by the New Hampshire Department of Environmental Services (DES) and the New Hampshire legislature, which allow limited professional judgment determinations by DES personnel, who identify violations of the standards in a pass/fail fashion.

Vermont's approach is to assess water quality based on data collected as part of permit and enforcement actions, ambient biomonitoring data (assessment of life in the river), public comments, and the judgment of state and federal water resource professionals. Chemical and bacteriological sampling is limited. Benthic macro-invertebrate (bottom-dwelling stream insects) and fish sampling of stream reaches is performed at fixed stations. Based on available data and with comparison to the Vermont Water Quality Standards, assessment determinations are made which reflect existing problems as well as threats to water quality due to point and nonpoint pollution sources.

Opportunities: The Federal Clean Water Act, which set a policy goal of "swimmable, fishable" waters and charged the states with adopting water quality standards, is the primary reason why the Connecticut River is clean today. Maintaining a strong Clean Water Act and effective state implementation are vital to the water quality progress that must continue.

1. **The Congressional delegation and everyone who cares about clean water should support reauthorization of a strong Clean Water Act** that does not compromise improved water quality.
2. **Vermont and New Hampshire should develop a common policy and water quality standards** that include biological, physical, and chemical components to ensure a healthy river.
3. **The health and future of tributaries to the Connecticut River should be examined,** since these waters influence the quality of the mainstem. Citizens living along tributaries should develop protection plans for their rivers.

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Water Quality Monitoring

Issue: Water quality monitoring is invaluable in detecting problems and in measuring the progress of cleanup, as has been well demonstrated at Morris Brook in Haverhill. Here, the owner of a dairy farm undertook a major cost-shared project to control non-point pollution in the stream which flows through his property. Monitoring of the stream by Connecticut River Watch Program volunteers and staff before, during, and after the project showed not only that the work had markedly reduced pollution from the farm, but also that biological monitoring, a method used routinely by Vermont but not until recently by New Hampshire, was important in detecting the healthy change in the stream that resulted from the farmer's efforts.

Until 1994, the states were also able to rely upon extensive water quality monitoring performed in the Connecticut River basin by the Connecticut River Watch Program. This non-profit volunteer-based program of the River Watch Network operated in the watershed since 1988 but is currently inactive due to the absence of sustained funding.

Opportunities: Water quality monitoring is one of the keys to pollution prevention, and should be encouraged widely within the basin, by providing adequate organizational assistance and support. Monitoring is particularly useful on tributary streams where localized sampling can more easily identify sources of trouble.

1. **Vermont and New Hampshire should develop a coordinated, collaborative approach to monitoring the quality of the river for human use and ecological health.** Specific information needs should be spelled out. This monitoring should involve both various levels of government and citizen groups, each gathering information appropriate for their resources and interests. Vermont and New Hampshire should share information regularly and develop guidelines on data quality control and confirmation.
2. **Monitoring river ecosystem health should include indicators of physical, chemical, and biological processes, using a full range of techniques** from simple observations to more detailed sampling and analysis of water quality and aquatic life, habitat quality assessment, and monitoring of the physical channel. Each state should broaden its respective sampling approach to include all indicators and a full range of

techniques. Benchmarks can be established in state water quality standards or set for specific sites.

3. **State agencies should evaluate site specific chemistry data within impoundments** to document dissolved oxygen and the extent of algal problems. To ensure that water quality requirements of both states are met in interstate waters, the states of New Hampshire and Vermont have agreed to coordinate their respective 401 certificate reviews with a goal of consistent conditions and monitoring requirements.

4. **Local citizen groups, non-profit organizations, and schools should monitor the quality of their neighborhood streams**, both for the educational opportunity it represents, and to contribute to the knowledge about our river system. Organizational support is available from the River Watch Network and the states. We particularly hope that such efforts will begin in the Headwaters and Riverbend regions, areas where formal programs on the mainstem do not yet exist, and where water quality holds proven economic importance in the recreation and tourist industry. The permission of the landowner should always be obtained before crossing land to monitor a waterway.

5. **Volunteers should consider using the bi-state 1994 *Connecticut River Water Quality Assessment* as a guide** to help focus their initial efforts on locating pollution sources. *A Citizen's Guide to River Monitoring in the Connecticut River Valley*, produced in 1995 by the River Watch Network for the CRJC, will assist people in establishing long-term, community-based, and scientifically credible river monitoring programs here.

6. **Local decision-makers should be made aware of the results of water quality monitoring and consulted in actions taken.** Appropriate state agencies should be contacted if the results do not meet state water quality standards.

7. **Volunteer water quality monitoring programs need both citizen and financial support, and useful contact with state agencies.** These agencies should continue to provide monitoring groups and local decision-makers with a better understanding of how on-going state water quality assessments are made and how local citizens can contribute information. New Hampshire's proposed Volunteer River Assessment Program offers an excellent opportunity for Connecticut River Valley people to participate in understanding and improving the health of their rivers and streams.



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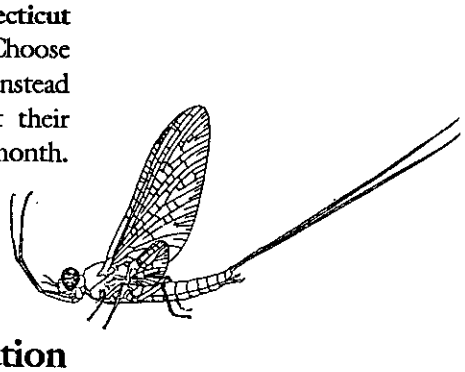
Toxins in Fish Tissue

Issue: The discovery in 1988 of cadmium, chromium, and PCBs in the tissue of fish sampled in the Connecticut River from West Lebanon to Brattleboro, is strong cause for concern. The New Hampshire Department of Public Health issued a statewide recommendation in December, 1994 that fish consumption be limited due to mercury content. Whether toxic substances are entering fish from present discharges to the river or from riverbottom sediments contaminated long ago is unknown. The levels of toxicants discovered in the 1988 study are enough to interfere with fish reproduction and growth, and since these toxics accumulate in fish tissue, contaminated fish could be dangerous not only for the animals who eat them, such as eagles, mink, and osprey, but also for people. Fish tissue sampling is expensive, but human health and the health of the river ecosystem are even more precious.

Opportunities: The river's return to health means that people once again enjoy fishing the river for sport and for food, both in solitude on a backwater at sunset or as part of the increasingly popular tournaments which draw fishermen from all over the Northeast. Fish should be safe to eat. Much more information is needed to reassure people about the health and future of fish populations, and to help identify sources of contamination. The presence of toxic substances in the Connecticut River and its tributaries remains largely unknown. We need help in looking more closely at fish tissue toxicity throughout the river, not just where toxics were found in the past, and in tracing and addressing possible sources of these contaminants.

1. **State and federal agencies should fund the monitoring for toxic substances in the water, fish, and sediments,** and inform the public about the results.
2. **Where problems such as copper-mine runoff in the Ompompanoosuc River watershed in Vermont are documented, the states and federal government should place a high priority on remediation.**
3. **All consumers should limit their consumption of all species of Connecticut River fish,** according to the New Hampshire Department of Public Health. Choose younger, smaller fish, remove the skin and fatty areas, and bake or broil the fish instead of frying. Women of reproductive age and young children should limit their consumption to one meal per month, and others should limit to four meals per month.

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Nonpoint Source Pollution

Issue: Nonpoint source pollution is contamination that cannot be traced to a single source such as an effluent pipe. Nonpoint sources produce pollution in a diffuse manner. The key to maintaining or improving water quality most often lies in the hands of private landowners and towns. Studies show that urban land, including roads, construction sites, houselots, and other development, contributes more than twice as much pollution per acre as farmland. With the high percentage of agricultural land along the river, however, the use of best management practices ("BMPs") by farmers holds the greatest potential for reducing nonpoint source pollution in the mainstem.

Use of best management practices can also help towns, utilities, and landowners avoid harm to public waters. This includes cautious use of pesticides and herbicides. The small family farm is now sharing our watershed with a growing number of larger farms, where good management is the key to avoiding water quality problems when more animals are kept on the same piece of ground.

Unfortunately, some BMPs can carry a high price tag. For example, construction of adequate manure storage pits is costly, but frees a farmer from the temptation to dispose of surplus manure on frozen fields at a time when it cannot fertilize them and the bacteria and nutrients it contains are likely to be washed into a nearby stream. Farms are a frequent suspect in nonpoint pollution of rivers and streams, and such winter spreading without an emergency exemption is a violation of Vermont acceptable management practices, and is discouraged by New Hampshire. Farming is also a threatened way of life and land use in the Connecticut River Valley, and every dollar spent upon fertilizer must count. The costs of controlling nonpoint pollution can occupy a painfully prominent place on a farm's balance sheet.

> "We are concerned all the time about what the river is doing to our farm, and what our farm is doing to the river."
>
> *Upper Valley riverfront farmer*

A recent pilot program in Grafton County has gathered many new believers in the farming community, who found that they could save thousands of dollars each year in fertilizer costs with custom-fit nutrient management plans for their farms. By knowing the precise capabilities of their soils, the nutrient needs of their particular crops, and their crop-handling styles, farmers could apply the right amount of the right fertilizer at the right moment, and know that it would go directly into their crops and not into the river. This is a win-win approach to benefit both the farmer and the river, that can bring both economic and environmental gains. A commitment of public dollars was needed to launch the Grafton County effort, and would be appropriate elsewhere.

"Just to legislate cleaner water isn't right. We must have provisions for funding to help pay for it."

Nat Tripp
VT River Commissioner, Barnet

Opportunities: A riparian buffer is probably the single most important hedge against nonpoint pollution. The states have also prepared guidance for a wide range of topics to help landowners and towns avoid polluting waterways. These include BMPs for agriculture, timber harvesting, construction and development, care of septic systems, road construction, road salting and dumping, golf courses, site excavation, sand and gravel operations, urban runoff, chemical and petroleum products, land application of biosolids, and docks, moorings, and marinas. Two publications by the CRJC offer ready ideas: *A Homeowner's Guide to Nonpoint Source Pollution Control in the Connecticut River Valley*, and *A Watershed Guide to Cleaner Rivers, Lakes, and Streams* (see Appendix D).

The real public benefit of good water quality, and the need for a private landowner's use of best management practices to protect that benefit, make it appropriate that the public help share the cost of the more expensive measures, such as the manure storage facilities some of our farms still need.

1. **Towns should demonstrate their commitment to protect their waterways. Planning boards and commissions should require developers to observe best management practices** for sediment and erosion control during and after construction. All should attend carefully to stormwater management when reviewing plans for new development that includes significant impervious surfaces such as parking lots and roofs. New Hampshire towns should require developers to apply for a DES Site Specific Permit if they are disturbing more than 50,000 contiguous square feet of land within protected shoreland, and consider adopting the actions recommended by *A Watershed Guide to Cleaner Rivers, Lakes, and Streams*. **Town road crews should dispose of snow wisely in accordance with state and federal laws and use salt sparingly**, especially near surface waters.

2. **Homeowners, farmers, loggers, and others who can affect the land can demonstrate responsible use of it by learning about and using best management practices.** Landowners should take advantage of the expertise and support of the federal Natural Resources Conservation Service (NRCS), the Cooperative Extension Service, the Farm Services Agency, and state agencies, among others. Everyone must practice the state of the art in managing land, both publicly and privately.

3. **The U. S. Department of Agriculture (USDA) should support its Natural Resources Conservation Service, Cooperative Extension Service, and the conservation districts in working with valley farmers to prepare a custom nutrient management plan for each farm.** The Cooperative Extension Service offices in each state should work together for the benefit of valley farms.

4. **Farmers and other landowners should explore the many possibilities offered by the 1996 Farm Bill's Environmental Quality Incentives Program** (EQIP) to help them make effective use of their land while safeguarding water quality.

5. **The CRJC should work with the NRCS to develop a bi-state proposal for EQIP projects in the valley,** based on recommendations by the local river subcommittees working with the local conservation districts, who are familiar with the needs of local farmers and other landowners.

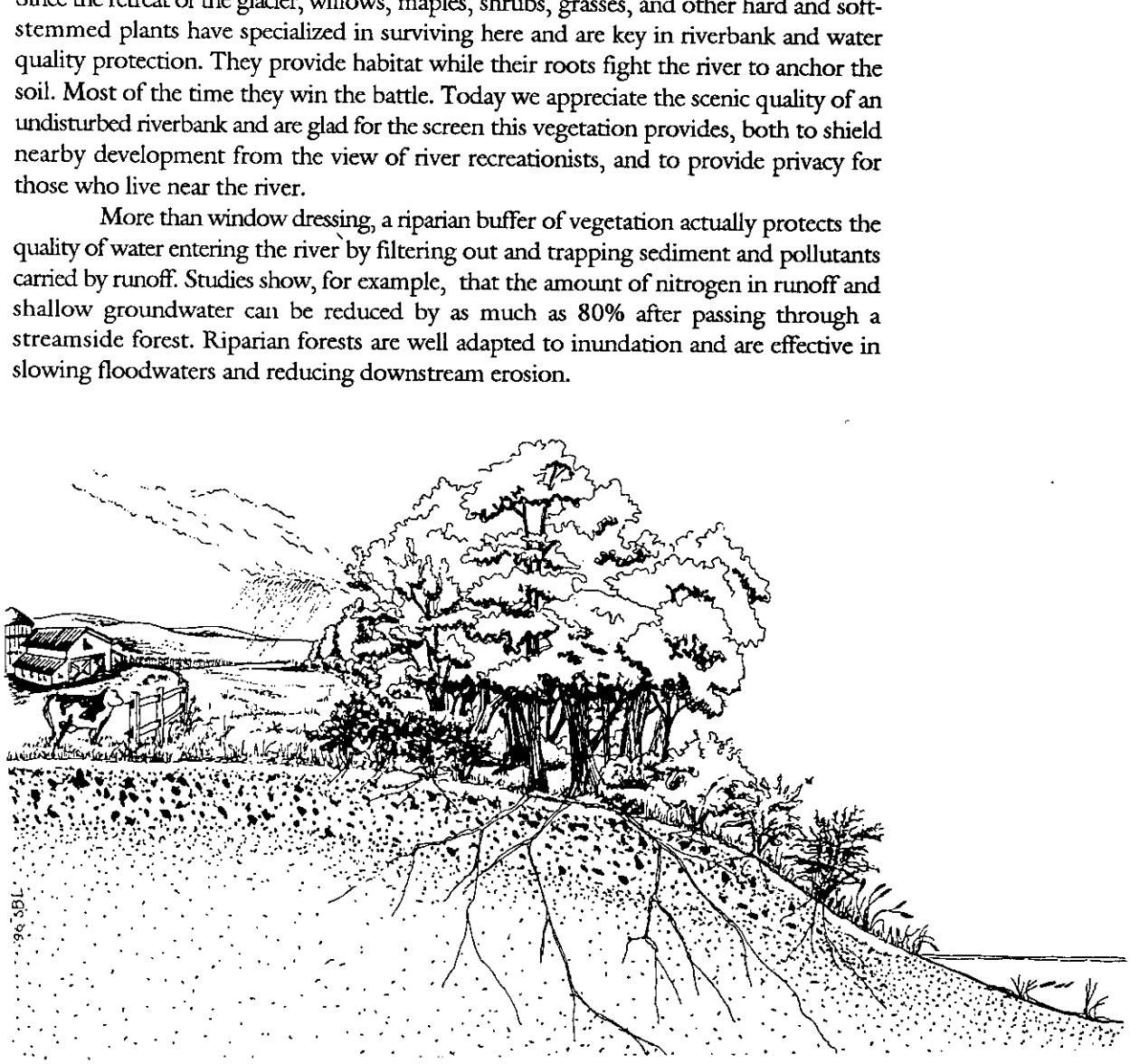
6. **All landowners, from utilities, the railroad, and large corporations to farms and private homeowners, should use extreme care with pesticides or herbicides.** Select the least toxic substance, keep it away from surface waters and neighboring property, and dispose of it properly.

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Riparian Buffers

Issue: Naturally vegetated riverbanks are the river's original defense against nonpoint pollution and erosion, and no one has yet come up with a better invention. Since the retreat of the glacier, willows, maples, shrubs, grasses, and other hard and soft-stemmed plants have specialized in surviving here and are key in riverbank and water quality protection. They provide habitat while their roots fight the river to anchor the soil. Most of the time they win the battle. Today we appreciate the scenic quality of an undisturbed riverbank and are glad for the screen this vegetation provides, both to shield nearby development from the view of river recreationists, and to provide privacy for those who live near the river.

More than window dressing, a riparian buffer of vegetation actually protects the quality of water entering the river by filtering out and trapping sediment and pollutants carried by runoff. Studies show, for example, that the amount of nitrogen in runoff and shallow groundwater can be reduced by as much as 80% after passing through a streamside forest. Riparian forests are well adapted to inundation and are effective in slowing floodwaters and reducing downstream erosion.



The problem is that much of the river's natural riparian forest is long gone, removed for farming, timber harvesting, development, or improvement of a homeowner's view of the river.

Reestablishing a riparian buffer can amount to leaving the riverbank alone to revegetate itself naturally. This is problematic for farmers, however, who know that for every mile of riverfront, 100 feet set aside for a buffer means twelve valuable acres taken out of production. Forested buffers can also shade crops. A buffer of shrubs will provide most of the erosion and pollution control benefits of a forested buffer without shading crops and will help keep the farmer's bank intact and his equipment out of the river.

Opportunities: This single tool, the riparian buffer, is the most cost-effective means which nearly every landowner can use to do good things for the river and its inhabitants. Riparian vegetation has become better adapted through the centuries to handling the river's whims and rhythms than any form of riverbank management humans can devise. Riparian forests in particular offer the best possible trap for pollutants and sediment washing off the land, and the best habitat for migrating and resident wildlife.

1. **Landowners should leave riparian buffers undisturbed where they remain, and allow them to return wherever possible,** to provide the best pollution filter and trap.
2. **USDA programs should support farmers and other eligible landowners in establishing riparian buffers.** Compensation for landowners is appropriate to encourage buffer protection. Farmers should consider allowing growth of shrubby buffers as an alternative in areas where trees could shade crops.
3. **Towns should consider requiring the maintenance of an existing natural woodland buffer within at least 150 feet of the river.** Steeper land, erodible banks, and more intensive land uses warrant wider buffers to do a proper job, particularly where runoff drains directly toward the river.
4. **Owners of paved areas near waterways should make special efforts to plant and encourage buffers of vegetation** to trap parking lot debris and prevent pollutants from washing into the water, and to screen the view of parking lots from the river.
5. **Protection of riparian buffers should be a part of any conservation easement on riverfront land.**
6. **As town planning boards and commissions consider shoreland protection, they should adopt riparian setbacks for development and to protect riparian forests.**

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Urban Stormwater & Combined Sewer Overflows

Issue: Stormwater runoff is one of the unfortunate results of development and urbanization. Every roof, parking lot, and other impervious surface collects water that is channeled away, and every new road or driveway is ditched to do the same. The result is increased runoff into waterways each time it rains. Besides the increased chance of flooding and associated erosion, the runoff carries whatever pollutants it picked up on the way.

When many municipal wastewater treatment systems were built, they were connected to collection systems for stormwater as well as for sewerage. In some communities, storm drains are connected to their facility in such a way that enough water can enter the wastewater treatment plant during a heavy storm to overwhelm the plant, and cause it to discharge untreated sewerage. Separating such a combined sewer overflow ("CSO") is a very expensive project, and the towns and states have been working together for some time to deal with this problem. There are several cities which still have CSOs that may be responsible for pollution during and after storms. These are St. Johnsbury (whose discharges to the Passumpsic River enter the Connecticut River), Springfield (discharging to the Black River) and Lebanon (discharging to the mainstem). CSOs pose a threat to human health which we cannot afford to ignore, especially now that the river has once again become popular for swimming and boating.

Opportunities: Congress can provide much-needed, targeted assistance to local communities through a rejuvenated Clean Water Act.

1. **The states should seek federal assistance on behalf of the towns to remedy combined sewer overflows as quickly as possible.** Combined sewer overflow separation projects should also consider treatment of stormwater where possible. Treatment of the initial ten to fifteen minute pulse of stormwater from urban streets, lawns, and buildings would significantly reduce the impacts of pollutants carried in urban storm water.
2. **The New England Interstate Water Pollution Control Commission can promote this need as a worthy candidate for funding under a newly-reauthorized Clean Water Act.**
3. **Community planning boards and commissions should ensure that stormwater is managed and treated as development occurs,** and require developers to prepare a stormwater management plan. This is perhaps the most easily implemented opportunity in nonpoint pollution prevention.

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Land Application of Unconventional Fertilizers (Sludge, Biosolids and Other Residues)

Issue: Modern society has created a surprising set of potential fertilizer sources. Pulp and paper mills produce short-fiber paper sludge. Wood-burning energy plants produce wood ash. Human waste products end up in septic tanks as septage or in municipal wastewater treatment facilities as sludge. Those sludges intended for land application are stabilized by reducing pathogens such as bacteria and viruses, and are then called biosolids. Proper handling and disposal of all of these residues is an expensive and perplexing problem. They need to go somewhere, but simply piling them into precious landfill space is a costly solution.

The problem is that anything that goes down the drain winds up in either a treatment plant or septic system.

Some sludges, wood ash, and other residues can be a good source of nutrients and organic material, and offer a way for farmers to shave their fertilizer budget while recycling. Like any fertilizer, however, they can end up producing algal blooms in surface waters if they are misapplied or wash off the land before they can be used by growing plants. Landowners receiving sludges or biosolids are required by the states to have a management plan prepared for each field to ensure that soils are not over fertilized, to prevent contamination of ground and surface waters.

Sludge offers both benefits and risks. Benefits include water holding properties, organic content for better soil texture, and value as a slow release fertilizer. Not all of these materials are created equal. Grade A biosolids, in which pathogens are below detectable levels, are not as closely restricted by federal and state regulations. Grade B biosolids may still contain detectable pathogens even after treatment such as with lime, and may have higher metal concentrations, but may be used when site and crop restrictions are followed to reduce the risk to public health. While some residues are relatively odor-free, others can be a real nuisance, and can be noticed a long distance from the application site, unless the material is quickly incorporated into the soil or further treated.

Biosolids are much more than simple processed human manure. The problem is that anything that goes down the drain winds up in either a treatment plant or septic system. People sometimes pour household chemicals and used motor oil down their drains. Treated industrial wastes containing chemicals and metals such as mercury and cadmium, that are hazardous to human health, may be discharged into municipal plants. If the required pre-treatment is not effective, then the resulting sludge may contain elevated heavy metals and chemicals which may be unacceptable for agricultural land application, and these are usually landfilled. Sludges which contain less than the limits allowed for the ten metals addressed by the federal rules are available for land application, and offer a cost savings to the city or town and to the receiving landowner.

The public deserves the reassurance that further testing and monitoring would provide.

Many of the metals and chemicals that are sometimes found in sludge are either harmless, remain firmly locked in the soil, or dissipate over time. Others such as mercury, PCBs, and dioxins tend to accumulate in natural food chains, and could concentrate in the bodies of predatory fish, birds, and wildlife. Northern New England's frequently acidic soils may allow heavy metals to move from the earth into plants and waters if soil pH is not artificially maintained above 6.0. Maintaining this pH is a management practice which farmers also follow for maximum crop yield, but on many soils it also requires long-term effort and vigilance. If agricultural activity should cease and the farm is sold for residential development, or should planting change to an acid-loving crop such as blueberries, previously locked up metals from sludge could begin to move through soils, water, and plants.

Sludges from paper plants may contain chemicals such as cancer-causing dioxins, that are potentially harmful to both humans and wildlife. As of this writing, Vermont has regulations limiting the content of dioxins and similar contaminants in material to be land-applied. Federal and New Hampshire policy is to look to "guidance" levels for these contaminants. Current federal and state regulations are aimed at protecting human health, but less is known about tolerable metal and chemical levels for fish and wildlife.

While landowners and others are beginning to understand and learn how to handle biosolids, some wonder why there is so much concern about cycling these materials into our soils, when pollutants already lurk in the unlined landfills often located near waterways, and are delivered to New England every day on the southwest wind.

A sensible use of sludge may be to revegetate and close landfills and other highly disturbed pieces of ground. A second look is worthwhile when using biosolids to close gravel pits, however, since where there was gravel, there is often groundwater below. Safe drinking water depends upon clean aquifers.

The federal government has enacted regulations to address health effects, odors, and soil and water contamination. Both Vermont and New Hampshire have regulations controlling the application of septage, sludge, biosolids and wood ash. These regulations require soil and sludge testing, use of field/farm specific management plans for nutrient and metal loading, detailed odor control plans, setbacks from roads, abutters, and

waterways, and public notice of meetings.

As industries and communities seek cost-effective and environmentally sound ways of dealing with these materials, they are frequently approaching landowners in the Connecticut River Valley for permission to spread various residues on farm land. Some of the biosolids have come from more heavily industrialized states, and often towns and landowners are concerned about their content and pollution potential, particularly when each load is not tested before it is applied. Land application is supportable only if handled responsibly and is performed under federal, state and local oversight.

Opportunities: Recycling of nutrients through land application offers a useful way to utilize some of these materials, reduce fertilizer costs to landowners, rebuild soils, and save space in landfills. However, until harmful substances contributed from both household and industrial sources are effectively removed from the waste stream and an unpolluted, substantially pathogen-freed source of human waste is available, there will always be some risk involved in land application of biosolids and sludge. Perhaps insurance is appropriate to protect farms in particular against this risk.

The public's growing sensitivity toward environmental quality over the last two decades is understandably aroused over this topic. The public deserves the reassurance that further testing and monitoring would provide.

It is essential for all concerned to work together toward a goal of "clean," safe biosolids, and that rules be consistent among neighboring states to prevent one from accepting waste that another one deems unsafe. Technologies such as composting and anaerobic digestion are showing promise for increasing the safety of recycled wastes, and warrant close attention. There is also still much to learn about the materials themselves.

1. **New Hampshire and Vermont should continue to provide effective and consistent oversight** of the disposal of septage, sludge, biosolids, and wood ash, and ensure that best management practices are followed and enforcement actions taken where appropriate. The legislatures should ensure that their state agencies are adequately funded to carry out this responsibility.
2. **New Hampshire and Vermont should ensure that landowners are provided with specific, timely, and accurate information** on the source(s) of the residues and their content, especially of nutrient value, heavy metals, and any potentially harmful constituents. Random testing of individual loads, particularly from out-of-town sources, would greatly increase public confidence in the safety of land application.
3. **Landowners must take full responsibility for use of these materials on their land.** They should consult with their lending institutions before accepting biosolids or other residues.
4. **The generator of the residue should take the major portion of liability** for future concerns about contamination of soil and water on the property where sludge has been applied.
5. **The states as well as the federal government should continue to research issues regarding land application of these residues**, to assure public health protection and pollution prevention. They should continue to evaluate the effects of exposure through multiple pathways, migration of toxic materials through natural food chains, and the wisdom of spreading these materials in floodplains.
6. **New England Interstate Water Pollution Control Commission should assist the states in working toward consistent contaminant level limits,** to provide uniform protection, and to avoid attracting wastes produced elsewhere to one particular state. These limits must include dioxins and similar substances of concern. Metal loading limits should respond more closely to natural soil pH of receiving sites.

"Responsibility for a healthy river belongs to everybody, and not just to state and federal agencies."

Geoff Dates, Hartla
VT River Commissio

7. **Communities should consider adopting their state regulations by reference under their health ordinances** to empower local health officers to intervene where they determine violations of state regulations exist at land application sites.

8. **Towns should also consider whether they wish to adopt their own local restrictions on land application,** such as on days when strong odors might interfere with local tourism, use of materials from certain sources or of less than Grade A quality, or in gravel pits or floodplains, and be prepared to defend these restrictions.

9. **The states should ensure that communities have access to detailed aquifer mapping** to allow them to adequately protect their groundwater.

10. **The states, NRCS, the conservation districts, and the Cooperative Extension Service should provide continued education** to towns and landowners on the proper use of residues to assist them in making informed decisions.

11. **Federal, state, and local officials should continue to vigorously enforce pre-treatment requirements for industrial discharges** to municipal wastewater treatment plants.

12. **Towns should cooperate to hold frequent household hazardous waste disposal days to help prevent dangerous materials from entering the septage/sludge stream** or being carelessly discarded. The solution to many of the questions surrounding biosolids is to reduce our use of potentially hazardous substances that might eventually wind up in wastewater and contaminate the remaining material.

13. **States and towns should encourage use of composting toilets** to reduce the amount of waste material entering wastewater treatment facilities and to save town dollars.

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Bank Erosion

Issue: Riverbank erosion is one of the most prevalent and misunderstood problems on the Connecticut River and its tributaries. Landowners from one end of the river to the other are concerned about losing their land to erosion, and perhaps about paying taxes on acres that may now be out of town, gone downriver. Often they wonder whom they should blame. Fisheries and water quality experts worry about loss of fish spawning habitat and pollution from sedimentation. The Connecticut River can and does erode valuable agricultural soils and threatens roads and buildings. However, some attempts to stop erosion can have unintended effects, and can actually start erosion somewhere else, on someone else's property. The CRJC have recently published *The Challenge of Erosion*, a series of information fact sheets designed to help landowners better understand and work with this complex river process.

It is the nature of rivers and streams to change course. Erosion occurs both on free-flowing rivers and on dammed rivers whose water levels fluctuate according to how the dams are operated, and the role of impoundment fluctuations on riverbanks is a topic of continuing debate. People cannot stop erosion - they can only speed it up or slow it down. There are many contributing factors to erosion, and people can influence only some of them. The most important deterrents are minimizing the attack on vulnerable banks from the water and from the shore, and allowing the banks to naturally fortify themselves with a protective buffer of vegetation.

People place their homes and businesses in danger if they build them too close to the river on erodible ground. The federal government spends millions of taxpayer dollars nationwide each year in disaster relief for damage to structures which may have been unwisely built within a river's eventual path.

Opportunities: People living, farming, and doing business near the river should understand how a river works. Avoid setting up an erosion-prone situation in the first place.

1. **Landowners should help protect their banks and water quality at the same time by maintaining or planting a buffer of vegetation along streambanks,** particularly where the land slopes toward the waterway. Such a buffer will also ensure their own privacy. They should keep heavy equipment, livestock, foot traffic, and structures off erodible riverbanks. Along their impoundments, dam owners should also cooperate with landowners to arrest erosion and provide buffers.
2. **When designing stabilization for a problem site, use native vegetation wherever possible** to achieve a natural solution to bank erosion which has many benefits beyond simply holding the bank together. Avoid armoring the bank with stone riprap and other "hard" engineering solutions unless as a last resort when erosion immediately threatens a road or other large investment, since riprap is now understood to be a less preferable alternative for bank stabilization. Maintaining a vegetated riparian buffer should be a part of any river and streambank restoration project and conservation easement on riparian land.
3. **Anyone faced with an erosion problem should contact professionals such as the Natural Resources Conservation Service for help in evaluating which solution, if any, is the best for the site,** since each site is different and requires a practiced hand.
4. **Recognize that often the best choice is to leave the site alone** and let the river take its course.
5. **Towns should contribute to controlling both erosion and property damage by discouraging construction too close to the river or within the floodplain.** Activities in this sensitive area should be limited to agriculture, recreation, forestry, and wildlife conservation.
6. **Towns should develop a maintenance and management plan for culverts and other potential erosion sites.**
7. **Boaters should obey existing speed laws and watch their wakes** to be sure that they do not strike the bank with erosive force.
8. **The New Hampshire legislature must provide sufficient funds to allow New Hampshire Department of Safety's Marine Patrol to adequately enforce existing speed laws** on the river.
9. **Dam owners should thoroughly evaluate impacts of impoundment cycling on riverbank erosion** as part of relicensing studies, and undertake mitigation as appropriate.
10. **Federal and state agencies should fund vegetative stabilization demonstration projects.**
11. **Anyone contemplating work on a riverbank must obtain the proper permits** before going ahead.

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Flood Control

Issue: The Connecticut River, the largest in New England, gathers the rain and snow falling on the 11,250 square miles of its watershed in New Hampshire, Vermont, Massachusetts, and Connecticut. This precipitation rarely arrives in predictable doses, and moves in pulses down the river that reflect both the amount of rainfall and the ability of the watershed to soak it up.

"A wise public must give the river room to be a river."

Sharon Franc
Executive Direct
Connecticut River Joi
Commissio

The river requires its full floodplain for storage during high water. Wetlands and floodplains are where the river naturally stores floodwater and relieves the water's energy. The Connecticut River's broad floodplain, famous for its fine agricultural soils, has become key waterfront property now that the river is clean and attractive once again. Development of all kinds, from industry and commerce seeking large expanses of flat, open land, to houselots to be marketed for their river views, competes increasingly with agriculture for room on riverfront lands. Flood levels are not the same from year to year. Few people remember those times when the worst possible combination of weather and river conditions produced catastrophic floods. In 1938, many riverfront towns were ten or twenty feet underwater.

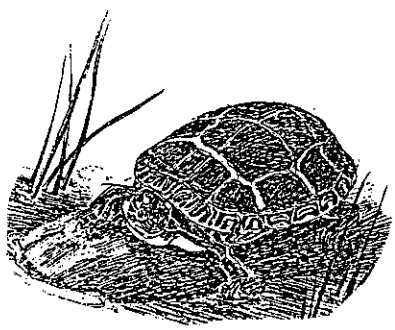
During the middle of this century, the U.S. Army Corps of Engineers built 16 flood control dams on tributaries of the Connecticut in an attempt to reduce the hazard to downstream communities which had grown close to the river. Eventually the cost and public rejection of the concept redirected attention to the concept of natural flood storage, which meant keeping floodplains open and relatively undeveloped. In fact, there is half again as much natural flood storage in the floodplain as there is in all the reservoir areas behind the flood control dams.

The Corps completed its Connecticut River Basin Natural Valley Storage Reconnaissance Study in 1994, and identified two major natural valley storage areas in the upper basin. These are the reach from W. Stewartstown to Lancaster (12,000 acres of floodplain) and Woodsville to Bradford (4,000 acres). The study strongly recommended discouraging development in these flood storage areas, although it concluded that federal purchase or easement acquisition of these areas would be economically unfeasible.

The Federal Emergency Management Agency's (FEMA) Flood Insurance Program prohibits development in the floodway, but permits it in the 100-year floodplain if the developments are "floodproofed." This program does not consider environmental, social, aesthetic, or other relevant values. Most communities considered that this was an adequate way of protecting their citizens from flood damage. Yet simply building a mound for a house site or calling for floodproof design does not solve the problem, it just moves it somewhere else.

Flood maps commonly show the 100-year floodplain, or the area where the chance of flooding in any given year is one percent or greater. Rivers don't read maps or understand statistics, and it is entirely possible that a region could sustain two 100-year storms within a few years, and then not experience another for 200. Few people pay much attention to the 500 year floodplain, which could be inundated by a storm the likes of which might be seen only twice in a millennium. It is important to understand that floodplain maps show only calculated probabilities of flood frequency, rather than lines the river should not be expected to cross. We do not know when these floods could come, but they could well come within our lifetimes, as did the major flooding on the Mississippi River in 1993 when the entire midsection of the country became floodplain once again, including several major cities. The resulting damage to structures built within the floodplain costs taxpayers billions of dollars in disaster relief nationwide.

A town which permits building in its floodplain may be unwittingly contributing to flooding of another town downstream. Only four of the 53 towns along the Connecticut River now specifically exclude construction in their floodplains.



Most Connecticut River Valley communities developed their approach to flood damage control prior to the vast disaster and flooding on the Mississippi River. The public may have a sense of false security that the many dams on the Connecticut River mainstem and tributaries are adequate to prevent damage from a major storm event, yet

several times during the preparation of this plan, at times of year as varied as January and July, the river has carried water high enough to cause significant and prolonged flooding in spite of the best efforts of dam managers to control water levels. The 1996 corn crop in the North Country suffered on soils that were inundated and still had not dried out by mid-summer. Earlier that spring, homes in North Walpole, New Hampshire were threatened as a massive chunk of riverbank washed away.

When disaster relief checks come in from the federal government, they can be used to rebuild in the same place if damage is less than 50% of market value, exposing property to damage from the next flood. If the river has been there once, it can return. Only rarely has the decision been made, as in Stratford, New Hampshire, to use the funds more constructively by moving out of the river's way. Unfortunately, the only program offering help to homeowners for relocation has limited funding.

Unfortunately, while most towns are now enrolled in the federal flood insurance program, the maps provided to the towns from FEMA are frequently inaccurate, and cause unnecessary problems for people trying to build or mortgage their homes.

A powerful set of opportunities exists here, in maintaining open floodplains along the Connecticut River.

Opportunities: A powerful set of opportunities exists here, in maintaining open floodplains along the Connecticut River. There are both tangible and intangible economic rewards to be reaped by keeping open floodplains in the valley, in addition to the many environmental benefits. If a developed floodplain is a flood disaster waiting to happen, then an open floodplain is taxpayer dollars that stay in the bank. The finest agricultural soils in New England lie within our river's floodplain, and offer an economic return in farm produce that cannot be matched by upland soils and that may well be needed in the future to help feed our region. Once floodplain lands are developed, they are no longer available for agriculture.

The broad floodplains, forests, and open fields along the river are the signature of our valley, the pastoral scenery that draws visitors from all over the world and spells home for us. The growing heritage tourism industry has enormous economic potential for the Connecticut River Valley, and can allow valley towns to capitalize upon the beauty - and flood management potential - of our historic agricultural landscapes and riverfront views.

Floodplain offers a kind of habitat all its own, and the plant and animal communities that specialize in it are highly varied. Ensuring that floodplains remain open for flood control means that they will also remain available for migrating and resident wildlife.

1. **Building should not take place within the 100 year floodplain** except for agricultural and water-dependent activities. The floodplain should remain open to serve as natural flood storage. If there is no feasible alternative to building in the floodplain, development should be designed so that there is no net fill. Towns should be fully aware of the requirements of flood insurance programs when reviewing proposed development.
2. **Towns which still allow building within the floodplain should take a fresh look at this policy** and take greater responsibility for flood control, for the safety and welfare of its own citizens and those downriver.
3. **FEMA should guide the use of disaster relief funds toward relocating flood-damaged structures whenever possible** rather than encouraging rebuilding in the same vulnerable location, and increase funds available through the hazard mitigation program.

4. **FEMA should make a priority of working with riverfront towns to be sure that flood hazard maps are accurate** and do not present an unnecessary hardship for landowners, local officials, surveyors, bankers, insurance companies, and state and federal agencies.

5. **Towns should consider wetlands protection ordinances to help reduce flood damage**, among the many values wetlands offer.



Shoreland Protection

Issue: New Hampshire enacted limited protection for lake, river, and coastal shores in 1994 through RSA 483-B, the Comprehensive Shoreland Protection Act. This act applies throughout the state except on rivers like the Connecticut, which were designated into the New Hampshire Rivers Management and Protection Program prior to 1993. On designated rivers, like the Connecticut and Ashuelot rivers, the locally-designed river corridor management plan can be adopted as an alternative. RSA 483-B sets minimum shoreland protection standards for septic system and building setbacks, cutting of woodland buffers, building density, and non-agricultural use of fertilizer next to the waterbody, and prohibits establishment or expansion of salt storage yards, auto junk yards, solid waste, and hazardous waste facilities close to the river. (See Appendix B for further information.)

The land area covered by this act extends 250 feet from the ordinary high water mark, a distance less than the length of a football field. The setback established for buildings is only 50 feet, a distance which may make sense on a relatively stable shoreline such as that of a rocky-bottomed lake, but which is questionable on the bank of a major river such as the Connecticut, which may claim 10-20 feet of territory each year where it is actively eroding. In order for planning boards to implement the Shoreland Protection Act on new development, towns must adopt its provisions into their zoning ordinance. There is no corresponding shoreland protection law in Vermont.

"Would you *really* advise your neighbor to build his building 51' from that river, the way it moves?"

Riverfront Landowner
Upper Valley

Opportunities: The Connecticut River Joint Commissions believe that the Connecticut River deserves at least the very minimum of protection which the New Hampshire Comprehensive Shoreland Protection Act offers. The specific measures should be developed by each local community. The Connecticut River Corridor Management Plan goes far beyond the Shoreland Protection Act in the diversity of means it offers for protecting the river, although not necessarily through new regulations.

Regional planning commissions can provide valuable assistance to towns by offering models for shoreland protection on rivers and streams, as well as other ways of incorporating the recommendations of the CRJC and the local subcommittees into town guidance for development.

1. **Communities should consult their regional planning commissions to help bring life to the river protection recommended in this Overview and their local subcommittee's plan**, by incorporating meaningful standards for development in their town's adopted guidance.

2. **Communities on both sides of the river should carefully review the New Hampshire Comprehensive Shoreland Protection Act** as a starting point for establishing local measures to protect property and the river.

3. **The CRJC believe that a setback of 50 feet for buildings and 75 feet for septic system leach fields (as set forth in the New Hampshire Comprehensive Shoreland Protection Act) is entirely inadequate in situations where the riverbank could become unstable**, and urge communities to establish more conservative setbacks to prevent property loss and water contamination. Soil conditions are important to consider because they will determine how leachate will move from a leach field to the river.

4. **The State of Vermont should adopt similar if not greater setbacks than those in 483-B for solid waste and hazardous waste facilities, salt storage yards, and auto junk yards, and should encourage** its Connecticut riverfront communities to adopt the Connecticut River Corridor Management Plan, which its citizens helped to prepare. Vermont should also review its on-site septage disposal requirements to ensure adequate protection of ground and surface waters.



FLOW MANAGEMENT AND DAMS

A complete constellation of river uses and values depends upon the flow of the Connecticut River. People use the river for swimming, boating, fishing, irrigation, power production, industrial water supply, and waste assimilation. Creatures use it for habitat and migration. Sometimes these uses compete with one another, and in the past, when the river was far less attractive for recreation, industrial uses often superseded others. This competition between users was one of the reasons why the Connecticut River Joint Commissions worked with the people of the valley to nominate the river into the New Hampshire Rivers Management and Protection Program in 1991.

The river's flow depends upon snow and rainfall, and here on the Connecticut River, also upon how water is held back, removed, or released, either directly at dams, through water withdrawals, or as a result of clearing, planting, or paving lands in the watershed. There are 14 dams on the mainstem in New Hampshire and Vermont. Fifty-three percent of the length of the Connecticut River here is captured by impoundments.

The waters of the Connecticut River are under the jurisdiction of the State of New Hampshire up to the historic mean low water line on the Vermont shore. Where the state line is flooded by impoundments, Vermont also shares jurisdiction.

Altering the natural flow of a river can change how it moves in its floodplain, how it erodes and deposits sediment, how well it provides habitat for nesting, feeding, and migrating fish and wildlife, and how well it accommodates the public's desire for recreation. Impoundments whose water levels rise and fall can leave a "bathtub ring" around the shore where vegetation cannot become established. Impoundments can alter bank stability, obliterate important habitat, and prevent fish from successfully nesting.

Complicating the picture even further is the fact that the quantity of flow can also directly affect its quality, which is one way of saying that dilution is an unfortunate but necessary part of the solution to pollution.

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Flow Policy

Issue: New Hampshire has worked long and hard to develop a flow management policy for rivers like the Connecticut in the Rivers Management and Protection Program, that will control the amount of water available for consumptive use during periods of low flow and in the future when the demand for water could be even greater. However, there may be gaps in policy, or inconsistencies between the policies of Vermont and New Hampshire agencies, which need to be addressed. Among them is the question of how Vermont will provide flow management similar to that affecting New Hampshire.

Opportunities: The river flowing between the two states warrants cooperative management by those states, enabled by the federal government and facilitated by the CRJC as coordinators of such policy within the valley. The CRJC, with support from the Environmental Protection Agency, are already pursuing the opportunity to study flow policies on the Connecticut River. The study will identify state and federal policies and regulations that affect flows and appropriate water quality standards, and recommend opportunities for cooperation and policy development.

1. **Any flow policies developed for the Connecticut River must maintain water flows at levels which will support the full range of its uses and values.**
2. **New Hampshire and Vermont should cooperate on an on-going basis in managing the Connecticut River** and have coordinated policies on flow management and water withdrawals.

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Coordinated Management of Dams

Issue: The management of water levels at dams is a major determinant of river flows. The dams on the mainstem require close coordination for effective management of water flows, and since they are strongly influenced by tributary dams as well, the dams on major tributaries also must be included in this calibration. Poor communication among dam managers has in the past and could in the future result in unnecessary flooding, bank erosion, and sedimentation, impacting water and habitat quality and hydropower generation efficiency.

Opportunities: Efficient, well-coordinated, informed management of both mainstem and tributary dams is critical to responsible water flow management on the Connecticut River. The watershed must be viewed and managed as a single river system. The computerized flow model currently in preparation by New England Power Company (NEP) is a promising step in this direction, as has been the management of the majority (11 out of 14) of the mainstem dams by this single company.

1. **Managers of tributary and mainstem dams should communicate and cooperate to manage flow effectively on the river.**
2. **Future owners of NEP facilities should make a priority of utilizing NEP's valuable expertise** in managing the flow of the Connecticut River.
3. **All dam owners, including the U.S. Army Corps of Engineers, should have an integrated flow control system.**

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Relicensing of Hydroelectric Dams

Issue: When the hydro dams on the Connecticut River were first built, the river was so degraded that energy production was one of the few values remaining to the river, other than waste assimilation. Since the Clean Water Act went into effect in 1972, resulting strides in water quality improvement have brought the river back to a condition where it encourages rather than discourages recreation and once again offers valuable fish and wildlife habitat.

The river is a public resource that offers incalculable tangible and intangible public benefits. The public rightly wants to understand the ways in which this asset is being managed by a private company. This is particularly true of riverfront landowners, and those who are abutters to lands owned by hydropower companies. Fishermen are concerned about low flows below dams and fluctuating impoundment levels above dams which may leave fish nests high and dry. Riverfront landowners in general and the agricultural community in particular are concerned about the role of rapid water level fluctuations in bank saturation and slumping.

Managing the flow of the largest river in New England is, however, a highly technical and complicated business. It involves separate and different kinds of responsibility to corporate shareholders. Both kinds of responsibility, to the public and to private investors, are closely defined by law and both must be met fairly.

The cooperative process is preferable to the traditional FERC process, where participants often have to litigate in order to be heard.

Opportunities: Dam managers have a responsibility to inform and also to listen to and appreciate the needs of both their private shareholders and the general public. Congress amended the Federal Power Act in 1986 to require the Federal Energy Regulatory Commission (FERC) to give "equal consideration" to power generation and ecological, recreational, and historical values of a river when the terms of a dam license are developed. Relicensing discussions, such as those now underway for the three dams of the Fifteen Mile Falls reach of the Connecticut River, provide the key forum for addressing the public's concerns about water flow management.

1. **Valley citizens must participate in relicensing discussions** in order to be well informed about what is at stake, and to ensure that public opinion is well considered in the formation of the new licenses.

2. **New England Power Company deserves credit for establishing a cooperative approach with river interest groups and public agencies to establish terms for the relicensing of the Fifteen Mile Falls project.** This approach is preferable to the traditional FERC process where participants often have to litigate in order to be heard. The CRJC also recognize the ongoing and constructive dialogue between water managers at NEP with us and with our local subcommittees, and NEP's efforts to communicate with concerned landowners, river users, the towns, and the public at large.

3. **FERC should attend closely to the results of the cooperative relicensing process for Fifteen Mile Falls.**

4. **FERC should also recognize the Connecticut River Corridor management plan as a comprehensive river plan for the Connecticut River** to guide relicensing decisions. The CRJC will file the plan formally with FERC to ensure that the wishes of valley people for the management of the river are heard in Washington. Federal law states that in order to issue a license for a dam, FERC must determine that the terms of the proposed license are "best adapted to" and consistent with a comprehensive plan for that river. The river corridor management plan prepared by the CRJC and our local river

subcommittees addresses specific dams and flow management in each of their five river segments, and can serve as the comprehensive river plan required by FERC.

5. **The new license for Fifteen Mile Falls must be based on the recognition that this project is influenced by flow controlled by upstream dams, and does indeed influence the flow and health of the river downstream.** Impacts of the project beyond its immediate vicinity must be considered to fully understand its effects upon the river.

4. **NEP and its successors and other dam managers should continue or amplify a company policy of dialogue with the CRJC and the public in order to minimize conflicts.**



Further Dam Construction on the River

Issue: There are four sites on the Connecticut River mainstem at which the river still drops precipitously. Lyman Falls, between Lemington and Columbia, and the Wyoming site between Guildhall and Northumberland are breached dams which have not been reconstructed. The longest free-flowing segment of the Connecticut River is here, between Canaan Dam and the Gilman impoundment (66.6 miles, over half of the unimpounded miles of the river). Downstream, a proposed dam near Sumner Falls between Hartland and Plainfield was never built due to local opposition. A license was granted by FERC in 1988 for development of the Baldwin Dam just south of Pittsburg Village, although the dam as yet has not been built due to questions regarding potential markets for its power.

The New Hampshire Rivers Management and Protection Act allows limited dam construction or rebuilding on the river in order to protect what remains of its free-flowing nature. However, not only could construction of the Baldwin Dam and reconstruction of the Wyoming Dam occur under New Hampshire law, but any of the other existing dams could be reconstructed should they fail. Vermont has long opposed reconstruction of the Wyoming Dam.

The CRJC recommend no further construction of dams on the river.

Dams have both positive and negative impacts on the local economy and environment. They create electric energy and provide jobs and a broader tax base for the adjacent towns. Their impoundments create new types of habitat for some species and can offer recreational opportunities such as flat-water boating and slow-water fishing.

Dams also inundate natural areas of rapids and waterfalls which have their own recreational, scenic, and ecological values. Impounding the river creates a sink for nutrients and sediment, obliterates habitat for fish spawning and naturally-occurring wildlife, sometimes eliminates historic and archeological sites, and allows water temperature to rise perhaps beyond the tolerance level of coldwater fish species. Damming a river reduces its ability to assimilate waste by reducing the natural aeration of the water. For example, the discharge permit for the paper mill at Groveton specifically depends upon the river's continued ability to clean itself of the pollutants it receives in Groveton by passing over the breached Wyoming Dam just downstream.

Opportunities: The present free-flowing nature of the Connecticut River, where it remains, is highly valuable for many economic and environmental reasons. These kinds of waters are beautiful, healthy, and attractive for fishing, swimming, canoeing, and kayaking. Above all, they show what the natural river is really like. Free-flowing parts of the river provide economic benefits through the tourism and recreation opportunities

they offer both residents and visitors alike. They provide key spawning habitat for valued cold-water species such as trout. The tumbling of water through steeper sections returns oxygen and keeps water cold and clean so that it can continue to support both prized pollution-intolerant fish and safe enjoyment of the river.

1. **The CRJC recommend no further construction of dams, nor reconstruction of existing breached and historic dams on the Connecticut River.** The Commissions recognize that there are benefits to the river's many impoundments, but believe that the relatively few remaining miles of free-flowing river should remain, to remind us of what the Connecticut River once was, and to assure the ability of the river to recover in these places from the burdens it is asked to carry.

2. **Over the long term, evaluate the appropriateness of decommissioning uneconomic dams in the watershed in cooperation with the utility,** to restore natural river values and public use.



SUSTAINING HABITAT FOR FISH & WILDLIFE

Fisheries Management

Issue: Tournament fishermen have ranked the Connecticut River as the fourth most important water body in the state of New Hampshire. Yet very little is known of the fisheries which attract so much interest, in spite of the fact that the Connecticut River offers perhaps the most highly varied habitat of any waterbody in the state. The river hosts resident native trout and other coldwater species, as well as migrating American shad and, for the first time since 1798, Atlantic salmon. The addition of impoundments on the river has vastly increased warmwater habitat to the benefit of bass, perch, and walleye. Sport fishing is growing, both for the local resident who enjoys wetting a line after work, to the out-of-state fisherman who hires a guide or casts his bait in a derby. These are fine fishing waters, and they figure more and more in the economy of the region.

At present only the Yankee Nuclear Power Plant conducts regular studies of the river's fish, near Brattleboro. Vermont conducted a creel survey below Vernon Dam in 1991, and New Hampshire undertook a limited creel census in the Headwaters region in 1993. Another study by New Hampshire of the Mt. Ascutney segment began in 1995, and studies by NEP will likely take place in 1997 in the Fifteen Mile Falls area.

Opportunities: We need to know much more about the complex fishery of the Connecticut River, particularly in light of the multiple uses the river is expected to accommodate, the multiple habitat types it offers, the multiple species it hosts, and the multiple jurisdictions it crosses. Relicensing of dams offers an opportunity to gain important insight into fish population dynamics and community structure, but our understanding of what lives below the water's surface should not be limited by federally-imposed schedules for dam licenses, nor should it be limited to those reaches within dam project areas.

1. **State fish and game/wildlife agencies should undertake to learn more about Connecticut River fisheries,** with an emphasis on understanding population structure and dynamics for key species such as trout, walleye, and bass, and the food webs which

support them. Prime spawning and rearing habitats should be identified; landowners and towns should be made aware of these areas and what they can do to protect them.

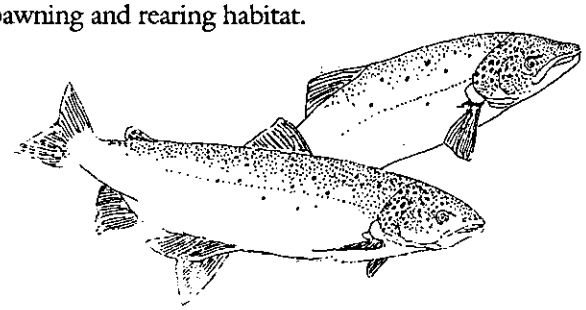
2. **State fish and game/wildlife agencies should work with dam managers and knowledgeable local fishermen to better coordinate water level fluctuations behind dams with critical fish spawning times** in order to avoid loss of entire age classes of fish.

3. **NEP should sponsor studies of the fisheries which may be affected by the Fifteen Mile Falls hydro development**, with particular focus upon the influence of water level fluctuations and sedimentation upon fish spawning and survival.

4. **Vermont and New Hampshire fish and game/wildlife agencies should cooperate** as effectively as possible to share information on Connecticut River fisheries and agree on management strategies. The public on both sides of the river should be notified of special fish management areas.

5. **The U.S. Fish and Wildlife Service (USFWS)'s Conte Refuge has a significant role in informing landowners, local officials, and the public about fishery management** and encouraging actions that protect prime spawning and rearing habitat.

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Atlantic Salmon Restoration and Fish Passage

Issue: The Atlantic salmon, a game fish with a high public profile, once ran the Connecticut River from Long Island Sound to Beecher Falls, migrating the entire reach of the boundary between Vermont and New Hampshire, and spawning in tributaries from Paul Stream in the north to the Ashuelot River in the south. The first of many dams on the river blocked the salmon's upstream migration from Turner Falls in 1798, and the population disappeared from this and other south-central New England rivers by the mid-1800s. An early effort at restoration in the last century failed due to lack of effective fish passage at dams, overharvest, and inadequate interstate cooperation. It was followed by a concerted cooperative effort beginning in 1976, between the federal and state governments, to restore the fish as its ancestral waters were also being restored under the Clean Water Act. Hatcheries were built, biologists were employed, millions of salmon young were stocked, and expensive fish passage was built around significant dams, as valley citizens shared the optimism of the U.S. Fish and Wildlife Service that a sport fishery for Atlantic salmon could resume on the upper Connecticut River by the mid-1990s after an absence of two centuries.

Actions taken to improve water quality on behalf of all users of the river will also benefit Atlantic salmon.

We are still waiting. Salmon are indeed returning to the river, but as yet many fewer than rough early projections led us to hope, and most are intercepted on their journey, to be captured and bred before they can reach north into our waters. It has taken longer than expected to establish a new strain of salmon that is adapted to the river to the point where thousands return annually, and that will remember the Connecticut when they have become adults in the cold North Atlantic Ocean. It has also taken well over 100 million dollars in federal, state, and private funds to establish the fish passage and other infrastructure needed to bring the fish back, although this expense benefits

shad, herring, and more familiar fish as well as the stranger salmon. Fisheries managers have learned that the quality of offshore habitat, over which they have less control, affects survival of Connecticut River salmon when they are away from home.

The salmon are returning into the Connecticut River's southern New Hampshire and Vermont tributaries, and the fish now have the run of the river both up and downstream around dams, as far as the foot of Dodge Falls Dam at East Ryegate, Vermont, 270 miles from the sea. Salmon young are being stocked as far north as the Ammonoosuc and Passumpsic rivers, and can now safely pass downstream into the mainstem. Good Atlantic salmon habitat occurs throughout the basin including many tributaries in northern New Hampshire and Vermont, in stretches of river which include riffles and runs over moderate gradient, rocky substrate with good cover and a high variety of macroinvertebrates. This type of habitat is now relatively scarce in the mainstem, much of it flooded by impoundments, although much good habitat remains in the tributaries. Pools are good for adults, but not for fry. Salmon tolerate higher temperatures than trout.

A salmon run on the Connecticut River could bring more tourist dollars to the valley and allow another opportunity to capitalize on clean waters. A salmon taken in sport provides community economic benefit of $10 compared to the $1 brought by a commercially caught fish.

Passage for fish comes at a price, and is one of the issues to be resolved by a new license for Fifteen Mile Falls, where the 178-foot Moore Dam, 170-foot Comerford Dam, and the much smaller McIndoes Dam block the passage of anadromous fish into the upper reaches of the river system. Stocking young salmon above Comerford and Moore would create a new need for downstream passage at these dams. There are many demands upon New England Power Company to provide public benefits in exchange for its use of the river, which will be agreed upon in the terms of its new license. Provision of passage for salmon and other fish is one of many possible options. Other options could include habitat improvements, erosion and sedimentation control, protection of the thousands of undeveloped acres surrounding the reservoirs, and water level management that is less stressful on fish and on shorelines. Given the disappointing results of the salmon restoration effort to date, what is the best use of limited resources in a benefit package for the new dam license, when the dams are located so far from the sea?

Opportunities: Atlantic salmon restoration is more than a watershed-wide issue. It is an international, multi-state effort with a timeline that extends far into the future and is based on current and evolving scientific knowledge of how to restore a premier fishery asset to the Connecticut River. A sustainable salmon fishery would represent an economic asset of great value and serve as testimony to our years of effort to restore the river. The Connecticut River Atlantic Salmon Commission, which has a legal mandate in restoration of migratory fish to the river, offers a forum for collaboration between the public and seven state and federal agencies.

1. **Communities, landowners, sportsmen's groups, citizens, dam managers, and state and federal agencies should all act responsibly to improve water and habitat quality in the Connecticut River.** These actions taken on behalf of all species and users of the river will also benefit Atlantic salmon.

2. **The Connecticut River Atlantic Salmon Commission and all its member agencies, including the U.S. Fish and Wildlife Service, should continue to cooperate with the states to restore Atlantic salmon to the Connecticut River.** Most of the

major investments in the infrastructure to support this program have already been made, and the costs of breeding and stocking fry are comparatively small, while the potential economic benefits to the region through fisher-tourism are very real.

3. **The Atlantic Salmon Commission should ensure wider public participation** in the draft management plan for the program. A stronger link with the program and a better understanding of salmon habitat needs will help valley citizens better tend their tributaries. Local communities should be included in discussions about expansion of salmon stocking and passage.

4. **The new license for Fifteen Mile Falls should not require New England Power Company or its successors to provide fish passage at Moore or Comerford stations at this time, but focus upon other habitat improvements** which could potentially benefit many more species, such as land protection and moderation of water level fluctuations. Improved downstream passage over the much lower dam at McIndoes Falls is warranted due to use of the Passumpsic River by anadromous fish. The license should, however, include language that allows reevaluation of the situation during the term of the license, should the restoration effort prove sufficiently successful to suggest that if allowed passage, salmon would indeed colonize the upper river system and establish a regular run with minimal stocking. At that time, citizens and water-dependent businesses of the Headwaters and Riverbend regions should be consulted in the decision.

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Riparian and Aquatic Habitat Value

Issue: Down by the river exist habitats unlike any other in the valley. Blanketed against killing cold by shrouds of fog, this riparian region is the last to freeze in fall and the first to green up in spring. Soils fertilized by spring freshets are deep and fertile, sometimes punctuated by steep high ledge, always drinking in the moisture that hovers above the river. There is a rich combination of water, land, and weather here that supports an equally rich constellation of plant and animal life.

Riverfront land is prime real estate, both for plants and wildlife, and for people.

Nowhere is this biodiversity more apparent than in the stretch of the river from the mouth of the Ompompanoosuc River to Weathersfield Bow, a stretch that has caught the attention of biologists who call it the "Connecticut River Rapids Macrosite." Here, the river is home to an unusually rare concentration of species which have already or are now disappearing from other places. While they vary in their ability to excite our imagination, from the homely dwarf wedge mussel and Jesup's milk vetch to the magnificent bald eagle, they are all rightful occupants of the river valley.

The New Hampshire Natural Resource Protection Project, completed in August 1995 by the Environmental Protection Agency (EPA) and the New England Interstate Water Pollution Control Commission, identified along the Connecticut River two of the state's six high priority natural resource areas. These are the Macrosite area in Plainfield, Cornish and Claremont, and the Connecticut Lakes Region. The mid-river section from Plainfield to Claremont rose to the top because of its concentration of rare, threatened, and endangered species, rare natural communities that include some of the last floodplain forests on the river, important deer wintering areas, a tract of old growth forest, and the absence of dams on the river here. The Connecticut Lakes appeared in this analysis for their relatively undeveloped lake shorelines, deer wintering areas, trout spawning reefs, extensive unfragmented lands, and many large, complex wetlands. Vermont is contemplating a similar study and has begun some limited computerized GIS mapping of special recreational features.

Beneath the water's surface, aquatic habitat varies from a cobble or gravel bottom swept clean by rushing waters to silty beds where stiller waters deposit sediments brought from upstream. Here reside the equally diverse communities of tiny creatures which support larger life in and near the river.

The river also has a significant role as a migration corridor. Birds moving from their wintering grounds in the tropics follow the Connecticut River to their breeding grounds in northern forests, where a number of them play a key role in suppressing forest insect outbreaks. During their trip, they concentrate along the river as spring proceeds up the valley, before moving up into the hills. Riparian forests could well be especially important for this use. In the fall, the Connecticut is well known as a waterfowl migration corridor, as the long skeins of geese overhead and the bobbing of ducks in the setbacks attest. Peregrine falcons, newly returned to the river valley, follow the Connecticut south in the fall from as far north as Stark all the way to Long Island Sound.

Those who use and visit our waterways must understand the responsibility that accompanies this privilege.

Riverfront land is prime real estate, both for plants and wildlife who prefer it unfragmented, and for people, attracted by the beauty of the river, whose tendency is more often to fragment it into houselots. Many large parcels of farmland remaining along the river have lost their riverfront forests, but they still provide key habitat in their fencerows, meadows, and woodlots. Their croplands also offer winter forage for turkeys and geese. These parcels, within easy reach of good roads and population centers, are particularly threatened by development. Farmland is more level than most other local terrain and is easily built upon. Good building land is expensive, and there are limited funds available for purchasing the development potential of riparian habitat.

Opportunities: Riparian habitat is highly valuable for fish and wildlife, and is in limited supply, particularly along a major river like the Connecticut. A society that cares about fish and wildlife would do well to direct development to areas that are not so ecologically sensitive. Efforts should also recognize that important habitat is not limited to the riparian zone, but remains in fields and forests throughout the valley.

1. **We should all work to maintain the economic viability of riverfront farms** and work together to control nonpoint pollution and retain riparian buffers. Take full advantage of USDA programs and the support of private and non-profit organizations to accomplish this.
2. **Towns and landowners should encourage riverfront forests where they remain.** Landowners can enjoy the plant and animal diversity of their riverfront lands by avoiding disturbance of these special habitats, and increase this diversity by allowing riparian buffers of natural vegetation to grow back. They should take advantage of the U.S. Fish and Wildlife Service's Partners for Wildlife cost-sharing program.
3. **Federal, state, and local efforts should focus on conserving ecologically fragile areas, natural communities** and examples of habitat types, which is more cost-effective than trying to target individual species for protection. Towns can develop management plans for conservation lands they own.
4. **Decision-makers should be certain that conservation efforts are based upon good science**, not upon questionable data. The CRJC encourage expanded research into the status of species and natural communities in the valley, such as that now being sponsored by the Conte Refuge on the use of the river as a migration corridor. A study of the extent of dwarf wedge mussel populations and the potential effects of various kinds of disturbance upon them would be useful, since this federally endangered species has been the center of some controversy in bridge construction and bank stabilization projects.

5. **All citizens should respect and obey current laws regarding endangered species,** and learn to recognize species of concern.

6. **The Environmental Protection Agency should develop habitat quality indices and make them available to the states.** Local citizens should be encouraged to monitor for habitat quality with the permission of the landowner.

7. **The economic opportunity for ecotourism** in the region should be examined and should be well balanced with a need to minimize disturbance of important habitats.

8. **The states of New Hampshire and Vermont and the U.S. Fish and Wildlife Service's Conte Refuge should invest in habitat conservation and restoration,** particularly of riparian habitats, in cooperation with interested landowners.

9. **The public should support the work of land trusts and other conservation organizations in protecting habitat.** Encourage them to make aquatic and riparian habitat quality a priority in cooperation with interested landowners.

10. **Towns and landowners should protect and retain wetlands.**

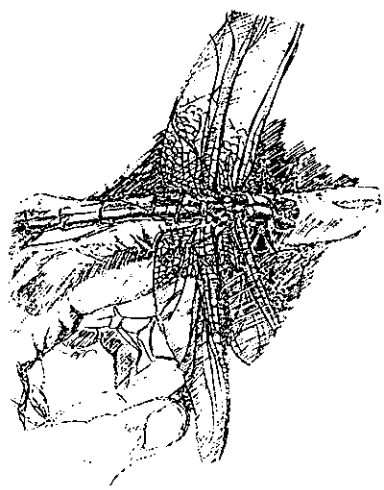
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Zebra Mussel and Other Introduced Exotics

Issue: The zebra mussel, introduced into the Great Lakes from Europe when the bilge of a ship was cleaned, first appeared in 1988 and has quickly infested thousands of other lakes and rivers. Prolific zebra mussel colonies can clog water intake pipes at industrial and municipal facilities and power plants, and also foul the cooling systems of boat engines. Their sharp shells litter shorelines and they interfere with native aquatic life. Although their feeding on plankton often makes water look clearer and more appealing, this occurs at the expense of native fish and other animals. No predator capable of controlling the mussels has been found. Zebra mussels are commonly but innocently spread through contaminated bait water and in the cooling systems and on the hulls of boats.

The Connecticut River, at this writing still free from infestation by zebra mussels, is by no means safe from it. The chemistry of our water is more hospitable to the mussel than most New England waters, and the river is only a short and easy drive down Route 89 from the nearest contaminated waterbody, Lake Champlain. Mussels found there for the first time in 1993 have spread throughout almost the entire lake in only two years' time. The Extension Service's SeaGrant Program has been working hard to inform fishermen, boaters, and other citizens about what they can do to avoid bringing the zebra mussel to the Connecticut River basin.

Other invasive exotics also threaten our river system, such as Eurasian milfoil, which was first discovered on the river in 1995 at the Springfield, Vermont boat landing by one of CRJC's local river subcommittee members. These largely uncontrollable pests could have an extremely unpleasant impact on the natural community of the river and also upon recreation, with negative economic consequences.



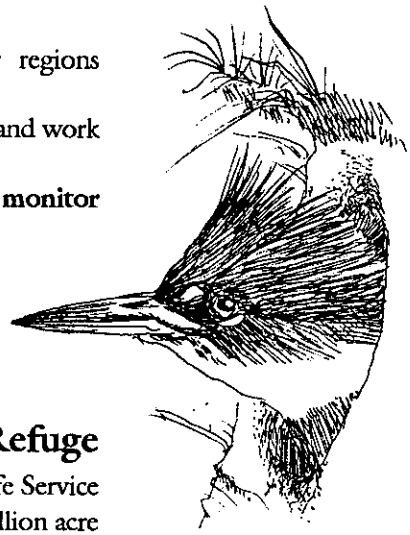
Opportunities: Those who use and visit our waterways must understand the responsibility that accompanies this privilege.

1. **Boaters must take every precaution against introducing zebra mussels, Eurasian milfoil, and other exotics** into the watershed, where they could spread rapidly. Boaters should leave their boats out of water for 2-3 days after using them in a contaminated waterbody, remove any plant material, and flush the cooling system before

launching in the river. Bait should be discarded by fishermen visiting other regions before they return to Connecticut River drainage.

2. **SeaGrant Program should continue its efforts** to educate the public and work with volunteers to monitor often for mussels and other exotics.

3. **State legislatures should provide funding to allow their agencies to monitor for exotics.**



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Silvio O. Conte National Fish and Wildlife Refuge

Issue: In 1991 the U.S. Congress directed the U.S. Fish and Wildlife Service to establish the Silvio O. Conte National Fish and Wildlife Refuge in the 7.2 million acre watershed of the Connecticut River in the states of Connecticut, Massachusetts, Vermont, and New Hampshire. A new concept of refuge was clearly required, since over two million people already occupy this same space. The USFWS approached the Connecticut River Joint Commissions, who strongly urged the broadest possible cooperation with the citizens of the valley in determining how to carry out Congress' directive. The Service met with each of our five local river subcommittees and held many additional public meetings in the valley to gather public opinion.

The Service released its final action plan and environmental impact statement in October, 1995, announcing that it had decided to create the refuge through a combination of voluntary restoration of habitat on private lands, education, partnerships with other conservation groups, and a cost-sharing grants program. The Service also plans to eventually acquire a total of some 6530 acres it considers to be critical threatened habitat, 1200 of them in Vermont and New Hampshire.

The valley is endowed with fish and wildlife resources of national, as well as regional, state, and local significance. These resources encourage tourism and recreation, and provide local commercial, economic, aesthetic, and cultural benefit.

There has been, however, apprehension on the part of many landowners that they could lose use of their lands to public agendas through implementation of the Conte Refuge, and a belief that government involvement will lead to more regulations. The issue of eminent domain is particularly sensitive. While this tool is commonly used to acquire land for transportation and utility corridors, many landowners are less willing to accept its use for habitat conservation. There are, however, special circumstances where eminent domain provides a useful way to clear title and allow a transfer of land between two interested parties.

We know that landowners value wildlife and the natural condition of the region, and that there is a very strong overlap of interest with the aims of the Conte Refuge, and we believe that landowners and the USFWS will find as they work together that they are much more united than divided.

Opportunities: The people of the valley have an unusual opportunity to benefit themselves and their natural resources by drawing upon the expertise of the USFWS and bringing Conte's new kind of refuge to life.

1. **Congress should provide funds for the Conte Refuge to protect special areas of fish and wildlife habitat and to work with interested landowners on management plans that benefit fish and wildlife.**

2. **The Conte Refuge should continue its policy of not using eminent domain to forcefully take land in the name of conserving habitat.** More can be gained by cooperation with private landowners.

3. **The USFWS should foster dialogue with the public about refuge progress** by continuing to work with the CRJC and the five local river subcommittees, and holding regular public meetings.

4. **The USFWS should focus upon research and education** about the fish and wildlife resources and their habitat and stewardship requirements in the valley and provide support for agencies and organizations to gather needed data.

5. **Landowners, including farmers, should explore cost-sharing grants, conservation easements, and cooperation with the USFWS** to enhance the wildlife value of their property and help them implement best management practices that could also improve the economic viability of their farms.

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ECONOMIC OPPORTUNITIES THAT FLOW FROM THE RIVER

Recreation

Issue: The Connecticut River offers a broader range of recreational opportunities than any other waterbody in the region, from the immersion experience of whitewater kayaking at Sumner Falls to a slow pontoon cruise along the oxbows, or a leisurely Sunday drive along the river roads and among the hills overlooking the valley. The water and the views are always changing. Canoeing has always been a fine way to enjoy the river up close, for both fastwater and flatwater, and the Upper Valley Land Trust's growing string of primitive canoe campsites from Dodge Falls to the Massachusetts border is bringing river recreationists into a well-managed relationship with riverfront landowners.

All river users must respect private property.

The task of this plan is to balance the use of the river with what it can bear. Riverfront landowners are rightfully wary of increasing troubles with crop damage, littering, and abuse of their property by people who cross their land to camp, picnic, or gain access to the river. Almost every riverfront farmer has a tale to tell. This all-too-frequent disrespect for private property is a real factor in the apprehension of many valley people toward inviting increased river recreation and tourism. Yet, with recreation and tourism come dollars, dollars which are all the more valuable because they are spent here in celebration of clean water, fine fishing, and a river valley that presents one photo opportunity after another.

Riverfront landowners throughout the valley report that wakes from power boats are causing bank erosion which threatens both their property and the quality of the water. Several highly significant archeological sites along the river have been partially destroyed due to the added impact of boat wakes and waterskiing along narrow, sensitive sections. Some boats are more prone to throw a large wake than others; a deep V hull can inflict serious damage on a riverbank, while a pontoon boat produces practically no wake at all. Compounding this problem is that many boaters are either unaware of the

existing boat speed law on the Connecticut River, or are able to ignore it because it is irregularly and inadequately enforced. New Hampshire RSA 270 states that boats must travel at headway speed (6 mph) within 150 feet of shore, islands, other boats, swimmers, rafts, or floats. Throughout much of its length the river is narrower than 300 feet, and the headway speed law applies.

More subtle is the potential damage which can result from overuse by canoes and other cartop boats, whose owners are sometimes tempted to launch over steep erodible banks or uninvited on private property. Too many canoe campers using a campsite can destroy the vegetation which helps to hold the bank together, and careless waste disposal can threaten water quality.

Opportunities: Maximize the chances for public enjoyment of the river without incurring damage to public or private property or to the river itself. Direct experience with the river fosters motivation for stewardship, both among local citizens and more distant voters. People should not be deprived of access to the river, yet the rights of private riverfront landowners must be respected. The design of river access sites should reflect the rural character of most of the riverfront, and be closely tailored to the specific site, rather than a generic design that could introduce a discordant suburban note.

1. **The New Hampshire legislature should provide adequate funds to allow the Department of Safety Services, Marine Patrol, to increase enforcement of existing boating speed laws** on the Connecticut River to help improve safety for both boaters and riverbanks.

2. **Boaters should obey existing speed and safety laws.**

3. **The State of New Hampshire should institute a required boating safety course** similar to that for Vermont. This boater education should address riverbank erosion, etiquette for use of private property, and proper boat cleaning to avoid transporting milfoil, zebra mussels, and other pests.

4. **The states of Vermont and New Hampshire should establish more small, cartop access sites** throughout the 271 miles covered by this plan, and refer to individual subcommittee sections for guidance on location. These sites should be located on low, stable banks to avoid causing erosion, offer limited parking, and carry signage designed for a rural setting that informs users of river dangers, potential for bank erosion, and etiquette for use of private property.

5. **States and towns should avoid construction of further large public access for trailered boats.** It is the consensus of the five subcommittees that sufficient access for trailered boats already exists on the Connecticut River, with the possible exception of Westmoreland. Increasing parking facilities at boat ramps can lead directly to increased use, which may have unwanted effects upon water quality and riverbank stability.



6. **The states and New England Power Company or its successors should erect signage at their existing boat access sites** to inform users about bank erosion, boating and fishing laws, etiquette for use of private property, and proper boat cleaning to

avoid transporting milfoil, zebra mussels, and other pests. Signage should be designed to reflect the nature of the setting.

7. **Further development of marinas should be oriented to areas** not located directly on the river, to avoid shoreline disturbance and potential contamination by motor fluids. For example, Fairlee Marine is located away from the river on the west side of Route 5, and launches boats by trucking them to the Orford boat landing.

8. **The Conte Refuge and state tourism promoters should educate visiting sportsmen and recreationists** about boating laws, access sites, and etiquette for use of private property.

9. **All river users should respect private property and ask permission of the landowner before entering private land.**

10. **The states should develop discreet signage** to identify the river, designed to reflect the nature of the setting, to be placed at crossings.

11. **The states of Vermont and New Hampshire should cooperate on a bi-state Connecticut River access policy and provide coordinated review of permit applications for docks on the Vermont side of the river.**

12. **Existing railway corridors should be retained, either for rail transportation or for conversion to trails.** Ownership of the corridor should remain with the state.

13. **Establishment of new public trails along the river should only be attempted with the complete support of riverfront landowners,** who need assurance that they will not bear liability and that their property will be respected. Trail construction along the river is challenging because of the issues surrounding trespassing and the difficulty and expense of constructing bridges over the many large and small ravines where tributaries enter the mainstem.

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Guaranteeing a Future for an Agricultural Valley

Issue: The Connecticut River has provided its valley with the finest agricultural soils in New England. The colonies' first major road from the New Hampshire seacoast to the interior of our region, the Province Road, was built around 1773 to access the rich alluvial soils known as the Cohass Meadows, on the Haverhill/Newbury section of the river. Unlike most of northern New England, which still remembers the nineteenth century exodus from bony hill farms and the struggle to survive competition with newly opened deeper Midwestern soils, farming held onto its future here. Indeed, some of the most valuable agricultural lands in Haverhill are now protected from development, and their future as farmland is secure. That is, as long as farmers can afford to stay on the land.

Costs are high, return is low, the work is hard. Fewer young people are turning to farming, and help is difficult to find and more so to keep. Land is not cheap, particularly flat land, which is in short supply in our region and goes under pavement with little trouble. Farmers provide an essential service that is difficult to duplicate: they feed us. Beyond that, they keep the land open and fruitful, they underwrite the picture postcard scenes, they keep our cultural memories of an agrarian era alive. Still, they pay taxes in many forms, including the burden of trying to teach the rest of us to respect the land and their way of life.

Recreationists cross cropland without asking, often because the farmhouse is out of sight, and leave pasture gates open or drive vehicles through ready hay. Government agencies and river users expect that a farm will not pollute waterways, although many pollution prevention devices demand a capital investment which the farmer cannot

recover by simply charging a higher price for the product, as another business could. When the farm family retires, the need to sell the farm may result in the land being put to "the best and highest use," an ironic term for seeding prime agricultural land to a final crop of houselots or commercial development.

Homes and shopping centers do not depend upon deep, fertile soil. Agriculture does. Why should we seek to remove from our food production base, from our flood storage areas, from our riparian habitats, and from our river viewsheds those very special soils which function best in those ways?

As new residential neighbors elbow in on farms, farmers may find themselves defending farming practices such as manure spreading, and competing with homeowners for the assistance of Cooperative Extension Service staff. New farmers can be discouraged by a long-standing policy of the Farm Services Agency to deny cost-sharing to those who have been on their farms less than five years. The professional support of the USDA's Natural Resources Conservation Service, Cooperative Extension Service, and Farm Services Agency is critical to moving farming into a world where business competition is tougher than ever before. Farming remains a vastly different enterprise in New England than in parts of the country with less challenging climate and topography, yet it is no less imperative that the region retain the ability to help feed itself. Farmers need to be able to sell their product at a fair price. Marketing assistance is a key need.

The economics of small New England farms are difficult at best. Recognizing the importance of removing the threat of development from agricultural lands, the New Hampshire legislature established a farmland protection program a number of years ago that reimbursed farmers for their development rights in exchange for permanent easements. That program has not been funded for some time, although a similar program in Vermont continues to be a mainstay of farmland protection facilitated by the Upper Valley Land Trust and other organizations. Finally, easing taxation is considered by many valley farmers to be the primary answer to relieving pressure on farms and farmland.

"There are two kinds of farms:
1) understaffed and overworked; and
2) overstaffed and underpaid.
We need an educated workforce to be able to handle today's farming demands."

Robert Ritchie, Piermont
NH River Commissioner

Opportunities: Agriculture must have as firm a future in the Connecticut River Valley as it has a past. Farms should be profitable businesses and respected neighbors. Development will and should occur in riverfront towns, but it should not take place on soils whose highest and best use is to feed body and soul.

1. **Communities should identify and prioritize those agricultural lands that are particularly worthy of protection.** Towns should work with regional planning commissions and land trusts to identify and map their important agricultural soils and lands which are already protected. USDA should support GIS mapping of agricultural soils in Vermont and make this information available as soon as possible to the towns.
2. **Communities should encourage development elsewhere than on prime agricultural soils near the river** and avoid using the high end of the soil production index to calculate taxes on farmland. Cluster development provisions for prime soils can allow development to occur with less interference for both agricultural use and rural character. Communities should understand the potential change in their town's tax structure, demands for services, and character should their agricultural lands be developed to the full extent allowed by current town policies. Towns should seek the advice of regional planning commissions to investigate ways to permit development while avoiding unwanted impacts on prime agricultural lands. Land trusts can participate in keeping these lands open and working.

Agriculture must have as firm a future in the Connecticut River Valley as it has a past.

3. **USDA should adequately fund the NRCS, Cooperative Extension, and other programs to help farmers** with the burden of nonpoint pollution control, and make this support available to new farmers as well as established ones, with an emphasis on family farms. They should assist farmers in developing business skills, exploring new products, and understanding estate taxation.

4. **Vermont should seek to increase the effectiveness of its current use assessment program.** New Hampshire should continue its current use taxation program, perhaps with an increase in the penalty for removing land from the program.

5. **Both states should encourage a diversity of scale, farm commodities, and production practices, including both conventional and organic production.** The New Hampshire Department of Agriculture should expand its marketing assistance to better serve Connecticut Valley farmers. The states should work to promote an infrastructure of production and product processing that is economical and mutually beneficial for all agricultural entities.

6. **Both states should provide continuing and stable funding for their farmland protection programs.**

7. **The public and private sector, including the farming community, should cooperate to establish a regional farmers' market in the valley** to provide a reliable outlet for local products and to attract tourists interested in the valley's agricultural heritage.

8. **Recommendations from the Connecticut River Joint Commissions' 1993 conference, *Connecticut River Valley: Opening New Markets for Agriculture*, should be implemented.** The conference identified a wide array of opportunities for federal, state, local, and private agencies and organizations to support valley agriculture. The 35 recommendations deal with processing and distribution, financing, market regulations and standards, government support, niche marketing, agri-tourism, community supported agriculture, cooperatives, and contract marketing.

9. **The CRJC are currently pursuing a study of potential markets for locally produced specialty foods.** The results of this study should present a number of opportunities for producers, buyers, and distributors.

10. **Congress should pass the Family Farm Bill,** to allow transfer of family farms from the estate of one generation to the heirs without the necessity of selling the farm to pay inheritance taxes.

11. **All should support the Northeast Dairy Compact.**

12. **All should purchase local agricultural products.**



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Forestry: A Private Concern with Public Consequences

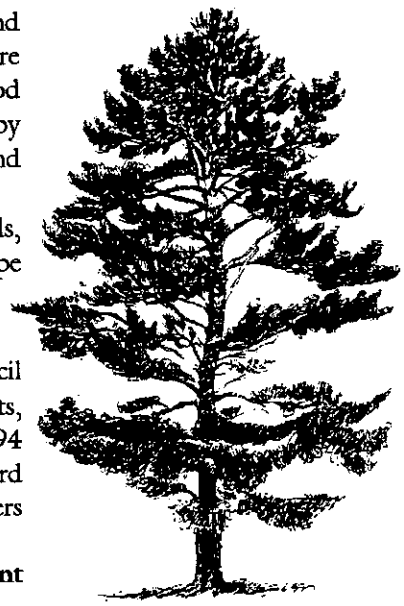
Issue: As with agriculture, the forest products industry has been an economic mainstay of the Connecticut River Valley for so long that it, too, has developed deep cultural roots. It is this yield of the land which can continue to sustain the valley's economy if it is so managed. The products of the forest are not limited to pulp, sawlogs, and sugar; deer and songbirds are forest products, as are pure groundwater, clear streams, and fine trout. The forest yields pleasure on snowshoe and snow machine, beautiful views, and once again, tourist dollars.

The economic potential for an expanded value-added forest industry could be significant. A sustained yield of high quality logs turned into fine wood products in New Hampshire and Vermont could mean long-term economic stability for the region.

Poor choices in forest management could lead to public outcry for further regulations.

Most forest practices become a pollution threat only when poor practices are used. As with agriculture, forestry operations can send sediment into streams to smother fish spawning beds, and release nutrients into waterways. While clearcutting under certain circumstances is a useful forest management tool, removing large amounts of forest cover suddenly changes the way water moves through a watershed, and can contribute to flooding, siltation, and erosion far downstream. Liquidation logging is arousing concern in the North Country. Regulations aimed at responsible forest management are unevenly enforced. Use of herbicides to control the growth of unwanted species is also a concern to nearby landowners and deserves closer attention, particularly with respect to water quality.

Forest landowners should be aware that their choices in forest management have potential to contribute to a public outcry for further regulation of forest practices. The Headwaters and Riverbend regions of the Connecticut River Valley are the scene of many converging uses of the forest, as the increasing numbers of river-bound recreationists attest. As interpreters to the world outside the valley, the CRJC are particularly mindful that certain types of land management may not be well understood by urban voters. A messy operation or slash left close to waterways and trails is seen by the public. A major clearcut near the river can detract from scenic views for miles and from both states, for a long time.



While the CRJC respect the rights of landowners to manage their own lands, this management should not burden the public with poorer water quality or a landscape that is degraded beyond its natural capacity to recover.

Opportunities: A comprehensive study by the Northern Forest Lands Council brought all players to the table to discuss their needs and sometimes conflicting interests, and made an exemplary effort to solicit and incorporate public opinion in its 1994 findings. A recently-completed study for the Lake Champlain Basin, oriented toward promoting a competitive wood products industry and a sustainable working forest, offers a worthy model for the northern forest of the Connecticut River Valley.

1. **The Northern Forest Lands Council's recommendations form a significant blueprint that should be followed and put into action.**
2. **Landowners and forest operators in both states should heed the guidelines of the American Forest and Paper Association for sustainable forestry, as well as state guidelines** for management practices when working in the woods. These are the Recommended Voluntary Forest Management Practices for New Hampshire and Acceptable Management Practices for Vermont. Good communication between major north country timberland owners and the New Hampshire Department of Environmental Services is a recent step in the right direction, for which both parties are to be commended.
3. **Forest landowners should practice selective, sustainable harvesting,** particularly in the visual corridor of the Connecticut River, where destructive harvesting should be avoided.
4. **Existing laws regarding responsible forest management should be enforced.** Vermont and New Hampshire should consider measures to address the growing problem of liquidation logging.
5. **Government at all levels and entrepreneurs should provide expertise and financial incentives for businesses to add value to forest products** and consider the recommendations of the Lake Champlain Basin study.

6. **Congress should support the Family Forestlands Preservation Tax Act and the Northern Forest Stewardship Act.**

7. **Landowners should leave riparian forests undisturbed where they remain and allow them to return wherever possible.** These forests provide a better pollution filter and sink than any solution people can engineer, and provide significant benefits to the river.

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Renewable Energy Production

Issue: The 2400-foot fall of the Connecticut River over its 410 mile path provides hydropower free of the polluting emissions which plague other power sources. There is no other river in New England that works as hard as the Connecticut River. Beyond its renewable nature, hydropower offers key features that cannot be duplicated by nuclear, fossil fuel, or other types of power producers. Because a gate on the river can be almost instantaneously opened or shut, hydropower can provide effective load balancing, responding to changing demand in a matter of seconds rather than the hours required by other kinds of producers. Hydro provides voltage support to maintain or restart the electrical grid system, and is the only kind of power source that can restart itself after a major outage. During the massive blackout that shut down the entire northeastern United States in 1963, it was Wilder Station that started the New England grid toward recovery. Hydropower will continue to be a major contributor to power generation in this region as deregulation requires utilities to provide a specified percentage of their generation from renewable resources.

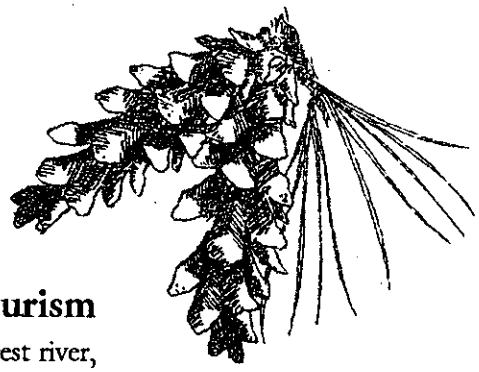
There is no other river in New England that works as hard as the Connecticut.

The substantial amount of open land along the river presently held by New England Power Company has contributed greatly to wildlife habitat, recreation, and the scenic nature of the region. Some 6000 acres in the Riverbend region are under NEP protection, and thousands more around First and Second Connecticut Lakes. Indeed, Second Lake has remained in an essentially natural state as a result of NEP ownership. These lands are open to the public and protected from subdivision and development as long as they remain in company possession.

Flow management diversifies recreational opportunities on the river. While the dams require portaging, they also keep many river miles canoeable and boatable at seasons when naturally low water would bring the riverbottom too close for comfort. The 35 boat launches, picnic sites, and visitor centers operated by NEP alone attracted a measured 750,000 visitor days in 1992. Finally, there is no missing the fact that hydropower production is a major contributor to the valley economy, paying millions of dollars each year in local taxes and offering jobs to local people.

Opportunity: As legally mandated divestiture takes place separating generating facilities from production facilities and property, it is important that new managers maintain the established tradition of stewardship and conservation management of lands.

1. **The large holdings managed for conservation purposes, especially around the Connecticut Lakes and Moore Reservoir, have served the river and the public well as conservation lands. They should continue to be managed for watershed conservation, and not for costly community development.**



Heritage Tourism

Issue: The Connecticut River Valley is a site of superlatives: largest river, finest soils, most classic New England villages. Tourism is the fastest growing industry in the world. More and more tourists are seeking out destinations that are rich in natural and cultural resources. The economic benefit for the destination varies from increased sales at local country stores, busier guides, and more fishing licenses to more guests in bed and breakfast establishments and more patrons at local museums. Beyond that is increased business to those who service them. These benefits cannot be sustained without preservation of whatever it was that attracted the business in the first place. In the case of the Connecticut River Valley, it is the myriad ingredients in that mystical feature called "character:" historic buildings, agricultural scenes, country roads, rural landscapes, and the river itself. This valley is remarkable not only for its array of natural features, but also for the pervasive evidence of a rich and distinctive cultural history. The sort of visitor who is attracted by such things is likely to be the sort one would like to invite again.

There are, of course, drawbacks to inviting the outside world to one's doorstep. How would our intimate village centers and one-lane dirt roads cope with increased traffic? Could tourism be a gold mine or a land mine? Are the jobs tourism could create the kinds of high-paying jobs that should be available to valley residents? Can visitors be adequately educated about respecting private property?

A 1996 study of water-dependent businesses in the New Hampshire towns of the Headwaters and Riverbend regions showed that river-related tourism and recreation alone is already a $26 to $31 million dollar industry which provides at least 650-750 jobs. These businesses indicated a clear interest in minimizing environmental damage that could result from overuse by tourists, and asked that effective natural resource policies accompany tourism promotional efforts, to educate both tourists and businesses about sustainable recreational use. Business people whose livelihoods depend upon the health of the Connecticut River strongly support local government involvement.

Sustainable tourism means responsible tourism.

What about our own quality of life? The tourists come for the same reason we choose to live here: the Connecticut River Valley is simply a very beautiful place. It offers valley citizens the best imaginable combination of cultural, recreational, and economic opportunities, far beyond the photo opportunities. Local business people agree that the scenic quality of the river and its valley is the key distinction to offer a prospective employer in our region. We should work to protect this quality for ourselves, not just for the tourism it may stimulate.

Opportunities: It is important for the public to understand the significance of the Connecticut River to all of New England. Sustainable tourism means responsible tourism. Businesses, agencies concerned with transportation, the environment, and tourism, and local communities must work together to make the most of the benefits of tourism in the valley without destroying its character. The possibilities seem endless in the valley -- agri-tourism, eco-tourism, cultural heritage tourism -- and they could each stimulate and support one another with effective coordination.

An excellent example is provided by the National Park Service at its Saint-Gaudens National Historic Site in Cornish, where the estate and studio of a world-renowned sculptor lure an appreciative public for both cultural events and exploration of the site's natural beauty. Future stewardship of this site could include partnerships with interested landowners and the Conte Refuge to further protect the rural character and riparian resources in the vicinity, to the benefit of both the community and the river.

1. **The Tri-State Scenic Byway Study offers an excellent opportunity** to investigate the many assets the valley has to offer for tourism. Local communities should participate in this study to best understand the economic value of local assets and to communicate with their neighbors. They should explore how benefits such as scenic easements and educational materials for visitors can assist in reaching their other goals, such as agricultural land protection. The Byway Study should continue to respond to local interests.

2. **The states of New Hampshire, Vermont, and Massachusetts should support and establish the Tri-State Scenic Byway** as a coordinated economic development opportunity compatible with the river.

3. **Local historical and cultural groups should make use of the CRJC's new inventory of cultural features** to help them bring local history to life for both residents and visitors.

4. **Neighboring towns should explore opportunities for heritage tourism together**, such as the historic homes of Walpole, Bellows Falls, and Charlestown, and a Precision Valley theme for Claremont, Windsor, and Springfield.

5. **Local communities should recognize the economic value of a healthy river,** and consider ways to maintain a clean, beautiful river that will continue to appeal to their residents and visitors.

6. **Agriculture departments and Cooperative Extension should assist farm businesses to investigate the potential for agri-tourism.**

7. **State tourism agencies and area chambers of commerce should market the Connecticut Valley to heritage-oriented tourists** and focus on coordinating tourism promotion among localities.

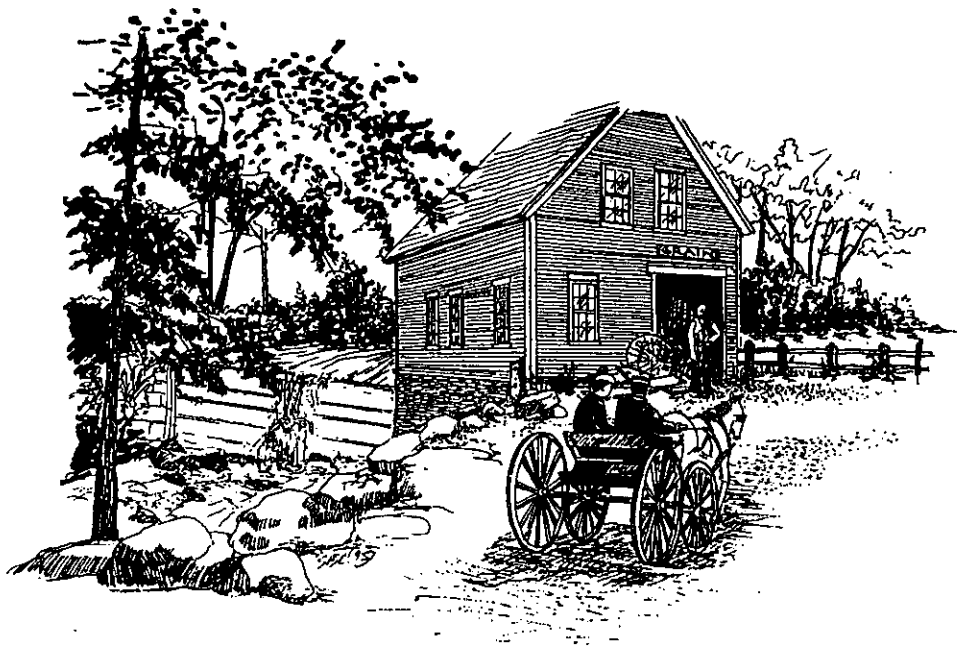
8. **State transportation agencies and utilities should consider impacts of their activities on community character,** and take steps to protect stone walls, historic bridges, naturally vegetated riverbanks, and scenic roads.

9. **Towns should maintain the vitality of historically compact village and town centers** by encouraging commercial development in existing centers and making use of innovative guidance for land use, including cluster development and similar tools, to avoid suburban sprawl that can destroy rural character.

10. **The National Park Service should expand its efforts to support local stewardship of historic resources**, such as the Certified Local Government grant program offered to towns through state historic resources offices, and help town officials and property owners to better appreciate the value of their local resources.

11. **The National Park Service should support New Hampshire in establishing and publicizing a "Barn Again!" program similar to Vermont's, and state historic resource offices should investigate ways to encourage preservation of these and other historic structures through tax incentives and recognition.** The historic agricultural landscape, crowned by its distinctly agrarian architecture, is a beloved yet fading hallmark of both sides of the Connecticut River Valley. Too often, irreplaceable historic outbuildings succumb to decay or are sacrificed to a mounting tax bill.

12. **The states should expand opportunities for archeological investigations in our long-populated river valley,** promoting bank stabilization to protect riparian sites and establishing firmer relationships with local people.



RISING TO THE CHALLENGE

The Connecticut River Valley is an extraordinary place, with so much to nurture: a varied economy and rich natural heritage. We have everything here that others travel the world to find, and so our responsibility to ourselves is a large one. We are poised on the threshold of a new experiment, the challenge of cooperation in an alliance of economic and environmental progress. The Commissions and our subcommittees recognize that protecting our river and our valley is a job for many. While much of the work can be accomplished locally, some is beyond the capacity of local communities or landowners to bear alone, and partnerships with state and federal agencies are needed. This plan lays out a path for all to follow, and is so much more than a simple list of rules and regulations.

The plan lays out a path for an alliance of economic and environmental progress.

This plan articulates new and more effective roles and actions for a variety of players whom we wish to enlist on the team. The Connecticut River Joint Commissions make a commitment to go forward together - with the five local subcommittees, the

valley communities, landowners and businesses, farmers and foresters, non-profit conservation organizations and land trusts, federal and state agencies, state legislatures and the governors of New Hampshire and Vermont, the Congressional delegation, and countless others - all working together on choices for the future by safeguarding resources and wisely developing opportunities.

Private landowners have long been and will continue to be the primary stewards of the river. How well they maintain that role is a matter of personal choice, but residents of the valley have a collective responsibility to each other and to the future.

"We applaud the CRJC and the five subcommittees for the thorough, careful, and inclusive public manner in which this was achieved. They have been careful not to overstep their legislated advisory role."

Jim MacCartney
Rivers Coordinator
NH Department of Environmental Services



"The involvement of hundreds of people from both sides of the Connecticut in the development of a comprehensive set of recommendations is an inspiring accomplishment."

Barbara Ripley
Secretary
VT Agency of Natural Resources

"The local subcommittee plans were written by local people and reflect enormous good sense and local wisdom."

Peter Richardson, President Connecticut River Joint Commissions

Tributaries to the Riverwide Perspective

Summaries of the Local River Subcommittee Plans

"The subcommittees' diligence in defining the special character of their five reaches, identifying their locally significant resources, and describing the importance of the place that embraces their lives and livelihood is exemplary."

Connecticut River Watershed Council

HEADWATERS REGION

Summary of the Headwaters Subcommittee Plan

INTRODUCTION

The Headwaters Subcommittee believes firmly in the right of each citizen to use and enjoy both his own property and the Connecticut River, and that the most effective protection of the river has come and will continue to come from private landowners. The Subcommittee also recognizes that the Connecticut River is a public resource that is significant to the quality of life for Headwaters region residents. The river draws many visitors as well, and plays a multi-million dollar role in the economic well-being of the region.

The actions of a private landowner can affect the quality of both public waters and private property downstream. Therefore, the Headwaters Subcommittee considers that it is appropriate for all landowners to participate as caretakers of the river to benefit both themselves and their neighbors. Private landowners can voluntarily be a big part of both problems on the river and their solutions. Communities can also take action to keep the Connecticut River the valuable economic and environmental resource that it has long been to their citizens.

All landowners may participate as caretakers of the river to benefit both themselves and their neighbors.

The Headwaters segment runs 80 miles from the river's source at Fourth Connecticut Lake at the Canadian border in Pittsburg, New Hampshire, south to Northumberland and Maidstone, Vermont. The Subcommittee region includes the New Hampshire towns of Pittsburg, Clarksville, Stewartstown, Colebrook, Columbia, Stratford, and Northumberland (Groveton), and the Vermont towns of Canaan (Beecher Falls), Lemington, Bloomfield, Brunswick, and Maidstone.

There are five active dams on the mainstem of the Connecticut River here, at Moose Falls, Second Connecticut Lake, First Connecticut Lake, Lake Francis (Murphy Dam), and Canaan. There are two breached dams which have not been redeveloped, one at Lyman Falls and the other at Northumberland/Guildhall (Wyoming Dam). Murphy Dam and Moose Falls are owned by the State of New Hampshire. New England Power Company currently operates all except the Canaan dam, which is operated by Public Service Company of New Hampshire. State-approved plans exist for an additional dam, known as the Baldwin Dam, at a falls just below Pittsburg Village.

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Outstanding Features of the Headwaters Segment

Water Quality: Good water quality is an important economic as well as recreational and ecological resource for the Headwaters region. Based on water quality studies, the Connecticut River mainstem here offers some of the best swimming in the entire river. Outstanding river uses and values that depend upon the present excellent water quality also include boating, wildlife habitat, and productive fisheries.

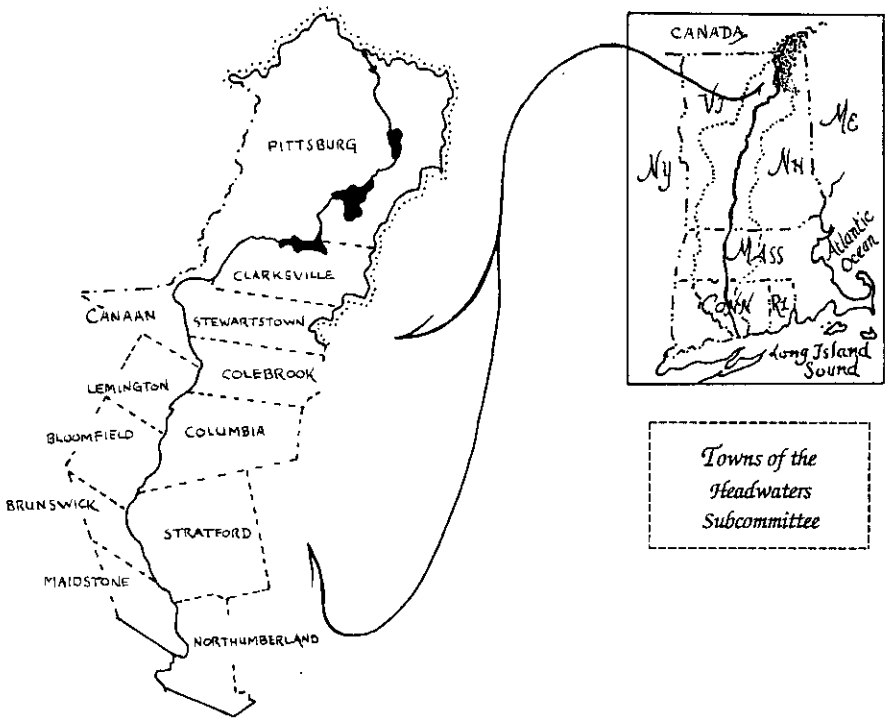
The free-flowing nature of much of the river in this segment is especially valued, because it ensures that river water is well oxygenated and so allows the river to assimilate the treated wastes it now receives.

Studies indicate a river in excellent condition in the segment above the confluence of the Upper Ammonoosuc River in Groveton. In almost all of the segment, the riverbottom is swept clean, and is not embedded with fine particles or organic matter. Dissolved oxygen is adequate for the more sensitive species of fish and the aquatic creatures upon which they feed, and the water is free of large algal growths. Below Groveton, some of these conditions begin to change.

Fisheries: The Headwaters reach of the Connecticut River is considered one of the finest coldwater fisheries in the eastern United States. This remarkable resource is an important key to the quality of life for local residents and to the economy of the region. The brook trout is the original native species, found throughout the segment. It is sensitive to pollution and is relatively easy to catch. Brown and rainbow trout supplement dwindling numbers of native brook trout. Landlocked salmon which originate in the Connecticut Lakes are sometimes found in the river as far downstream as the upper end of the Moore Reservoir.

Habitat: A rich variety of habitat types is concentrated in the area immediately adjacent to the river, from the oxbows, wetlands and setbacks associated with the river's edge, to the fertile floodplain and remnants of its forest, to the ledgy uplands and shorelines of the Connecticut Lakes. Wetlands offer highly productive habitat for wildlife, and also filter pollutants and reduce the effects of flooding. The diversity of wildlife depends upon the health and diversity of available habitat. Here in the Headwaters, habitat is much less fragmented than it is in more developed areas downstream, allowing wildlife to move more freely and find more cover. Riverfront farms are important for certain kinds of wildlife, most notably game birds, and offer mixed habitat of open fields, fencerows, and wooded land.

Hunting, trapping, observing, and photographing wildlife are important forms of recreation in the Headwaters Region, where there are strong populations of bear, deer, moose, otter, mink, fisher, and beaver. The river functions as a corridor for migrating birds and other species which take advantage of the slightly milder conditions near the river before passing into the uplands as spring proceeds. Many of the birds using this habitat prey upon forest insects such as the spruce budworm. Conserving the integrity of their habitat may well contribute to the health of forests in the region and beyond. The Connecticut Lakes also offer an important staging area for migration of waterfowl and other birds in the fall.



Towns of the Headwaters Subcommittee

Recreation: The scenic nature and valuable water quality of the river allow river-oriented tourism and recreation to provide an important boost to the local economy, bringing in $26-31 million dollars per year in the New Hampshire towns of the Riverbend and Headwaters regions, and residents have noticed a significant increase in river-related recreation during the last several years. (Similar information for Vermont is not available.) Both residents and visitors enjoy swimming, fishing, boating, camping, hiking, bicycling, snowmobiling, and simply driving along the river and the Connecticut Lakes, enjoying the view. Scenic free-flowing waters and rapids provide a highly valued canoeing experience, especially popular along the seven-mile designated natural segment, and existing impoundments add an appreciated diversity of fishing and boating experiences. The seventy-mile segment of uninterrupted boatable water between Canaan Dam and Gilman Dam is longer than any other boatable segment in Vermont. Camping currently takes place on private lands.

Agriculture: Connecticut River Valley floodplain soils of the Headwaters area are among the most productive agricultural soils in the North Country. Over half of the acreage located within one half mile of the river on the New Hampshire side is composed of prime agricultural soils. Products of the land are the direct economic mainstay of the area, and there is a secondary economic benefit to the region through visitors attracted by the region's appealing and hard-working agricultural and forest landscape.

Forestry: Forest land is key to the overall health of the river: it is the principal component of the economic, visual, wildlife, fisheries, water quality, and recreational resources of the Connecticut River in the Headwaters region. The forest industry is a major landowner, major employer, and major contributor to local taxes.

Historical and Archeological Resources: The cultural heritage of the Headwaters region is closely interwoven with its natural history, and especially with the Connecticut River. Today, historic agricultural building complexes and the working lands surrounding them are perhaps the most important evidence of a resource-based economy that still continues here. Many village clusters retain their nineteenth century flavor, attended by stone culverts, covered bridges, dirt roads, and stone walls. Archeological sites along the river remind us that our culture was not the first to use the river.

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Potential Uses

Better natural reproduction of trout should be possible. Farmers could use assistance to plant forage crops on land they no longer use, allowing them to justify keeping this land open and offering a boost to game birds and other wildlife. Other potential uses are habitat conservation, scientific research, and "eco-tourism," including educational field trips and low impact recreation. There could be a greater variety of possible canoeing/kayaking trips with more access alternatives. Abandoned railroad beds could be used for trails. There is potential for increased production and markets for value-added forest and dairy products, maple sugar products, beef and lamb including Holstein dairy beef, local fruits and produce, locally bottled water, and even manure as a cash crop. More part-time farming can help keep the agricultural infrastructure viable, and a regional farmers' market, a commercial cooks' kitchen, and small local dairy processing plant could provide useful ways of getting local products to the public.

Current Problems and Threats

Water Quality: Sedimentation and turbidity may be the most important water quality problem in the Headwaters region. The river can run light brown after storms. While riverbank erosion is a naturally occurring process, particularly where tributary watersheds are steep or where the river is actively meandering, it adds sediment that can smother fish spawning areas and nutrients that can contribute to growth of algae. Brown, silt-laden water is not inviting for swimming or boating, and ruins a fisherman's day.

Bank erosion can be accelerated by human activities, including unwise logging practices. Siltation can come from improperly built stream crossings or skidder trails or harvesting when soils are prone to erosion. A 1995 inventory of riverbank erosion sites in Coos and Essex counties found that the river appears to be most active in the Brunswick/ Stratford/ Maidstone/ Northumberland section, where it meanders sharply, and that most of the moderate and severe erosion sites occur on agricultural land. Riverbanks with no vegetative buffer at all tended to have a higher rate of erosion, especially in combination with lack of vegetation due to livestock grazing and trampling. The water quality of the river and its safety for swimming depend partly upon keeping animal waste from washing into the river as much as is practicable. Some farms in the region are not yet able to provide adequate storage for a long winter's accumulation of manure, and need assistance in building good storage. The quality of the river's water could also be threatened by uninformed land application of biosolids, short fiber paper sludge, septage, or wood ash, if current soil conditions and crop requirements are not well considered.

Fisheries: Minimal fish reproduction occurs under present management policies, and trout populations depend heavily upon stocking. The potential exists for overfishing in the Headwaters segment, particularly as the quality of the fishery becomes better known outside the region and should access to the river be expanded.

Trout and their kind require clean, cool water with abundant dissolved oxygen. They are threatened by low oxygen during critical times, particularly in July and during iced-over winter months. Cascades and riffles, including breached dams, add essential oxygen to the water, but it can also be used up in absorbing extra nutrients entering the stream from manure runoff, overfertilization of home landscapes by homeowners, and direct deposits by cattle and other animals with access to the river. Since warmer water cannot hold as much oxygen as cold water, increases in water temperature also threaten trout. Sun-baked stone riprap can raise the temperature of a stream in summer, as can an impoundment where water slows and has a chance to warm up. Therefore, any additional delay of flow at critically low water periods is potentially damaging to the river's fisheries below Lake Francis.

Trout and their kind require clean, cool water.

Sedimentation and turbidity also threaten aquatic habitat in the river and its feeder streams. Upstream activity can damage downstream fisheries, such as when siltation from upstream timber harvesting in 1972 covered smelt eggs and decimated the smelt population in First Connecticut Lake. Spawning and rearing habitat in the bypass reach of the Canaan hydroelectric project can be reduced during low flow, and seasonal drawdowns from the Connecticut Lakes and Lake Francis cause unnatural fluctuations in river flows which can affect the food supply for fish. Limited wintering habitat in the river is due to the limited cross-sectional area available, which is in turn influenced by flowage rates, ice formation, and their effects on dissolved oxygen in winter pools.

Habitat: Threats to wildlife and their habitat are posed by the decline of dairy farms, residential and second-home development of waterfront lands, and loss of deer yards. On the lakes, boaters can disturb nesting loons, leading to nest and chick loss. Introduction of the zebra mussel pest from outside the region, by boaters who fail to properly clean their boats before launching here, could pose a severe threat to the food chains that support fish.

Disregard of private landowners and their property by the visiting public is a persistent problem.

Recreation: Disregard of private landowners and their property by the visiting public is a persistent problem. The public often uses private lands for launching boats and camping, sometimes without the permission of landowners, leaving trash and causing damage to crops and the riverbank. Lack of reciprocity between Vermont and New Hampshire snowmobile clubs can lead to difficulties over trail use. There is danger to bicyclists from trucks and other traffic on Route 3.

Agriculture: Headwaters farmers are facing not only a general economy that provides insufficient support, but also an attitude among distant buyers and policy-makers that food cannot be effectively produced in this northern region. Farmland trends during the last decade show a general decline in the number of farms, their acreage, and the proportion of harvested cropland. Costs are rising sharply while product sales cannot keep pace. Specifically, slaughterhouses in New England are inadequate and the price offered for lamb is artificially low due to competition with foreign producers. A continued decrease in clientele may discourage seed and feed dealers, equipment suppliers, and the other support infrastructure upon which local farmers depend. While some farmland is being converted to residential use, the majority is simply falling out of active agricultural use, for which substantial effort would be required to bring it back into production. Farmers are also under economic pressure to sell land to developers for second homes, particularly along shorelines.

Unlike other businessmen, a farmer is unable to pass many of the costs of doing business on to the consumer, including pollution remediation or prevention practices and devices, and farmers are discouraged by the level of interference in their activities by state and federal agencies. Cost-sharing programs for pollution prevention are often difficult to understand and have changing conditions attached to them. While farmers in the region are aware of the importance of keeping fertilizers out of the river, some are still in need of assistance in building adequate storage for a long winter's accumulation of manure. At megadairies, there is the challenge of avoiding pollution of runoff while managing more animals on a smaller piece of land. Uninformed or improper use of biosolids or other high pH field dressings could lock up nutrients in the soil or allow extra nutrients to fertilize the river instead of the fields.

Forestry: There is concern about negative perceptions of forestry by the public, particularly about heavy cutting and slash disposal near waterways. These objections, on the grounds of aesthetics and effect on water quality, have potential to lead the public to demand closer regulation of forest management practices. Flash flooding, bank erosion, and siltation can result from increased surface runoff when large areas of forest cover are removed. Siltation from improperly built stream crossings or skidder trails, or harvesting when soils are prone to erosion, can harm fisheries and water quality, and can pose problems at downstream industrial water intake pipes.

Historical and Archeological Resources: The most important threat to the region's heritage may be the loss or fragmentation of agricultural landscapes and dilution of the identity of traditional village clusters through development. Historic features which add so much to the character of the region may also suffer from decay and indifference. A number of historic barns, including a rare round barn, have been taken down by their owners because of the tax burden they represented. Stone culverts and walls can be lost through road widening projects, skidder activity, and development, and historic bridges may deteriorate if they are taken out of service and maintenance funds are not available. Bank erosion can expose archeological sites, and these sites may be looted for artifacts before they can be studied.

Land Use and Development: The Headwaters region of the Connecticut River has so far escaped many of the problems currently faced by more developed areas downstream, but it is clear that increasing pressure for recreational use, construction of vacation homes, and commercial and industrial development could bring those problems north. The result could be as simple and direct as property loss from flooding and riverbank scouring as construction proceeds too near the river, or as subtle as the gradual erosion of the river valley's extraordinary scenic quality.

Educate landowners, voters, and visitors about how best to keep the Connecticut River the high quality resource it still is.

Productive but easily built-upon agricultural and forest lands could be permanently lost to development, and remaining farms subjected to complaints from new neighbors who may not understand farming operations and needs. Farmers may be financially forced to sell land for residential development, resulting in higher town costs for services and schools. Sedimentation from eroding construction sites could reach the river, and floodlighting from commercial development could detract from river recreation. Commercial and residential sprawl outside of historic village centers could lead to loss of their traditional vitality. Inappropriate development and signage could alter the familiar rural character of the area, particularly around the Connecticut Lakes.

There is presently no means to guide shoreline development in many of the Headwaters towns, a fact which could make it more difficult for these towns to protect their residents and property from some of the troubles that have already developed downstream.

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Objectives

The Headwaters Subcommittee emphasizes the following:

Educate landowners, voters, and visitors about how best to keep the Connecticut River the high quality resource it still is. Enforce those regulations that already exist, and use common sense in caring for land near the river. Improve the balance of compatible uses of the land without impacting the river. Minimize the impact of forestry and agricultural practices upon the river while preserving these uses of the land. Discourage polluting industrial uses.

The Headwaters Subcommittee wishes to see the excellent cold water fishery in the region maintained and improved if possible, through attention to water quality and increased survivorship among fish populations. The fishery should be more self-sustaining and enjoyed by both residents and visitors to the region. Low impact recreational use and enjoyment of the river should be encouraged. Recreational amenities should be compatible with the rural character of the area. The historic character of village clusters, river crossings, and the working landscape should be retained while people continue to live and work here.

The Subcommittee values the diversity of wildlife in our region, particularly that associated with the Connecticut River and its rich bottomlands, and seeks to maintain biodiversity and to balance multiple uses of the region with wildlife needs. The approach should be oriented toward conservation rather than strict preservation. Most of the riverfront property is owned by private individual and corporate landowners who have in the past and will in the future play a key role in habitat conservation.

A sustainable agriculture in the region is key to the scenic quality of the river valley. The primary answer for the many difficulties facing North Country agriculture is a beneficial taxation policy. It is appropriate for the public to share in assistance to achieve non-point pollution control on farms. A land stewardship ethic must integrate the growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, and wildlife and fish habitat. Practicing sustainable forestry will allow our forests to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The recommendations offered below were reached on a consensus basis by the diverse membership of the Headwaters Subcommittee.

RECOMMENDATIONS

FEDERAL AGENCIES

USDA *should:*

- recognize that New England should have its fair share of federal assistance, and that the needs of its agriculture are distinct from those of other regions
- maintain funding levels for cost-share programs for conservation practices such as construction of manure storage pits and adopt consistent, simple terms for these programs
- increase awareness of new nutrient management techniques through the Cooperative Extension Service as a potential cost-saving measure for farmers as well as a pollution-reducing tool
- get together a core group of farmers to bring the Environmental Quality Incentive Program of the 1996 Farm Bill to Coos and Essex counties with the help of the Farm Services Agency, Cooperative Extension, and Natural Resources Conservation Districts

STATE AGENCIES *should:*

- maintain the current use program in New Hampshire with an increased penalty for taking land out of current use; strengthen the current use program in Vermont
- provide tax incentives for land protection; assure that protection of private property rights is integrated into land conservation programs; provide list of conservation strategies for landowners and town officers
- review the Soil Production Index tax scale for farmland to make taxation more fair to farmers
- explore incentives for alternate financing to encourage sustainable natural resource businesses
- support funding of Natural Heritage programs; ensure that management decisions are based on good science and not upon old data or hearsay

Water Resources agencies *should:*

- encourage more water quality monitoring, particularly by citizen volunteers, and provide results to local river subcommittee

- monitor for possible industrial contaminants
- encourage planting or retention of streamside buffers to minimize runoff, to filter sediment, nutrients, and other pollution that might otherwise enter the stream, and to provide shade to keep water cool and better oxygenated for trout
- on eroding riverbanks, encourage vegetative stabilization of streambanks and use of vegetation interplanted in riprap; include planting of vegetated buffers in streambank restoration projects; minimize the use of riprap where possible
- address bank erosion on Hall Stream along the international border with Quebec
- recognize the importance of rapids and areas such as Lyman Falls and the breached Wyoming Dam in returning oxygen to river water; encourage maintenance of current undammed sections of the river; avoid construction of additional dams and further impoundment of the river
- encourage interested parties such as Wausau, state fish and wildlife/game agencies, and others to ensure that the Wyoming Dam site remains undeveloped and hazards to boaters are removed
- examine the impact of water flow regime upon habitat
- discourage impacts upon wetlands
- discourage gravel mining in the river
- enforce closure of gravel pits according to permit timetable
- encourage riverfront towns below Murphy Dam to develop emergency plan in case of dam failure
- educate public on permitting process to avoid unpermitted actions that could impact water quality
- develop better communication with local citizens; continue communication and cooperation with forest landowners

Forest Resources agencies *should:*

- enforce existing logging regulations
- recommend adherence to forestry "best/acceptable management practices" and provide education about the effects of improper logging practices on water quality
- protect the ability of private landowners to manage and sustain their woodlands
- continue logger training programs
- promote wood as a renewable resource
- promote ecosystem management as the preferred means of achieving sustainable forestry
- implement recommendations of Northern Forest Lands Council
- encourage conservation easements with interested landowners
- reduce the risk of and suppress wildfires
- promote and use integrated pest management to lessen reliance on chemicals
- develop special financing program targeted to the forest products industry such as enterprise zones
- support forestry guidelines that discourage slash near streambanks
- encourage better communication between the recreation/tourism and wood products industries

Fish and Game/Wildlife agencies *should:*

- educate fishermen
- carefully consider the potential impacts upon fisheries and private landowners from increased access and publicity. Direct the public to appropriate access sites, and provide limited signage at river access points which is aesthetically in keeping with the rural nature of the region
- establish new cartop, gravel-surfaced river access point on the New Hampshire side of N. Stratford-Maidstone bridge, at end of natural segment at the confluence of

Bog Brook, on parcel which the landowner has offered for this purpose. This will provide alternatives for day canoe trips on the river, and could increase business to two small stores in the vicinity

- increase enforcement by fish and game wardens; encourage them to continue watching for sources of turbidity and educating landowners about nonpoint source pollution which may affect fisheries
- pursue greater cooperation between the states in stocking fish and in enforcing existing regulations
- work with New England Power Company or its successors to help minimize the effects of low dissolved oxygen levels during critical times, through cold water releases from Lake Francis
- work with the landowner to remove dangerous debris at the breached Wyoming Dam site
- continue to inform boaters of designation of natural segment for non-motorized boating
- protect the breeding stock by establishing a "slot limit" that would require use of a single hook and the immediate release (after the photo) of 12-18" fish. Larger fish may be kept as trophies, which could be a benefit to trophy fisher-tourists.
- maintain a limit of 5 fish/day, of which only one may be larger than 18"
- continue fish community studies
- discourage fishermen from using lead sinkers which can poison waterfowl
- use incentive programs for landowners for good habitat stewardship
- provide education on significant habitat and good stewardship for local conservation and planning commissions, outfitters, citizens
- work with farmers toward integrating seasonal and year-round farm activity with wildlife habitat needs; consider where and when farm work is done to minimize conflict with wildlife when possible
- lease or purchase development rights on privately-owned riverfront farms *if the farmer is interested*
- work with New England Power Company or its successors to install osprey nesting platforms at Lake Francis and the Connecticut Lakes; assist NEP to manage its extensive riverfront lands appropriately for wildlife
- adopt a biological community level conservation strategy, which is more efficient and cost effective than one which focuses upon individual species. Many of the total number of species present in an area can be preserved by maintaining good examples of the major biological community types

Department of Safety Services *should:*

- enforce non-motorized boating on designated natural segment

Transportation agencies *should:*

- work with state historic preservation offices to establish fund for maintenance of historic bridges
- provide discreet and attractive signs identifying the Connecticut River at river crossings
- provide at least a paved shoulder on Route 3 from a point 2 miles north of Groveton to N. Stratford to increase safety for bicyclists. Avoid further road improvement that could lead to increased speed of traffic.

Tourism and Recreation agencies *should:*

- educate visitors to the region on respect for private land and on visitor etiquette
- assist local businesses in developing tourism oriented around the region's wildlife
- establish communication with riverfront farm and forest landowners

- identify an organization to assume responsibility for the Monadnock Fire Tower, and relocate trailhead onto property of willing abutting landowner
- support reciprocity between state snowmobile clubs
- consider compensating landowners for keeping land open
- update each state's liability statute to establish hold-harmless mechanisms whereby the state underwrites a landowner's defense

Agriculture departments *should:*

- educate the public about the value of locally-produced foodstuff
- create newsletters and other public information
- encourage small part-time farming as a viable form of agriculture; utilize financial programs, markets, and educational tools
- educate the public and current and would-be local farmers about community-supported agriculture
- provide marketing assistance to farmers; New Hampshire Department of Agriculture expand its marketing assistance capability
- Vermont provide support for Northeast Vermont Development Association to prepare mapping of prime agricultural soils along the river and their present use to complement similar maps prepared for New Hampshire

Historical Resources agencies *should:*

- encourage bank stabilization to protect archeological sites
- investigate ways to assess historic barns and other such buildings to avoid loss from heavy taxation
- work with state transportation agencies to establish fund for maintenance of historic bridges

TOWNS *should:*

- enforce existing regulations
- support the maintenance of natural features and agricultural and forest lands along the river
- develop means to guide development on prime agricultural soils, such as:
  - -discouraging building in the floodplain
  - -encouraging commercial development in areas that are not prime agricultural areas
  - -asking residential developers of land next to farms to provide a buffer to prevent conflicts between new residents and existing farm use
- discourage buildings or public investment (roads) in the floodplain and on flowage rights of way, to allow the river to use its floodplain for flood storage, to keep property loss low, and to reduce taxation to pay for disaster relief
- encourage landowners to set structures a safe distance from the river even when outside of the floodplain, to reduce the risk of property loss in erodible areas and to help maintain scenic character
- consider adopting some form of guidance for cluster development or similar tool as a way of keeping farmland available and road maintenance low, to create the sense of community in traditional village clusters, to minimize impact upon waterfront habitat, and to encourage growth or expansion of buffers to reduce bank erosion. There are some versions of this tool which do not require a town to have subdivision regulations
- investigate how conservation easements can help keep town service and school costs down if the land is not developed into houselots or second homes which could become year-round residences

Consider the following ways to protect private property values and the public value of the Connecticut River.

- encourage road agents to use best management practices for road, ditch, and culvert maintenance and salt application, to save the town money and to prevent siltation and pollution from salt in runoff
- encourage road agents to use vegetative bank stabilization and minimize use of riprap and other "hard" solutions where bank erosion is a problem; use vegetation interplanted in riprap; include planting of vegetated buffers in streambank restoration projects
- ensure that riverside construction activities do not disturb riverbanks and buffers
- encourage developers and landowners to establish and/or maintain buffers of native vegetation along rivers and streams for privacy and pollution control
- ask for sedimentation and erosion controls during and after construction
- encourage proper construction when it is to take place on steep slopes, to minimize erosion
- protect groundwater recharge areas to keep water supplies safe
- discourage disturbance of wetlands along the river
- encourage closure of completed sections of gravel excavations before these operations are expanded
- encourage an adequate buffer between the river and gravel pit operations
- encourage subcommittee involvement with planning boards and landowners
- participate in Heritage Trail planning
- encourage cooperation and local partnerships among private landowners and non-profit organizations which can provide assistance in preserving/maintaining natural communities
- learn about species of concern within the town
- develop management plans for town-owned conservation areas
- avoid using high end of the Soil Production Index scale to derive tax figures for riverbottom lands
- investigate ways to assess historic barns and other such buildings to avoid loss from heavy taxation
- those towns which have zoning could consider specifically allowing multiple uses in historic buildings in village centers, particularly home industry uses, which could allow occupation of these buildings to be more economically feasible and discourage sprawl by supporting continued activity within the historic village center
- consider signage and how it can contribute to local business and citizen needs without detracting from the rural character of the area
- consider building height limits to allow new construction to be compatible with the scale of existing buildings and to ensure that existing fire-fighting equipment can adequately protect buildings
- encourage developers to use shielded lighting to avoid floodlighting the river and abutters
- look at biosolid/sludge/septage spreading issues and develop their own guidelines; consider allowing injection spreading of septage and application of locally-produced biosolids and sludge with monitoring and careful adherence to regulations
- discourage polluting industrial uses
- ensure that auto junkyards and facilities handling hazardous waste are sited well away from the river
- discourage development of currently undeveloped lands around the Connecticut Lakes, in order to provide water quality protection, wildlife habitat, and the scenic qualities that are so important to the recreation and tourism component of this region's economy, and to prevent increased demands upon town services from such development

- work with regional planning commissions to help implement the river corridor management plan

Regional Planning Commissions *should:*

- work with local planning boards and selectmen to help implement the river corridor management plan

LANDOWNERS *should:*

- follow current laws
- minimize erosion resulting from logging, farming, and other activities on the land wherever practicable to minimize turbidity and sedimentation
- retain natural features and agricultural and forest lands along the river
- avoid disturbing wetlands
- plant or maintain streamside buffers to stabilize riverbanks, filter sediment, nutrients, and other pollution that might otherwise enter the stream, and provide privacy, habitat and shade to keep water cool for trout
- select vegetative stabilization of streambanks and use of vegetation interplanted in riprap when eroding banks are a problem; include planting of vegetated buffers in the project
- follow best management practices for application of biosolids and sludge, paying careful attention to existing soil pH and other conditions to be certain heavy metals and extra nutrients do not reach the river
- examine possible tax benefits for restoration of historic buildings
- learn to recognize species of concern
- avoid planting purple loosestrife in gardens
- avoid disturbance to nesting loons on the lakes; contact Audubon Society of New Hampshire with information

Forest Landowners *should:*

- follow best/acceptable management practices for timber harvesting
- promote ecosystem management as the preferred means of achieving sustainable forestry
- minimize visual/water quality impacts of heavy cutting, especially near the river
- develop management plans and conduct logging with the help of professional foresters
- maintain a forested riparian buffer along waterways in which a no-cut strip immediately adjacent to the banks is surrounded by a zone of intensive selective management that allows new growth to effectively remove and utilize nutrients that might otherwise enter the stream and to provide habitat for insect-eating birds to help control forest insect outbreaks
- dispose of slash away from streams and out of public view
- increase overall forest growth, quality and productivity
- reduce the risk of and suppress wildfires
- promote and use integrated pest management to lessen the reliance on chemicals
- skidder operators avoid damaging stone walls while working in the woods; if crossing is necessary, use only one location
- consider presence of deer yards and den trees when planning and conducting logging operations
- follow American Forest and Paper Association guidelines

Farmers *should:*

- voluntarily adopt best agricultural management practices
- keep good records of yields, fertilizing, and soil/plant tissue analysis

- decide on their own to establish/maintain filter strips between their fields and water courses
- consider fencing off livestock access to protect bank stability, reduce siltation, and reduce the potential for animal waste to enter and contaminate the river
- rotate corn frequently with other crops, particularly on flood-prone land

BUSINESS COMMUNITY ***should:***

- locate businesses in appropriate areas away from the river and prime agricultural land
- help educate visitors to the region about respect for private land and about visitor etiquette
- banks develop socially responsible investment programs that promote forest-based economy
- support development of eco-tourism in the area; prepare and distribute information on lodging and attractions
- assist with appropriate literature for visitors interested in natural history
- establish a regional farmers' market to help make people aware of the kinds of commodities which can be produced well in this region
- keep agricultural infrastructure strong (seed/equipment dealers; auction houses; slaughterhouses)
- establish commercial scale slaughterhouse
- establish commercial cooks' kitchen similar to that recently completed in Lancaster
- investigate the heritage tourism development program which has been undertaken in Berlin

Utilities ***should:***

- maintain effective communication with local citizens and towns
- vegetate rights of way with plants not requiring maintenance with herbicide; notify abutters before herbicide spraying
- monitor actual herbicide applications at the time of application

New England Power Company or its successors ***should:***

- continue to maintain at least 60 cfs as the working minimum flow from Lake Francis to keep undammed river habitat as stable as possible, and continue to respond to critical low flow periods. A suggested release is at least 150 cfs combined flow from Lake Francis and Indian Stream during the typically low flow, warm water months of July and August, if it will not endanger the lakes, to help minimize the effects of low dissolved oxygen levels during critical times.
- continue to be aware of its stewardship role
- continue to communicate with Headwaters towns, citizens, and visitors

Farm Bureaus ***should:***

- work with Connecticut River Joint Commissions to promote valley agriculture

CITIZENS and CITIZEN GROUPS ***should:***

- observe the current permitting process for activities that can affect the river
- consider participating in volunteer water quality monitoring
- participate in the Scenic Byway Study to be certain that it is responsive to their area's interests and concerns and provides their towns with the information they will find most useful
- historical societies educate their fellow citizens, town officials, students, home-owners about local history and how it relates to the Connecticut River; consider writing and publishing histories of their town, conducting oral history interviews of long-time residents, and looking into the history of individual buildings

- local media continue or consider carrying regular articles featuring an historic area, buildings, activities, or interviews with longtime residents

Connecticut River Watershed Council *should:*

- revise Boating Guide to the Connecticut River



RIVERBEND REGION

Summary of the Riverbend Subcommittee Plan

INTRODUCTION

The Connecticut River assumes many different personalities in its flow through the Riverbend region. Meandering through fertile farmlands and among deep forests, it moves within its floodplain as it has throughout the ages, delivering soil and taking it away again. The river's dramatic drop at Fifteen Mile Falls, once a spectacular series of cascades and waterfalls, has over the years been replaced by three hydro dams and the magnificent expanse of Moore Reservoir. Here, New Hampshire's longest river becomes its largest undeveloped lake.

The river travels 70 miles through the Riverbend segment, between the New Hampshire towns of Lancaster, Dalton, Littleton, Monroe, Bath, and Haverhill, and the Vermont towns of Guildhall, Lunenburg, Concord, Waterford, Barnet, Ryegate, and Newbury.

Most of the land within one quarter mile of the river is sparsely settled farms and forest. Along the river are the larger towns of Lancaster, Littleton, Woodsville, and Wells River, and minor clusters of residential, commercial, and, rarely, industrial development surrounding smaller town centers. Between Guildhall and Northumberland at the northern edge of the Riverbend region is the breached Wyoming Dam. Simpson Paper Company operates a run-of-the-river dam at Gilman, and New England Power Company operates three at the former Fifteen Mile Falls. The 178' high Moore Dam created the 11-mile-long Moore Reservoir, whose shoreline remains essentially undeveloped at this writing because of its ownership by NEP. While the current license permits seasonal drawdown of 40' at both Moore and Comerford just downstream, spring drawdown is normally 15' at Comerford Dam's 7-mile reservoir, and 30-40' at Moore. The much smaller McIndoes Station creates a 5-mile-long impoundment in the river, where the water level may change by 10' seasonally. The federal relicensing process for the Fifteen Mile Falls developments at Moore, Comerford, and McIndoes began in 1996 and will end in 2001. Just below McIndoes Station, the river enters a four-mile-long, stable impoundment behind the Dodge Falls dam at Ryegate, and then flows unimpounded until it reaches the head of the Wilder reservoir.

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Outstanding Features of the Riverbend Segment

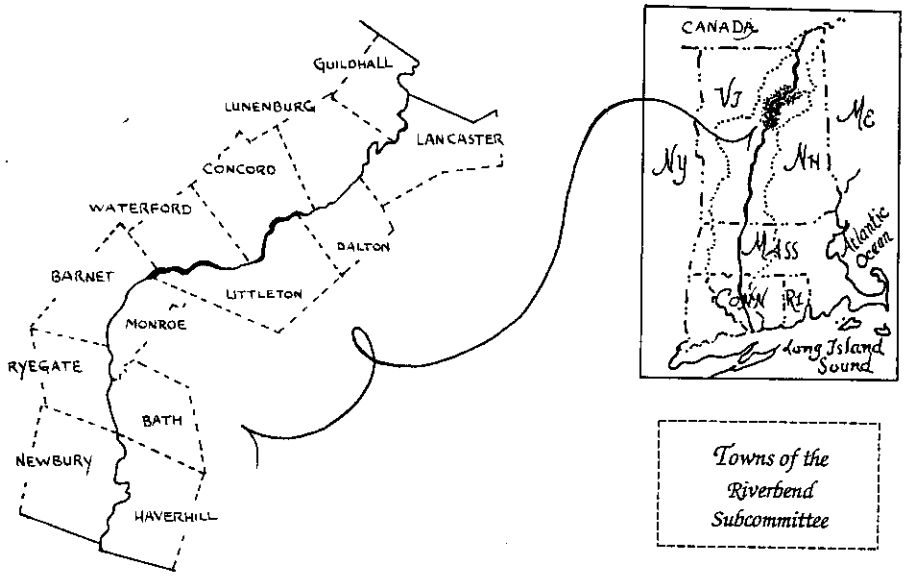
Water Quality: Area residents and businesses recognize that good water quality is important economically as well as aesthetically and ecologically in the Riverbend region, according to a survey conducted for the Subcommittee. The quality of Connecticut River water has improved vastly since 1951, when a government report listed the many thousands of homes discharging raw sewage and the numbers of paper mills and other industries releasing untreated wastes into the river. Today it is not only possible but enjoyable to swim in the river, where several decades ago, such activity would have been unthinkable.

Fisheries: The fishery in the Riverbend region is a mixture of cold and warm water species, with a concentration of coldwater species at the northern end. The heaviest fishing pressure occurs from Moore Reservoir to McIndoes Reservoir, where the fishing is considered excellent. Annual fishing tournaments on Moore Reservoir show good catches of rainbow trout, brown trout, pickerel, yellow perch, smallmouth bass, and other fish. The stretch above Simpson Paper Co. Dam in Gilman is underutilized, mostly due to inaccessibility of the river. Below Dodge Falls Dam in Ryegate, walleye are a particularly important species, and the dam there is presently the limit for upstream passage of anadromous fish. Atlantic salmon are being stocked in the Passumpsic River above McIndoes Station, where some downstream passage is provided.

Habitat: The Connecticut River and its corridor provide a home for many different kinds of plants and animals, in spruce-fir forests to northern hardwood forests and riverbottom silver maple stands, setbacks, and oxbows. Hundreds of waterfowl and other birds follow the river during migration in spring and fall. Here in the Riverbend region, habitat in the river corridor is much less fragmented than in more developed areas downstream, allowing wildlife to move more freely and find more cover, most particularly in the thousands of undeveloped acres surrounding Moore Reservoir. Riverfront farms are also important for some wildlife. Good populations of bear, deer, moose, otter, mink, fisher, and beaver currently exist in the area. A number of those whose populations have been sharply reduced elsewhere still frequent the Connecticut River here, including the bald eagle, osprey, and northern harrier.

Excellent wildlife habitat offers visitors and residents alike a variety of recreation opportunities which benefit the region economically: hunting and trapping, as well as observing and photographing wildlife, are all popular activities dependent upon healthy and varied habitat.

Recreation: Canoeing, kayaking, rafting, sailing, swimming, and fishing are important lower-impact forms of river recreation, while power boating, water skiing, boating regattas, and jet skiing are common higher-impact activities. The river is used here year-round with ice-fishing a popular winter activity on Moore Reservoir. As a result of its ownership by New England Power Company, this 3500-acre water body is singular for its large size and undeveloped state, and is well appreciated in a region that otherwise has many large, intensively used lakes with developed shorelines.



Towns of the Riverbend Subcommittee

Camping, hiking, bicycling, hunting, picnicking, photography, bird-and wildlife-watching, cross-country skiing, snowmobiling, and touring by all-terrain vehicle are popular forms of land-based recreation along the river. The open scenic views of the river valley provide pleasurable automobile touring, particularly along Routes 10 and 135 in New Hampshire, and Route 5 in Vermont. The scenic nature and good water quality of the river allow river-oriented tourism and recreation to provide an important boost to the local economy, bringing in $26-31 million per year in the New Hampshire towns of the Riverbend and Headwaters regions. (Similar information for Vermont is not available.)

Agriculture: Prime agricultural soils distinguish much of the Riverbend region's floodplain, where moderated temperatures and late fall frosts combine with the fertile soils to provide some of the finest farmland in New England. Dairying has been the primary agricultural activity for over a century, although the number of family-owned farms is declining. The region's working agricultural and forest landscape is appreciated by residents and visitors alike. Products of the land are the direct economic mainstay of the area, and there is secondary economic benefit to the region through visitors attracted by this landscape, and a resource-based quality of life that appeals to year-round working residents.

Products of the land are the direct economic mainstay of the Riverbend Region.

Forestry: The forest products industry is a major economic force in the Riverbend region. Forested areas in the corridor vary from large tracts to small strips which border the river, interspersed with open farmland or developed areas. NEP holdings are, as of this writing, in active forest management, except for 500 acres leased to local farmers. Forest land is intimately associated with the health of the river, affecting its water quality, its wildlife habitat, its fishery, and the extensive variety of recreational opportunities it offers.

Historical/Archeological Resources: Agriculture and the forest products industry have a long and rich history associated with the river. Today, historic rural and agricultural landscapes and building complexes remain, interspersed with village clusters that retain their nineteenth century flavor. Evidence of earlier occupation by our predecessors is more elusive, but has been found in several places along the river.



Potential Uses

There is considerable potential for economic benefit from expansion of low impact recreation with proper management, including: public access at the Wyoming Dam site and canoe/cartop access and conversion of abandoned railroad corridors to trail corridors in Barnet; bicycle routes, shoulders, or paths; trails next to the river for improved access from Littleton to Moore Dam; and overnight campsites, riverside parks, picnic areas, and roadside pullouts. Appropriate signage could be useful at access points. There is potential for an outfitting business at Moore Dam, especially trucking assistance with the portage. Educational field trips could help encourage tourism attracted by the Riverbend region's cultural and natural history, bringing dollars into the area by respectful visitors' ("heritage tourism"). More scientific research could take place in undeveloped environments. Moore and Comerford Reservoirs could be premiere multiple species fisheries with proper management, and there is good potential for an excellent tailrace fishery below Comerford Dam.

In agriculture, barley and other small grains could be a healthy alternative crop, particularly with better marketing, to allow greater opportunity for crop rotation. Use of minimal tillage offers increased potential for biological diversity on agricultural lands. A regional farmers' market, organic vegetable farming, and more utilization of manure as a cash crop all offer potential areas for expansion. There could be better management of the tourist crop through agri-tourism, sleigh/hay rides, (which could provide another market for hay), and "open barn" days. Strong potential exists for more value-added uses of forest products.

Adaptive reuse of historic buildings and encouraging new development that minimizes visual disturbance of agricultural landscapes could help preserve the community character that is so attractive to both residents and visitors.

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Current Problems and Threats

Water Quality: Organic enrichment, sedimentation, and fluctuating flows are the primary water quality threats in this region. Three of the major tributaries entering the Riverbend segment, the Passumpsic, Ammonoosuc, and Wells rivers, are adding nutrients to the mainstem waters. These, plus upstream point sources (three paper mills) and nonpoint sources (including but not limited to farms) combined with the longer time these pollutants spend in the impoundments may be over-enriching the waters, as shown by the type of riverbottom life found in water quality studies. Other sources of nutrient pollution include combined sewer overflows at the St. Johnsbury wastewater treatment plant and improper manure disposal on some farms. Heavy cutting, when it occurs, can change the water retention ability of the watershed and lead to increased runoff and sedimentation, which can pose a number of problems downstream, including at industrial water intakes. Bank erosion and loss of riverbottom land is a significant problem, particularly in Haverhill.

The largest single threat in the region may be the loss and development of extensive lands now owned by New England Power Company.

Fisheries: The Riverbend region's fishery may not be quite as good as it once was, due to fishing pressure and decreased productivity, particularly in the impoundments. There is a need for greater cooperation between Vermont and New Hampshire on the part of both biologists and enforcement officials. Bank erosion caused by boats, water skiers, and water level fluctuations causes sedimentation, perhaps the most important threat to fisheries.

Habitat: The largest threat to habitat in the region may be the loss and development of significant, relatively unfragmented areas now owned by New England Power Company, should the company decide to sell these lands. The decline of dairy farms also poses a concern for the reduction of the wildlife habitat they provide. Variable water levels may disrupt instream and shoreline habitat, and forest habitat is threatened by imported conditions such as acid rain, hemlock woolly adelgid, and gypsy moth. Introduction of exotic pests such as the zebra mussel could disrupt habitat and food chains of native animals. Deer yards in particular may be lost through failure to follow best management practices in timber harvesting. Finally, while much information is being assembled about rare plants and animals which presently or previously lived in the region, there is concern that the data used may not be entirely reliable, leading to poor management decisions.

Recreation: Development of the Moore Reservoir area could diminish its value for recreation, with a subsequent economic effect on recreation-dependent businesses.

Impounded segments of the river are now experiencing a maximum level of high impact use. As the river becomes increasingly popular for recreation, there is concern that existing boat speed laws, drunk boating regulations, and others may not be adequately enforced by the states. Many boaters are either unfamiliar with the regulations or disregard them. This is an economic and environmental as well as a safety issue because boat wakes are causing bank erosion in sensitive areas, particularly where the river is too narrow to permit travel above headway speed. Further access for power boating would demand a level of enforcement that does not now exist. Other concerns include: damage to riverfront property and associated costs to landowners and taxpayers; safety concerns; the reliance of power boating and the required facilities on non-renewable resources; maintenance costs; and loss of the peaceful atmosphere appreciated by the people of the region. In the past, unauthorized camping has led to vandalism, littering, and damage to the shoreline and vegetation, problems which have been corrected with vigilant supervision by New England Power Company. Four-wheeled off-road recreational vehicles have at times eroded the earth fill on Moore Dam. Inadequate foot and cartop boat access opportunities have led to trespassing and abuse of private property by recreationists. On the reservoirs, water level fluctuations can impact fishing and boating activities, and below the ice on Moore Reservoir, can present a safety hazard for vehicles.

Agriculture: A farmer is unable to pass many of the rising costs of doing business on to the consumer, including needed pollution remediation or prevention practices and devices. Bank erosion and loss of valuable riverbottom land are a constant specter. There is a sense that local agriculture and forestry are not adequately appreciated by the general public, and better marketing of local products is a key need. Farmland trends show a general decline in the number of farms, their acreage, and the proportion of harvested cropland, raising the prospect of the loss of key agricultural support infrastructure. The farming population is declining and fewer young people are entering farming. Conversion of agricultural land to non-agricultural uses is a concern, because this land is difficult and expensive to reclaim once natural succession is underway. The emerging trend toward megadairies requires vigilance toward proper management and facilities to avoid pollution when more animals are crowded onto a smaller piece of land.

Forestry: Landowners and the forest products industry should be aware of growing negative perceptions of forestry by the public, particularly an objection to heavy cutting and slash disposal near waterways. Major clearcutting on steep slopes near the Connecticut River can damage highly valued scenic views of the valley, and could cause erosion that sends sediment into streams, threatens fisheries, and accelerates the build-up of sediment behind dams. Water quality could also be threatened by siltation from improperly constructed skid roads and inadequate buffers. At the same time, the industry is suffering from high trucking costs to distant markets and the high costs of workmen's compensation.

Historical/Archeological Resources: Historic sites can be threatened by decay or indifference on the part of their owners. This could be particularly true of the decay and removal of agricultural outbuildings by non-farming owners or by owners seeking to avoid paying taxes on an historic barn. Historic bridges are usually retained during bridge upgrading projects, but may deteriorate if they are taken out of service and maintenance funds are not available. Historic agricultural landscapes may be lost to development or

fragmentation of the farm. While some riverfront communities are taking active steps to maintain the identity and economic vitality of their historic downtowns or village clusters, sprawling development remains a threat. Archeological sites are endangered by looting and by exposure to bank erosion, such as in Haverhill.

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Objectives

The Riverbend Subcommittee seeks a prosperous rural lifestyle with quality leisure time, and recreational opportunities in a pleasing, clean environment. Clean shorelines that are stable are part of this healthy environment, as are abundant, healthy and safe food, water, and air.

The river could become a "premier multiple species fishery" with additional stocking if there is no coexistence problem with current resident species. We should work towards returning the river to a condition where fish restocking programs are no longer needed because sustainable populations will develop and thrive. Multiple uses of the region should be balanced with wildlife requirements through conservation rather than strict preservation. The lands surrounding Moore Reservoir should remain undeveloped.

The Subcommittee encourages democratic participation in planning for the river through public education and conservation empowerment.

A prosperous farming community, growing quality products which command a good price, requires a future resource base of healthy, functional farms, forests, and watersheds that are forming rather than losing soil, and ensuring good water quality. Good forest management should provide a sustainable harvest and provide raw materials and jobs for the forest products industry while maintaining water quality and a healthy recreation and tourism industry. Farmers, towns, state and federal agencies, and farm bureaus should cooperate to improve the economic standing of Riverbend farms and their ability to protect water quality through financial incentives, market promotion, education, and encouragement of a stronger sense of community.

These objectives should be met primarily through education of Riverbend region residents and visitors, and by better enforcement of existing regulations. The Riverbend Subcommittee recognizes that the health of the river has always been and will remain largely in the stewardship of local landowners. The Subcommittee encourages democratic participation in planning for the river through public education and empowerment in conservation, building coalitions, and identifying those conservation programs and practices currently in place which are working well.

This plan hopes to offer a choice of options, not a single model ordinance, to protect the economic and environmental values of the Connecticut River. While the recommendations of this plan are directed toward the quarter-mile corridor of land bordering the Connecticut River, consideration of these recommendations on a more general scale could benefit the river, its tributaries, and the region as a whole.

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The recommendations offered below were reached on a consensus basis by the diverse membership of the Riverbend Subcommittee.

RECOMMENDATIONS

FEDERAL AGENCIES

Federal Energy Regulatory Commission *should:*

- ensure participation by local communities and citizens in the relicensing of Fifteen Mile Falls

Federal Emergency Management Agency *should:*

- maintain accurate, up-to-date floodplain maps

USDA *should:*

- support continued or enhanced funding for Natural Resources Conservation Service
- reinstate former funding levels for the Cooperative Extension Service, which provides a key education function for area farmers
- provide cost-sharing for conservation practices, including construction of manure storage pits to help farmers to protect water quality

Natural Resources Conservation Service *should:*

- provide assistance for costs of soil testing for better nutrient management
- encourage area farmers and other landowners to participate in the Environmental Quality Incentives Program of the 1996 Farm Bill
- check to be sure that soil maps are up to date
- identify those lands which are potentially productive but are not now being used, so they could be targeted for new agricultural or forestry production, including voluntary production programs for wildlife

Cooperative Extension Service *should:*

- focus its efforts upon farm needs so that this key element of the agricultural community is not ignored in favor of homeowners

SeaGrant Program *should:*

- provide education for visitors, boat owners and waterfront property owners about zebra mussel

U.S. Fish and Wildlife Service *should:*

- examine the present distribution and extent of Connecticut River populations of dwarf wedge mussel to determine if it still warrants inclusion on the endangered species list

STATE AGENCIES *should:*

- ensure that taxation policy encourages agriculture
- retain the current use program in New Hampshire and strengthen it in Vermont
- find ways to reduce costs of workmen's compensation for loggers

Water Quality agencies *should:*

- avoid construction of additional dams and further impoundment of the river
- monitor for toxic substances in water, fish, and sediments, undertake water quality sampling, and monitor the health of aquatic biological communities to get a better picture of water quality
- use data generated by dam relicensing to set more stringent quality standards where achievable
- follow up on water quality violations
- enforce best/acceptable management practices

- look more closely at the effects of nutrient enrichment and water level changes on river life forms
- form partnership to purchase the breached Wyoming Dam site and keep it undeveloped for the water quality benefits it provides to the river
- Vermont assist in eliminating combined sewer overflow in St. Johnsbury at the wastewater treatment facility
- enforce regulations respecting land application of biosolids, sludge, and septage
- encourage use of vegetative stabilization if bank stabilization is deemed appropriate on eroding banks; minimize the use of riprap and other hard solutions where possible
- educate landowners and public on stewardship, erosion, and the value of forested riparian buffers
- support the present permitting process and guidelines for gravel removal, dredge, and fill activities in New Hampshire RSA 483
- discourage impacts upon wetlands

Fish and Game/Wildlife agencies *should:*

- examine the impact of water level fluctuations on the fisheries through the relicensing of Fifteen Mile Falls. Obtain realistic constraints on minimum and maximum water levels in each impoundment. Focus on effective and broad practical efforts to benefit multiple fisheries, such as walleye stocking and habitat improvement, rather than passage for anadromous fish at Fifteen Mile Falls.
- expand fish stocking to include walleyed pike, landlocked salmon, and lake trout provided they can coexist with existing species
- examine fish tissue for contamination by heavy metals and parasitism
- develop and continually evaluate three year plans for fisheries management, and formally communicate them to their agencies across the river
- plan public boating access to avoid increasing erosion on sensitive shorelines; the design of boating access ramps should avoid inviting boats which can create wakes which could erode riverbanks or travel consistently faster than the width of the river allows under current law
- construct access for canoes at Guildhall at the bridge, with takeout at the Lancaster Bridge, and at Barnet
- provide education on habitat and stewardship for local conservation and planning commissions, outfitters, citizens, landowners and develop information for visitors on low impact visitor etiquette
- provide financial incentives to landowners for measures taken to enhance habitat on their land
- work with farmers toward integrating seasonal and year-round farm activity with wildlife habitat needs; look at both where and when farm work is done to minimize conflict with wildlife when possible
- assist local businesses in developing tourism oriented around the region's wildlife
- lease or purchase development rights on important habitat *if the landowner is interested*
- the Natural Heritage Inventory program should ensure that management decisions are based on good science and not upon old data or hearsay
- discourage fishermen from using lead sinkers and discarding monofilament and other debris
- work with New England Power Company and its successors to install osprey nesting platforms at appropriate locations on Moore and Comerford reservoirs; assist NEP to manage its extensive riverfront lands appropriately for wildlife

Agriculture departments *should:*

- seek right of first refusal on purchase of farm in exchange for working farm tax abatement
- encourage banks to develop socially responsible investment programs that promote local agriculture and forest-based economy
- provide assistance with bank stabilization where appropriate to protect farms from loss of prime soils and to protect water quality
- assist with more and better marketing
- cooperate together for agriculture in the Connecticut River Valley as a single region
- develop a regional identity for Connecticut River Valley products from both sides of the river
- help establish a regional farmers' market
- acknowledge the contribution of part-time or hobby farmers in keeping land open and beautiful, and encourage education of these farmers

Tourism offices *should:*

- develop information for visitors on low impact visitor etiquette, including proper driving habits and parking procedures for moose watching

Transportation agencies *should:*

- review herbicide spraying program for rights of way near waterways, and consider alternatives

Department of Safety *should:*

- enforce existing laws on boating and water skiing and find ways to educate the public about these laws
- establish a required boater safety course in New Hampshire
- limit area of use of high speed, high powered boats and water skiing

Historic Resources agencies *should:*

- direct funding towards projects which are meaningful to local people
- encourage towns to take advantage of the Certified Local Government grant program in both Vermont and New Hampshire to provide funds for locally inspired historic projects
- help develop heritage tourism in the region
- educate local owners of historic barns about the Vermont "Barn Again!" program to assist in restoration/rehabilitation of historic barns
- protect archeological sites where appropriate through bank stabilization
- retain historic covered bridges and provide educational signs for visitors and residents; establish fund for maintenance of historic bridges
- address need for greater cooperation between state archeology offices and local people
- provide education for town officials and homeowners on historic resources

TOWNS *should:*

- consider how to guide development near the river
- discourage construction of new public boat ramps serving large horsepower boats, in order to minimize bank erosion
- identify extent of inadequate sewage disposal problem, especially among seasonal homes converted to year-round use; inspect septic systems before they are completed; educate home buyers and real estate agents
- review all new roadways, lanes, bicycle paths, etc. to include a buffer of vegetation of water shading and pollution filtering
- participate in the relicensing of Fifteen Mile Falls
- learn about plants, animals, and habitats of concern within the town

- encourage cooperation between private landowners and non-profit organizations which can help in preserving/maintaining natural communities
- support the maintenance of natural features along the river and discourage disturbance of wetlands; allow natural development of new wetlands
- encourage road agents to use vegetative bank stabilization where appropriate and minimize use of riprap and other "hard" solutions where bank erosion is a problem
- develop management plans for town-owned conservation areas

LANDOWNERS *should:*

- follow current laws and existing permitting procedures
- follow best/acceptable management practices for agriculture and timber harvesting
- learn about stewardship, erosion, and the value of riparian buffers
- be encouraged to benefit fisheries and water quality by establishing or retaining riparian buffers, which filter out sediment and nutrients washing off the land. Trees and vegetation help stabilize the banks and keep waters cooler. Vegetated buffers also provide privacy and habitat for insect-eating birds which help control forest insect outbreaks
- support the maintenance of natural features along the river including vegetated buffers
- look into benefits of participating in the Environmental Quality Incentives Program of 1996 Farm Bill
- minimize the aesthetic and water quality impacts of heavy cutting and other timber harvesting operations, particularly near the river; dispose of slash away from streams and out of public view; recognize that there is a public relations value to good forest management
- on forest land, maintain forested riparian buffers; the appropriate depth for a buffer depends upon soil conditions, slope, and tree species
- avoid disturbing wetlands
- consider deer yards and den trees when planning or conducting logging operations
- consider the potential impact of herbicides on the river
- learn to recognize species of concern
- avoid planting purple loosestrife in gardens and introducing other exotics

Farmers *should:*

- use filter or protection strips more consistently to keep sediment and nutrients from leaving agricultural lands and washing into waterways
- consider practicing no/low till cultivation; keep soil covered throughout the year to reduce erosion
- practice grazing and crop rotation, and maintain diversity above and below the soil surface
- rotate corn frequently with other crops, particularly on flood-prone land
- seek assistance from Farm Services Agency for manure holding facilities and fencing to keep livestock out of waterways
- become more aware of estate tax issues and seek advice on estate planning
- make more and better use of soil testing
- seek information on the potential benefits of conservation easements
- investigate potentially profitable diversified agriculture
- conduct on-farm research to show the viability of crop diversity
- educate the non-farm community about the value of local agriculture

BUSINESS COMMUNITY *should:*

- support tourism based on enjoyment of the natural resources of the area
- consider a multi-community cooperative approach to developing heritage tourism

- prepare and distribute information on lodging and attractions
- assist with appropriate literature for visitors interested in natural history

New England Power Company and its successors *should:*

- keep Moore Reservoir undeveloped and rural
- maintain open communication with the public about the management of Moore Reservoir and surrounding lands
- consider designating different areas of Moore Reservoir for different uses; set aside more areas for quiet, low-impact use; limit use of high-speed, high-powered boats and water skiing to limited and preselected areas on Moore and Comerford reservoirs to help reduce boat wake-induced erosion and to improve safety
- control traffic by off-road recreational vehicles on the earth fill at Moore Dam
- work with the Littleton Fire Department to provide a small boat, lines, and life preservers with proper security, for both summer and ice rescue
- organize boat access sites better by installing signage and designating parking areas
- gather data on the impact of water level fluctuations on the fisheries and impoundment erosion, and modify operations accordingly
- consider the timing of fish spawning when managing water level fluctuations
- continue to be aware of its key stewardship role and cooperate with natural resource agencies and organizations for good habitat management
- continue to patrol the Moore Reservoir area to discourage vandalism, littering, and damage to the shoreline and vegetation

Railroads and Utilities *should:*

- review the herbicide spraying program for rights of way near waterways; consider alternatives

CITIZENS AND LOCAL CITIZEN GROUPS *should:*

- participate in the relicensing of Fifteen Mile Falls
- petition the State of New Hampshire Department of Safety Services' Marine Patrol to consider a horsepower limit for the river above Gilman Dam, due to the depth and width of the river here, in order to provide for river recreation that is safe for boaters, their boats, and for the river and erodible banks
- aid in policing the Moore Reservoir area by calling authorities when an incident occurs, not after the fact
- take more formalized responsibility for cleaning up trash at Moore boat access areas
- participate in the Scenic Byway Study to be certain that it is responsive to their area's interests and concerns and provides their towns with the information they will find most useful; work with North Country Council and Northeast Vermont Development Association

NON-GOVERNMENTAL ORGANIZATIONS *should:*

- provide educational programs for residents and visitors about local wildlife and habitat
- participate in partnerships with natural resource agencies and interested landowners

Farm Bureaus *should:*

- encourage young people to enter farming
- encourage good stewardship by landowners

Historical Societies *should:*

- educate their fellow citizens about local history and how it relates to the Connecticut River
- consider writing and publishing histories of their town and conducting oral history interviews

- review information on sites and features of historic and archeological significance in each town, in conjunction with Scenic Byway Study
- encourage media to carry regular stories featuring the history of area towns
- provide education for town officials, students, homeowners on historic resources



UPPER VALLEY REGION

Summary of the Upper Valley River Subcommittee Plan

INTRODUCTION

The Upper Valley Subcommittee represents the communities of Piermont, Orford, Lyme, Hanover, and Lebanon in New Hampshire and Bradford, Fairlee, Thetford, Norwich, and Hartford in Vermont. The segment of the river covered in this plan is 39 miles long. Under the New Hampshire Rivers Management and Protection law, it was designated primarily as a Rural river with sections of Rural-Community and Community in the Hanover/Norwich and Lebanon/Hartford area. The river corridor is defined as the river and the land area located within a distance of 1,320 feet of the normal high water mark.

Since the inception of work on the management plan, the Upper Valley River Subcommittee has invited and welcomed input and participation from member towns' officials and the public. The Subcommittee has met with a number of experts from a variety of fields at its monthly meetings. These included engineers, wildlife biologists, boaters, and water quality experts. With the assistance of the Upper Valley/Lake Sunapee Regional Planning Commission, a questionnaire was sent to five percent of the member towns' voter checklists. The responses from these were used in formulating the recommendations. A number of publications and maps, some written expressly for the Connecticut River Joint Commissions and this project, were utilized in the research.

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Present Conditions of the River and River Corridor

Water Quality: The section of the river in this segment above the Wilder Dam functions differently, ecologically, from the section below the dam because it is impounded. Both sections are, however, affected by the dam. In 1994, both the states of New Hampshire and Vermont as well as a private non-profit organization were monitoring the water quality in the Connecticut River and its tributaries at 38 different sites. At the present time, however, there is no regular, ongoing monitoring of the water quality in this segment of the river due to lack of funds.

The 1994 Connecticut River Water Quality Assessment Report, prepared cooperatively for the Connecticut River Joint Commissions by the New Hampshire Department of Environmental Services and the Vermont Department of Environmental Conservation, presented findings through a number of questions. Researchers found that additional testing was needed to ascertain whether the fish in this segment could be eaten. At the time of the study, the water quality in the impoundment was not impaired by the existing dam although upstream flow regulation and upstream impoundments presented a threat. The report identified the operation of the hydroelectric facility as a contributing factor to the riverbank erosion, turbidity, and sedimentation found in the segment.

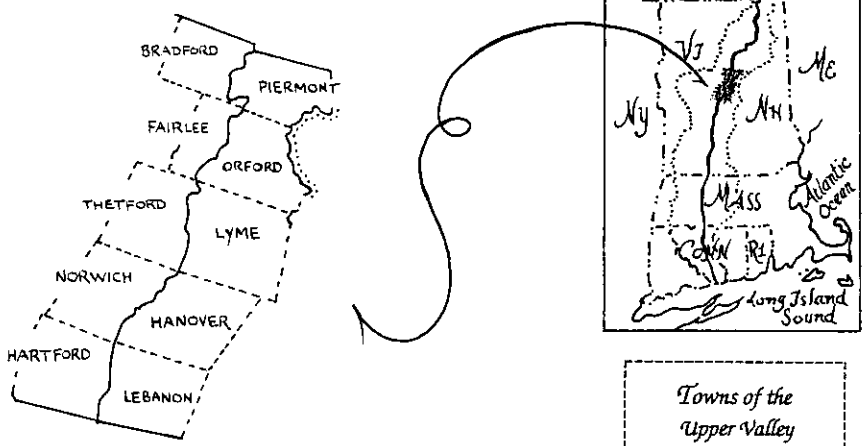
Although some bacterial violations were noted in 1993 in the Lebanon/Hanover area of the mainstem and higher concentrations of *E. coli* were noted during periods of

high river flow, the report stated that swimming need not be restricted. It also stated that there were no known limitations to additional water withdrawals. The report questioned whether the Connecticut River in this segment could assimilate additional treated wastes.

River Attributes: Running adjacent to the river on both its east and west sides are highways as well as a railroad on the Vermont side. There are spectacular scenic views not only of the river but also of the mountains, farms, and villages that form its background. The one hydroelectric facility, Wilder Dam, has an impoundment surface area of 3,100 acres which extends upstream for 45 miles. There are six bridges over the river in this segment, 22 water withdrawal sites, and 24 wastewater discharge sites.

Natural Resource Attributes: Prime warmwater fish habitat is found in the backwaters of the mainstem with the primary species being northern pike, walleye, and smallmouth bass. Wildlife in the segment is typical for northern hardwood-mixed softwood forest habitat and associated streams and reservoirs. Various species are hunted and trapped. The segment is also rich with numerous species of songbirds, amphibians and other nongame animals. Many threatened and endangered species of both plants and animals are found in the Upper Valley segment, with the highest concentration in Hanover and Lebanon. They include the dwarf wedge mussel, the peregrine falcon, and approximately 50 species of plants. The Connecticut River Rapids Macrosite, one of the most biologically rich stretches of the river, supports a number of threatened and endangered species, includes the mainstem from the mouth of the Ompompanoosuc River downstream into the Mt. Ascutney segment, and has been identified by the Silvio O. Conte National Fish and Wildlife Refuge as an important focus area.

Land Uses and Development: Recreation is a major use of the river and its corridor in the Upper Valley segment. Swimming, canoeing, camping, power boating, bicycling, hiking, jogging, snowmobiling and cross-country skiing are some of the more popular activities. Agriculture is an important land use in the northerly section of the segment. Prime agricultural soils in the corridor are believed by some to be the best agricultural soils located in either state. Most of the residential housing found in the corridor is single family homes with only scattered housing occurring in the northern section of the segment. Higher density development, including commercial/industrial development, occurs primarily in Lebanon and the White River Junction area of Hartford but even here, there are areas where no development can be seen from the river.



Towns of the Upper Valley Subcommittee

Every town in the segment has riverfront properties which have been protected with conservation easements held by a number of non-profit, conservation organizations. These protected parcels vary in number, size, and type. The states of Vermont and New Hampshire as well as the ten municipalities in the segment have various regulations and ordinances involving the river corridor. A review of the local documents shows very clearly that, while most town and city plans contain strong recommendations for water resource protection, in most cases these recommendations are not implemented in local regulations.

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Current Problems

The members of the Subcommittee believe that bank erosion is the greatest threat to water quality, aquatic habitats, water-based recreation, and landowner happiness in the corridor. There does not appear to be a simple solution to the problem. While engineers believe that multiple forces are responsible, it is unclear exactly which ones are primarily responsible for erosion in this segment of the river. Engineers do agree that changes in the configuration of the bank caused by such factors as erosion and rip-rapping will have an effect on the bank in other areas. The engineers with whom the Subcommittee consulted agreed that to have a better understanding of what is happening to the riverbanks, it is necessary to have a better look at a number of different sites upstream of Wilder Dam to know what happens when there is a drop or rise in water level at the dam. Boat wakes are also one of the greatest causes of bank erosion.

Siltation in the mainstem of the river is caused not only by actions taking place on the mainstem, but also in every tributary. It can be seen at the mouth of every stream entering the mainstem, where sedimentation is evident, particularly at the mouth of the Ompompanoosuc River. As the population grows and the use of the river increases, bank erosion will certainly intensify.

Nonpoint source pollution is defined as contaminants that enter our water resources when water washes across the surface of the land or infiltrates to groundwater. It is caused by human activities such as clearing and grading of land, construction of impervious surfaces, compaction of soils, fertilization of lawns, snow dumping in waterways, road construction, and poor agricultural practices. As these activities increase so will the problem.

Following best management practices will reduce the threat. However, some of the best management practices for agriculture that alleviate nonpoint source pollution are expensive, and farmers cannot pass on to the consumer the cost of these pollution remediation and prevention practices and devices.

According to the states' report on water quality in this segment, a problem could occur if the number of municipal and industrial discharges into the river increases, because the lack of gradient in this segment affects the reaeration capacity, or the ability of the river to assimilate additional wastes.

Because there is presently no regular, ongoing, monitoring of the water quality in the river or its tributaries, the quality of the water could deteriorate undetected, and affect many of the outstanding uses and values of the river.

Potential Problems

Further development of the 28.8 miles designated as Rural would change the character of the river, interrupt scenic vistas, suburbanize the river corridor, degrade water quality, and endanger wildlife habitat. Increased demands for impervious surfaces could cause tremendous increases in runoff and in sources of pollution. The mainstem and its tributaries are threatened at present by non-native species such as zebra mussel and Eurasian milfoil, that have the potential to do great damage. The primary method of dispersal of these exotics is by attachment to boat trailers and the hulls of boats and, therefore, the threat is reduced if these are thoroughly washed before being used in a different body of water. Increased recreational demands, failed septic systems in the floodplain, and siltation are additional potential problem areas.

Objective

The Connecticut River and its corridor provide an extraordinary quality of life for residents of the Upper Valley as well as for visitors. The objective of this management plan is to protect the quality of the river while permitting its existing uses and ecological values to flourish. The goal is not to dictate, but rather to educate, encourage, and support steps that will accomplish that objective.

RECOMMENDATIONS

The Upper Valley River Subcommittee encourages the adoption of the following recommendations, developed through consensus among its diverse membership. In addition, the Subcommittee suggests possible individuals, groups, and organizations who might be responsible in implementing the recommendations, identified by a number code. They are listed at the end of this chapter.

COMPREHENSIVE SHORELAND PROTECTION ACT

With the understanding that these measures are to affect the corridor in both New Hampshire and Vermont and the water quality of both the river and its tributaries, the Subcommittee recommends that all the municipalities within the segment adopt the following provisions:

1. Within 250 feet of the riverbank, prohibit the establishment or expansion of salt storage yards, auto junk yards, and solid waste and hazardous waste facilities. (10)
2. Considering the environmental impact to the river, the application of fertilizers should be used with great caution within 250 feet of the river. (10,23,24,25,26,33)
3. Within 250 feet of the river, minimum lot size in areas dependent on septic systems should be determined by soil types. (10)
4. Setback requirements of all leaching portions of new septic systems should be determined by soil characteristics but with a minimum setback of 75 feet and a greater setback of 125 feet where more porous soils occur. (10)
5. New Hampshire's Comprehensive Shoreland Protection Act has set 50 feet as a minimum setback from the water body for all non-water dependent buildings. The Subcommittee recommends that communities set such setbacks according to their soil conditions. The historic record of soil loss into the river should also be considered. (10)

6. Natural wooded riverbanks are important for the health of the river and, where they exist, a 150 foot buffer should be protected from clear cutting. Stumps and their root systems should be left intact within 50 feet of the shoreline. If it is necessary to remove vegetation of any size in these buffer areas, the Subcommittee recommends that landowners seek professional expertise in order to lessen any impact on the river. (10)

WATER QUALITY ◆

Primarily as a result of measures introduced under the federal Clean Water Act, the quality of the water in the Connecticut River has recuperated tremendously over the past 20 years. However, more improvement can be achieved and steps should be taken to stop any further deterioration. Many uses of the river ultimately depend on the quality of the water. The Subcommittee recommends that:

1. Water quality monitoring should be an ongoing activity. The number of monitoring sites should be increased. Volunteer organizations such as the Connecticut River Watch Program should be encouraged and funded. (35,18,19)
2. Municipalities should implement recommendations in their master plans concerning water quality and shoreline protection measures by adoption of regulations supporting those measures. (10)
3. Professional and financial assistance should be made available to riparian landowners to clean up nonpoint pollution sites. (11,12,18,19,22,23,24)
4. Steps should be taken to protect the pollution filtration processes, the flood control capabilities, and the fish habitats of the wetland ecosystems along the river. (36,18,19,10,42)
5. Measures should be taken to protect the river and its tributaries from run-off from impervious surfaces, by requiring suitable filtration of the run-off and minimizing all impervious surfaces adjacent to water bodies. (18,19,10)
6. Financial assistance should be given to municipalities to separate existing combined sewer overflows. (11,12,18,19,41)
7. Existing regulations that protect water quality should be enforced and the Clean Water Act should not be diluted. (10,11,12,13,18,19,41)
8. To provide pollution filtration, buffer strips should be created and/or retained. (10,33,7,18,19,20,40)

BANK EROSION ◆

Understanding that nature has the final word, the Upper Valley River Subcommittee strongly supports steps to protect the riverbank from erosion, including:

1. A study of the effects of water level fluctuations on bank erosion as well as upon fish habitat and populations of endangered species. The study should be conducted on-site, at multiple locations, and result in action recommendations. (21,18,19,5,42,41)
2. A dialogue between New England Power Company and its successors and independent engineers to ascertain what steps could be taken at Wilder Dam to reduce its effects on the banks of the river. (21,42)
3. Continued research into methods of bank stabilization including the funding of test areas. (5,14,16,18,19,22,23,24,42)
4. Increased education of riparian landowners concerning methods of stabilization such as targeted workshops in municipalities along the river. (14,16,33,18,19,23,24,22)
5. Expanded programs offering professional and financial assistance to riparian landowners for bank stabilization. (14,18,19,23,24)

6. A comprehensive program of education for boaters concerning the impact of boat wakes, with sufficient funding to enable increased enforcement of existing boat speed regulations. (17,1,2)

WILDLIFE ◆

The river corridor is a vital habitat for many threatened and endangered species. The continued existence of other wildlife within the corridor, including fish, animals, birds, and plants, appears to depend on a delicate balance which determines whether their habitat is adequate or inadequate. With the understanding that all types of land uses in the corridor affect these wildlife habitats, the Subcommittee recommends:

1. A study to identify the fish species, population sizes, and their health/condition in the segment. (1,2,3,5,29)
2. Creation and retention of buffer strips along the mainstem and the tributaries to help form wildlife corridors. (33,1,2,3,4,5,23,24,7,22)
3. Consideration for protection of wildlife habitats during the planning of all land uses in the corridor. (10,28)
4. Increased funding for research on endangered and threatened species. (3,5,13,14,41)
5. Increased funding and development of innovative methods to enable landowners to protect and provide habitat. (10,3,4,5, 41,11,12)
6. Enforcement of existing regulations which protect endangered and threatened species while showing sensitivity to possible effects for landowners. (3,5,41)
7. Increased funding for state Natural Heritage Inventory programs. (11,12,13)
8. Recognition of the value of working farms as habitat. (10,14,33,34)
9. Support for the activities of the U.S. Fish & Wildlife Service in the Silvio Conte Wildlife Refuge which include incorporation of local recommendations in their decision-making process and respect for property owners' rights. (5,33,34)

PUBLIC BOAT ACCESS ◆

The Subcommittee believes that car-top boat access for the use of canoes and other small craft, because of their low impact on the river, should be encouraged in the future and that such access points should be placed more frequently along the segment. Parking should be screened from the river by a riparian vegetated buffer strip and a site for educational information should be provided. (1,2,10,20,18,19,43,28)

Because of the negative impact of motor boat wakes on riverbanks, the Subcommittee suggests that no new public boat ramps be built in this segment of the river. Rules should be written to guide the management of existing public and private landings, as well as the construction of new private ramps, which would include the maximum bank height to be used, a riparian vegetated buffer strip, and a site for educational information dissemination. (1,2,10,20,18,19,43,28)

BOATING ◆

The Subcommittee believes that enhanced education of boaters concerning the river is extremely important, and strongly supports steps to accomplish that goal. It recommends an emphasis on such topics as: existing regulations concerning boat wakes, for both the safety of all people using the river and the protection of the riverbanks; and aquatic exotics, stressing how they spread. Educational efforts should also emphasize respectful use of private land, such as asking landowner permission and avoiding littering.

The Subcommittee suggests that an increased charge for boat licenses could support such an educational program. (1,2,10,11,12, 15,17,34)

The Subcommittee recommends the promotion and continued funding of the primitive campsites presently located on the river, in part because they can help to reduce trespassing on private land. For the same reason, the Subcommittee encourages inn-to-inn canoe trips, which have the added benefit of commercial value to local inn owners. (7,14,16,30)

AGRICULTURE ◆

The benefits to all residents and visitors to our segment are increased many times over by the continued existence of agriculture in the river corridor. The Subcommittee supports the following steps:

1. Research and develop new marketable products from the area. (14,22,25,26,27,23,24,31,32)
2. Develop additional markets for agricultural products. (25,26)
3. Educate the public to the necessity and the advantages of local agriculture. (7,10,14,25,26,27,30)
4. Take appropriate measures to relieve the cumulative negative impact that taxes have on the farming industry. (10,11, 12,13)
5. Support current use assessment for property taxation. (10,11,12)
6. Provide information for the public concerning the benefits of conservation easements. (6,7,8,9,10,14,34,39)
7. Educate officials and voters about zoning techniques, such as clustering of development, that protect agricultural soils and the rural environment. (7,8,10,28)
8. Adopt local regulations that support agriculture including local right-to-farm sections. (10,34)
9. Promote availability of professional expertise for farmers. (23,24,25,26,27,22)
10. Support research for agricultural advances. (11,12,23,24,25,26,27)
11. Support the use of nutrient management plans by farmers. (23,24,25,26,27)
12. Support programs that assist farmers in voluntarily adopting best management practices. (18,19,22,23,24,25,26,27)
13. Support continued research, enforcement of rules and regulations, and public education concerning the spreading of municipal wastewater solids. (18,19,23,24,27,31,32,41)

LAND-BASED RECREATION ◆

Although most land-based forms of recreation in the river corridor have little impact, the Subcommittee recommends the following:

1. Educate hikers, joggers, cross-country skiers, snowmobilers, and hunters and all others on the proper use of private land to help prevent unwanted trespassing and littering. (10,30,14)
2. Work to enhance bicycle safety by promoting construction of low cost bike paths. (10,30,37,38)
3. Promote the use of abandoned railroad rights-of-way as bike paths while continuing to permit landowners to access their own land. (10,30,37,38)

MISCELLANEOUS ◈

1. Encourage programs that will protect our historic and archeological sites along the river corridor including historic bridges and barns. (9,11,12,27,44,45)
2. Encourage protection of scenic views of the river corridor. (10,8,28,30)
3. Support better communication between groups/organizations/agencies which are concerned with the Connecticut River. (Everyone)





PARTIES RESPONSIBLE FOR CARRYING OUT KEY ACTIONS

1. New Hampshire Fish & Game Department
2. Vermont Fish & Wildlife Department
3. U.S. Fish & Wildlife Service
4. New Hampshire Non-game & Endangered Wildlife Program
5. Silvio O. Conte National Fish & Wildlife Refuge
6. The Nature Conservancy
7. Upper Valley Land Trust
8. Vermont Land Trust
9. Vermont Housing and Conservation Board
10. Local municipalities
11. New Hampshire Legislature
12. Vermont Legislature
13. U.S. Congress
14. Connecticut River Joint Commissions
15. SeaGrant Program, Cooperative Extension Service
16. Connecticut River Watershed Council
17. New Hampshire Dept. of Safety
18. Vermont Dept. of Environmental Conservation
19. New Hampshire Dept. of Environmental Services
20. New Hampshire Wetlands Board
21. New England Power Company or its successors
22. USDA Natural Resources Conservation Service
23. New Hampshire Cooperative Extension Service
24. Vermont Cooperative Extension Service
25. New Hampshire Dept. of Agriculture
26. Vermont Dept. of Agriculture
27. State Farm Bureaus
28. Regional Planning Commissions
29. Trout Unlimited
30. Tri-State Scenic Byway Committee
31. University of New Hampshire
32. University of Vermont
33. Riverfront landowners
34. Local people
35. River Watch Network
36. Federal Emergency Management Agency
37. New Hampshire Dept. of Transportation
38. Vermont Dept. of Transportation
39. Society for the Protection of New Hampshire Forests
40. Vermont Wetlands Board
41. Environmental Protection Agency
42. U. S. Army Corps of Engineers
43. Public Water Access Advisory Board
44. New Hampshire Division of Historical Resources
45. Vermont Division for Historic Preservation

MOUNT ASCUTNEY REGION

Summary of the Mount Ascutney River Subcommittee Plan

INTRODUCTION

The Mt. Ascutney Region River Subcommittee includes the New Hampshire towns of Plainfield, Cornish, Claremont, and Charlestown, and the Vermont towns of Hartland, Windsor, Weathersfield, Springfield, and Rockingham. The Subcommittee has concentrated its planning upon the 39 miles of the Connecticut River in this segment and the land adjacent to the river up to Route 12A in New Hampshire and Route 5 in Vermont. The Subcommittee has formally considered a number of aspects of this corridor: the water quality, the fisheries, the habitats, agriculture and forestry, recreation, and development. For each category, we have tried to identify current and potential problems, as well as opportunities. Finally, we have made recommendations which we feel represent a positive, consensus-based response to these problems.

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Outstanding Features of the Mt. Ascutney Segment

The river's designations in the New Hampshire Rivers Management and Protection Act reflect the predominantly rural and undeveloped character of the land in this corridor. The character of the river itself, however, is distinctly different in the northern and southern sections. In the northern 18 miles the river is shallow and flows rapidly, dropping through Sumner Falls and numerous other rapids and riffles. Below the Claremont/Ascutney Bridge, the river is deeper and more slow moving, impounded behind the hydroelectric dam at Bellows Falls.

Fisheries: The fast-flowing northern section provides particularly valuable cold-water fishery habitat, although the trout population is not strong. The warm water fishery of the Bellows Falls impoundment has gained attention as a fine bass fishery, attracting bass tournament fishermen. Largemouth bass beds occur in all river setbacks, where winter ice fishing is also popular.

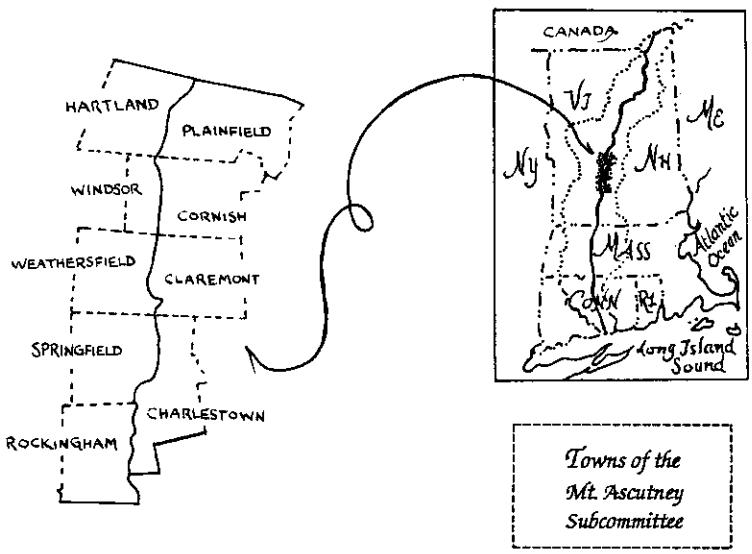
Habitat: The region from Weathersfield Bow north beyond the Mt. Ascutney Region has become known to biologists at the U.S. Fish and Wildlife Service and EPA as the Connecticut River Rapids Macrosite, because of its concentration of ecologically significant habitats and its populations of rare, threatened, and endangered species, some of whom are recognized on a federal or even global level. The confluences of tributaries are also important aquatic habitat areas.

Agriculture: Some of the best agricultural soil in New England is found here along the Connecticut River. Extensive flat, tillable land is a rare resource in the states of Vermont and New Hampshire. These light, sandy, stone-free soils are outstanding for cultivation and easily worked early in the spring, and the riverside microclimate provides an extended growing season. While a variety of crops are raised and marketed success-

fully here, there is potential for an even richer variety and a stronger economic contribution. In some cases this agricultural land functions as floodplain, which is essential in reducing flood damage. Flat land on terraces above the river is also highly valued for residential and commercial development, which inevitably conflicts with long term agricultural use.

Recreation: Swimming, fishing, boating, camping, hiking, bicycling, and auto touring along the river are popular recreational activities. The northern section is a favorite with canoeists who savor the river's free flowing character and the rural scenery on the shores. Sumner Falls offers a chance for advanced paddlers to play and practice in heavy whitewater. Below the Ascutney Bridge, the river is popular for use by powerboats as well as canoes. Hoyt's Landing in Springfield is one of only three sites in Vermont accessible to persons with disabilities. There are two marinas in the region, one off-river in Charlestown, and another on the river in Rockingham. Abundant scenic views are a major tourist attraction and make the Mt. Ascutney Region a desirable place to live.

Historical and Archeological Features: The entire river corridor contains densely clustered archeological resources, evidence of early human occupation along the river's rich bottomlands. Exemplary Federal and Greek Revival buildings are common, along with later architectural styles. Many of the village districts and individual historic sites in the corridor are listed on the National Register. Rural agricultural landscapes and building complexes along the river are also of historic value. Historic sites draw thousands of visitors each year, benefitting both the attractions themselves and the lodging, restaurant, and other service industries in the area.



Towns of the Mt. Ascutney Subcommittee

Potential Uses

A catch and release fishery has potential in this region. Higher perch and bass populations may be possible with better management of water levels at spawning time, and the walleye fishery could be very good with an increase in minimum catch size or perhaps with stocking. There is potential for a Atlantic salmon fishery in both the tributaries and the mainstem.

There could be expanded markets for local agricultural products, including a farmers' market which focuses upon farm products rather than baked goods or crafts, and horse-drawn sleigh and wagon rides for the large tourist industry, which in turn could support another market for hay. Hobby farming offers an opportunity for keeping land open and maintaining demand for infrastructure and support services. There is potential for more diversified agriculture, including more maple sugar production, more utilization of manure as a cash crop, increased local production of beef and lamb, production of specialty foods at commercial cooks' kitchen, more value-added dairy products, and locally bottled water. Grower cooperatives could be established and expanded. Farmers could explore composting of biosolids, leaves, and other organic waste.

Potential recreational opportunities include access for cartop boats and foot traffic at Plainfield and Windsor, kayaking competitions at Sumner Falls, and biking or walking paths. There are opportunities for scientific research into species and habitats of the Macrosite, and more people could enjoy birdwatching here. Increases in both agricultural operations and tourism oriented around the region's strong natural and cultural heritage ("eco-tourism" and "heritage tourism") are appropriate in the corridor as long as they are sustainable. The Herrick's Cove area has hosted the region's largest antique steamboat rally, and offers potential economic benefits.

Current Problems and Threats

Each user of the river has individual requirements and preferences. When these requirements conflict, there are likely to be problems. A variety of these problems are identified below.

Water Quality: Water quality throughout this segment has improved dramatically in the last 25 years. This is a great achievement, but it has led to the increase in activities such as swimming and fishing which demand even cleaner water. Nonpoint sources of pathogens, siltation, and organic enrichment threaten water quality in the Mt. Ascutney segment of the Connecticut River. Bacterial pollution can sometimes make swimming dangerous after heavy rains. Organic matter and nutrients are entering the reach from streambank soils, agricultural runoff, and tributaries like the Black and Sugar rivers. The slower water in the Bellows Falls impoundment may be partially responsible for the algal blooms seen in backwater areas, such as the mouth of the Black River, where heavy mats of algae impact fishing, boating, swimming, and river aesthetics in the warmer months.

Other concerns include unwise salt use and storage, snow dumping in the river, industrial soil contamination, and household contributions of detergents, fertilizers, and pesticides. Runoff from roads, parking lots, and upstream riverfront commercial development may deliver contaminants such as petroleum products, lead, oil, salt, and litter to the river.

Fisheries: This segment is a generally healthy and heavily used fishery, however, pollutants threaten the health of the fish populations and the humans who eat them. Concern exists for the discovery in 1986 and 1987 of chromium and PCBs in fish tissue in this region, and the possible contamination of mainstem and tributary sediments with such pollutants. As fish are regularly taken here for food, particularly perch and walleye, there may be a health risk in eating these fish. In the impoundment, water temperature can rise and movement varies in speed, allowing pollutants to settle into deep holes which may not flush effectively. Organic enrichment appears to be impacting the aquatic macroinvertebrate population, and perhaps fish dependent upon them. Bank erosion, which is severe in some places, can be a major threat to aquatic life, and contributes sediment which cover fish spawning beds. Boat wakes caused by water-skiers and high-speed boats contribute to bank erosion with a subsequent impact upon fisheries.

There are threats to the quantity and diversity of species in this fishery. Water level manipulation by the Bellows Falls Dam often leaves bass and perch eggs out of water.

Habitat: The health and diversity of aquatic and riverine habitats face threats from several areas. Habitat fragmentation and loss are occurring through development as well as by stabilization of the riverbank with riprap. In addition to the threats to aquatic life posed by diminished water quality, variable water levels may temporarily or permanently eliminate instream and shoreline habitat. Traffic by power boats may disrupt riverbank habitat in the southern portion. Milfoil has been found at the Springfield boat landing; this and other exotic aquatic plants and animals such as the zebra mussel could drastically alter the biological community of the river, and could also pose a significant nuisance to fishermen for boat maintenance. Zebra mussel infestation is considered a strong threat in this region due to the river's hospitable water chemistry, heavy use by visiting boaters, and easy highway access from infested waters such as Lake Champlain. The potential introduction of zebra mussel is likely to severely impact other native mussels, including endangered species.

Building in the floodplain risks property loss through erosion and reduces flood storage.

Agriculture: Agriculture is important within the corridor, with many successful farm-based businesses. However, this key traditional riverfront land use is threatened. Some factors, such as commodity agricultural prices and the funding level for the Cooperative Extension Service, are beyond any local control. The loss and fragmentation of farmland for industrial and residential development is a more local problem, but just as severe. There is a lack of clarity relating to water withdrawals for irrigation. Regulations and advised practices for registration of water withdrawals for irrigation on the New Hampshire side of the river are not presently mirrored on the Vermont side. There is concern that instream flow rules might limit irrigation where and when it is most urgently needed.

Recreation: Use of the river corridor for recreation is increasing dramatically, as it is on waterfronts throughout New Hampshire and Vermont. There is a fundamental threat to most recreational activities when water quality is degraded. Water quality is diminished after storms due to combined sewer overflows at sewage treatment plants upstream and from nonpoint sources. Persistent trash problems are occurring on the riverbank at boat landings. Inadequate enforcement of the existing boat speed laws threatens boater safety and bank stability. Conflicts will likely increase between canoeists

and power boats, and with jetskis. Sumner Falls continues to be dangerous for the inexperienced or the careless.

Development: Development in the corridor is a problem for two basic reasons. First, the river is a force of nature which tends to work inexorably to carry away anything near it. Building in the floodplain reduces flood storage and risks property loss through erosion. Some buildings and sections of road are located too close to the river and may require use of riprap or other costly erosion control. Landfills and septic systems sited too close to the river, particularly given its potential to erode, threaten water quality and investments. A second type of problem for development is that land in the corridor is regarded as a regional asset. Development near the river, including floodlighting, can destroy scenic views. Gravel pits and landfills are also likely problem areas.

Historic/Archeological Resources: Historic structures are threatened by decay and inflexible building code requirements. The identity of historic village clusters and the beauty of historic agricultural landscapes are easy prey for inappropriate industrial, commercial, and residential development. Bank erosion and looting threaten archeological sites. Commercialization in response to tourism in the area could undermine historic character and be its own undoing.

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Objectives

The primary objective of this plan to see that the many resources of the Connecticut River are used and enjoyed in an equitable, sustainable manner. We have identified three general directions which serve to move us toward this objective. First, we should support actions which preserve, promote, and improve agriculture in the corridor. Most of the property along the river is owned by individual landowners who will continue to play a key role in habitat conservation. Because of the high quality of riverbottom soils for farming, the microclimate along the river, and the extraordinary scenic value of riverfront farms, the corridor management plan hopes to support and ensure the continuation of existing farms and to encourage growth in agriculture within the river corridor, while minimizing any negative effects of agricultural activities upon the river.

Most of the property along the river is owned by individual landowners who will continue to play a key role in habitat conservation.

Second, we should take actions which discourage construction and land use conversion in the corridor. Minimal land disturbance activity, other than agriculture, should take place in the floodplain in order to protect investments, bank stability, water quality, and habitat, given the potential for riverbank erosion and channel movement. Towns should encourage a balance of uses in the river corridor while recognizing that its long-term economic value, for tourism, agriculture, recreation and development, depends upon retaining its present rural character. Economic development supported by increased heritage tourism will benefit from the preservation and use of historic structures without loss of their historic fabric and character.

Finally, we should move away from a water flow management that is focused primarily on hydroelectric power generation. Water level management should be better understood by the area's residents and better accommodate other uses and values of the river besides hydropower.

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The recommendations offered below were reached on a consensus basis by the diverse membership of the Mt. Ascutney River Subcommittee.

RECOMMENDATIONS

FEDERAL AGENCIES

Federal Energy Regulatory Commission *should:*

- encourage public participation in the hydro relicensing process and maintain a balance among the many competing uses of the Connecticut River

U.S. Fish and Wildlife Service *should:*

- focus on a plant and animal community level conservation strategy
- integrate Atlantic salmon management with other local species
- avoid further impoundment of the river and examine the impact of water flow regime upon habitat
- encourage collection of information on habitat and species, and provide education for local conservation and planning commissions, outfitters, and citizens
- within the Macrosite area, discourage use of riprap, impacts on wetlands, gravel mining in the river, and construction of new power boat launches
- enter into cooperative agreements with willing landowners in association with the Silvio Conte National Fish and Wildlife Refuge

U.S. Department of Agriculture *should:*

- improve funding for Cooperative Extension Service and Natural Resources Conservation Service, particularly to assist farmers in developing nutrient management plans
- adopt consistent, simple terms for cost-sharing programs
- reduce the impact of insurance costs on agriculture and silviculture

Natural Resources Conservation Service *should:*

- work with landowners and towns to explore alternative methods to control stream-bank erosion on problem sites

Cooperative Extension Service *should:*

- provide estate planning assistance for farmers
- encourage small part-time farming as a viable form of agriculture; utilize financial programs, markets, and educational tools
- educate and assist farmers with best management practices
- educate landowners about land application of biosolids

National Park Service *should:*

- provide tax incentives and recognition for historic rehabilitation work
- support state historic preservation and tourism offices
- continue to preserve and protect the Saint-Gaudens National Historic Site including the cultural and natural resources of the site. The NPS should respond to the articulated concerns of Cornish residents. The Park Service should not use eminent domain to acquire property, and should seek to protect the rural character of this area and the integrity of the riverbank.

STATE AGENCIES *should:*

- ensure uniform administration of current use program among towns
- Vermont should strengthen its current use taxation program
- examine tax policies to be sure they encourage agricultural use of land
- encourage recycling of industrial sites to relieve development pressure on agricultural lands

- consider guiding the size and design of signage so that it does not detract from the character of the area

Water Quality agencies *should:*

- continue and/or increase water quality monitoring activities
- install a flow gauge near Springfield
- work with landowners and towns to explore alternative methods to control streambank erosion on problem sites
- enforce restrictions on dumping of snow in river
- provide education for road agents in salt use, snow dumping, and maintenance of roads, ditches, and culverts
- Vermont should adopt setbacks for solid waste disposal that match New Hampshire's
- investigate means to limit addition of phosphorus to the river and tributaries
- support Lebanon and Springfield in upgrading their wastewater treatment facilities, correcting combined sewer overflows to eliminate bacterial contamination, and conducting dye tests to identify possible straight pipe discharges in Springfield
- require the railroad to equip all passenger car toilets with holding tanks; discourage use of creosote near the river
- monitor toxicity in fish tissues, particularly for chromium, PCBs, and heavy metals, and inform the public
- avoid further impoundment of the river and examine the impact of water flow regime upon habitat
- provide grant assistance to regional planning commissions to help interested towns develop river conservation districts and other provisions which protect natural communities and rare species populations along the river
- discourage construction of new marinas on the river
- support the provisions of New Hampshire Rivers Management and Protection Act with respect to dredging, filling, gravel mining, and channel alteration
- distribute accurate maps of aquifers and aquifer recharge areas to the towns as soon as they are available
- investigate the politics, economics, and water quality implications of biosolid applications on agricultural fields
- educate landowners about biosolid application
- warn the public in situations where a potential exists for release of untreated or partially treated wastewater

Fish and Game/Wildlife agencies *should:*

- protect rare remaining riffle habitat
- undertake fish community studies
- increase minimum catch size for walleye; stock tiger muskies to reduce population of juvenile sport fish
- explore the possibility of establishing a catch and release area
- encourage education of resident and visiting fishermen about the zebra mussel
- work with New England Power Company and its successors to better coordinate water level management with fish spawning
- adopt a plant and animal community level conservation strategy
- encourage collection of information on habitat and species and provide education for local conservation and planning commissions, outfitters, and citizens. Within the Macrosite area, discourage use of riprap, impacts on wetlands, gravel mining in the river, and construction of new power boat ramps

- New Hampshire provide signage and handicapped access at the state launch and park in Claremont
- New Hampshire should consider establishing a primitive campsite at Chase Island; identify possible archeological or natural heritage inventory sites and confer with appropriate agencies on siting and management plans

Departments of Agriculture and Forestry *should:*

- encourage state legislatures to propose measures to reduce the impact of insurance costs on agriculture and silviculture
- increase use of best/acceptable management practices for agriculture and forestry, and provide information on sources of funding to help carry them out
- educate the public about the value of locally-produced foodstuff
- discourage logging on steep slopes near the river
- enforce slash cutting laws on riverbanks
- encourage small part-time farming as a viable form of agriculture; utilize financial programs, markets, and educational tools
- educate the public and current and would-be local farmers about the concept of community-supported agriculture ("CSAs")
- keep agricultural infrastructure strong (seed and equipment dealers; auction houses; slaughterhouses)
- put farms in direct contact with tourism boards and tour companies; increase awareness of farm tourism
- ensure hydro-dams release enough water during droughts to support agriculture
- offer financial incentives for improvements
- stimulate grower cooperatives
- New Hampshire expand its agricultural marketing program
- New Hampshire develop best management practices for irrigation
- states cooperate more closely in the Connecticut River Valley

Department of Safety Services *should:*

- increase enforcement of boating speed laws

Tourism and Recreation agencies *should:*

- educate visitors to the region
- state tourism offices should cooperate more closely for tourism in the river valley
- Vermont should better maintain the portable toilet facilities at its river access points
- increase parking facilities at access points
- provide limited signage at river access points which is aesthetically in keeping with the rural nature of the region
- improve bicycling safety
- monitor use and establish more primitive campsites and cartop boat access after checking for presence of archeological resources and rare species

Transportation agencies *should:*

- work with state historic preservation offices to establish fund for maintenance of historic bridges, protect stone walls, and expand opportunities for archeological investigations
- minimize investments in structures such as roads within the floodplain and flowage rights

Historic Resources agencies *should:*

- expand opportunities for archeological investigations; consider establishing archeology programs at state universities

TOWNS *should:*

- discourage building and any public investment in the floodplain and New England Power flowage rights
- support the maintenance of natural features along the river; discourage development from affecting the scenic view from the river; discourage construction too close to the river
- both master plans and regulations should direct the town to carefully consider any irreversible, detrimental use of the corridor's natural and scenic features
- adopt provisions of the New Hampshire Comprehensive Shoreland Protection Act as minimum protection for the river corridor and consider adopting stronger regulations for development in the corridor such as greater setbacks, minimum lot sizes, minimum frontage requirement, height restrictions on building, and cluster development
- ensure that tax policy encourages agricultural use of land; note that agricultural land costs towns far less than residentially developed land in terms of services such as education, road maintenance, and fire and police protection
- undertake a Land Evaluation and Site Assessment to map and protect soils of agricultural significance, and incorporate it in their master plans
- take measures to discourage the loss or conversion of any farm, woodland or open land
- consider increasing the minimum setbacks for on-site sewage disposal in order to preclude exposure of leach fields by erosion
- avoid storing salt on their aquifers and adopt ordinance restricting salt use; avoid dumping snow in river
- discourage wetland impacts
- interview senior citizens to discover locations of old dumps and underground tanks
- consider developing a river conservation district and other provisions which protect natural communities and rare species populations along the river
- consider creating a wetlands overlay district to help address flood control
- encourage cooperation and local partnerships among private landowners and non-profit organizations which can provide assistance in preserving and maintaining natural communities
- develop management plans for town-owned conservation areas
- learn about species of concern within the town
- encourage landowners and road agents to use vegetative bank stabilization and minimize use of riprap and other "hard" solutions where bank erosion is a problem
- monitor use and establish more primitive campsites and cartop boat access after checking for presence of archeological resources and rare species
- Windsor and Plainfield should study appropriate locations for foot and cartop boat access
- discourage construction of new power boat launches in Macrosite area
- discourage construction of new marinas on the river
- discourage littering and vandalism at access points
- take action to control riverbank dumping where it is a problem; Windsor should take action to clean up dump on its riverbank
- encourage recycling of industrial sites to relieve development pressure on agricultural lands
- encourage commercial development in existing locations in downtown areas to help preserve historic land uses and structures
- adopt sediment and erosion control guidelines

- avoid commercialization and loss of historic character. Allowing multiple uses in historic structures in their village districts will permit use of such structures to be economically feasible and preserve the traditional center of activity.
- consider guiding the size and design of signage so that it does not detract from the character of the area
- discourage the siting of uses which would require the transportation of hazardous materials in the corridor
- encourage reclamation of gravel pits into uses which are conducive to the objectives stated above
- advise landowners (through town conservation commissions) on establishment and maintenance of riverside buffers, including tree cutting
- protect stone walls
- adhere to provisions of New Hampshire Rivers Management and Protection Act with respect to dredging, filling, gravel mining, and channel alteration

LANDOWNERS *should:*

- retain or create vegetated riverfront buffers to capture nutrients and sediments washing off the land, to help stabilize banks, and to provide privacy and wildlife habitat
- minimize investment in the floodplain
- carefully consider any irreversible, detrimental use of the corridor's natural and scenic features
- learn to recognize species of concern and report occurrences to the state Natural Heritage Inventory program
- consider working with land trusts to conserve historic agricultural landscapes
- avoid heavy tree cutting and disposing of slash near the river
- avoid impacts to wetlands
- choose vegetative bank stabilization over riprap and other "hard" solutions where bank erosion is a problem
- set back leaching portions of new septic systems; distance depending upon soil characteristics
- keep trash and refuse out of the river
- use caution when applying fertilizer to riverfront land
- avoid using phosphate, fertilizers, or detergents where they could leach into the river

Farm and Forest Landowners *should:*

- use best/ acceptable management practices for agriculture and timber harvesting
- work with conservation districts and Cooperative Extension Service to prepare total nutrient management plan for their land, to make best use of available nutrients, reduce potential for water quality impacts, economize on fertilizer purchases, and determine where and when biosolid application could benefit the farm operation
- refrain from storing manure near the river
- skidder operators and others working in the woods and fields should take care to limit crossing stone walls to a single location if they must be crossed at all

BUSINESS COMMUNITY IN THE REGION *should:*

- support a multi-community cooperative approach to developing heritage tourism, such as between Bellows Falls, Vermont and Charlestown, New Hampshire
- support establishment of a Precision Valley Heritage Corridor which would encompass towns which contributed to the history of precision manufacturing and the machine tool industry (Springfield, Windsor, and Claremont)
- support development of eco-tourism in the region

- assist with appropriate literature for visitors interested in natural history
- support Vermont Film Council
- help to educate visitors in visitor etiquette

New England Power Company and its successors *should:*

- continue to be aware of its stewardship role under its existing license
- provide limited signage at its river access points, especially Herrick's Cove; signage should be aesthetically in keeping with the rural nature of the region
- provide more detailed signage at Sumner Falls indicating the level of skill needed to safely negotiate the rapids
- avoid using sirens to warn of rising water levels; this detracts from the character of the area and will disturb area residents
- work with CRJC and other organizations to improve enforcement of boat speed laws to diminish bank erosion
- discontinue its informal policy of keeping water levels higher during weekends, when boat wakes are likely to create or worsen bank erosion by attacking more vulnerable parts of the riverbank

CONNECTICUT RIVER JOINT COMMISSIONS *should:*

- facilitate agreement with Vermont water users in conjunction with instream flow rules and New Hampshire water user registration
- work with New England Power Company and its successors, and other organizations to improve enforcement of boat speed laws to diminish bank erosion

UPPER VALLEY LAND TRUST *should:*

- monitor use of campsites, particularly on potentially sensitive islands; if high camping pressure is noted on Burnap's and other islands, work with New Hampshire Fish and Game Department to consider establishing another campsite on Chase Island
- add signage to canoe campsites to show distance to next site to avoid overuse and discourage emergency camping at locations of fragile habitat
- before establishing new canoe campsites, identify possible archeological or natural heritage inventory sites and confer with state agencies on siting and management plans

REGIONAL PLANNING COMMISSIONS *should:*

- assemble information on sites and features of significance in each town, in conjunction with Scenic Byway Study, and provide this information to local historical societies and town officials

HISTORICAL SOCIETIES *should:*

- educate their fellow citizens about local history and how it relates to the Connecticut River; consider writing histories of their town, publishing walking tour guides, and conducting oral history interviews
- review the inventory of cultural resources under development by CRJC

CITIZENS *should:*

- obey existing boat speed laws
- avoid littering
- participate in volunteer cleanups
- refrain from waterskiing north of Ascutney bridge
- support public expenditures to protect habitat along the river
- support Family Forest Lands legislation
- support small local dairy processing plant in Plainfield and other local agriculture

- ◇ support local historical societies, sites, museums, and organizations working to preserve historic buildings and retain the vitality of these centers
- ◇ participate in Scenic Byway Study to be certain that it is responsive to their area's interests and concerns and provides their towns with the information they will find most useful; work with regional planning commissions



WANTASTIQUET REGION

Summary of the Wantastiquet Region River Subcommittee Plan

INTRODUCTION

The Wantastiquet Region includes the New Hampshire towns of Walpole, Westmoreland, Chesterfield, and Hinsdale, and the Vermont towns of Westminster, Putney, Dummerston, Brattleboro, and Vernon. The segment extends 37 miles from the Bellows Falls Dam to the Massachusetts border. The Vernon Dam, just downstream from the Vermont Yankee Nuclear Power plant, creates a 26 mile long impoundment on the mainstem. Within the river corridor are the town of Brattleboro and clusters of residential, commercial, and industrial development surrounding this and smaller town centers. The city of Keene lies nearby, within the watershed of the Ashuelot River, a tributary of the Connecticut. While there is in general more residential and other development along the river in the Wantastiquet Region than upstream, open space still prevails on both sides of the river.

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Outstanding Features of the Wantastiquet Segment

Water Quality: Water quality, which has improved greatly over the last few decades, is an important economic as well as aesthetic and ecological resource for the Wantastiquet region. Outstanding river uses and values which depend upon existing water quality include swimming, canoeing, kayaking, boating, wildlife habitat and migratory corridors, productive fisheries, and an aesthetic contribution to tourism and residential use.

Fisheries: The entire Wantastiquet segment has become a primarily warm water fishery since the impoundment created by Vernon Dam diversified the types of habitat available for fish. Walleye is a favorite sport fish, and the Connecticut River population, one of the few in this part of New England, is an important draw for tourist/fishermen. Several tributaries provide nursery and rearing habitat as well as potential spawning habitat for Atlantic salmon, and spawning areas for blueback herring. The American shad population has developed dramatically in recent years, with thousands passing through the fishladder at Vernon Dam.

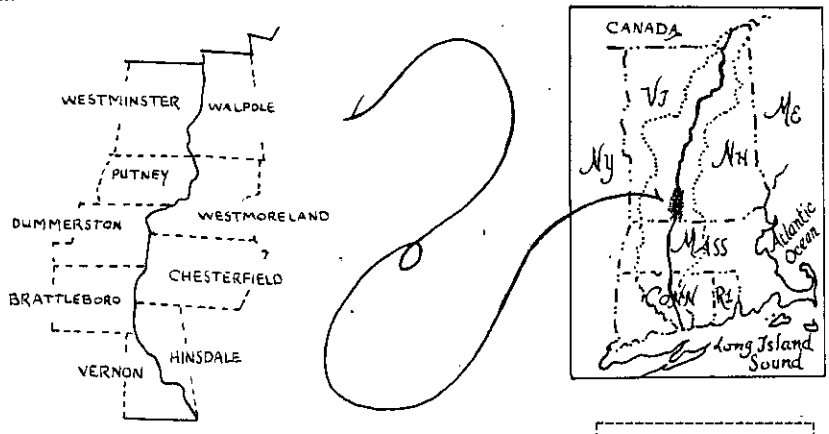
Habitat: A rich variety of habitat types is concentrated adjacent to the river. The river functions as a corridor for neo-tropical migrant birds and other species which take advantage of the slightly milder conditions here before passing into uplands as spring proceeds. The mainstem near the Vernon Dam may be the only significant waterfowl wintering site on the northern half of the river. Retreat Meadows, at the mouth of the West River in Brattleboro, is a particularly significant wetland and stopover habitat. Osprey and eagle use is increasing, particularly in open water below the dam in winter.

Surrounding Wantastiquet Mountain are 6,600 acres of forested habitat with rock outcrops and talus slopes. The Fall Mountain area includes extensive deer yards, marshes, and nesting habitat for turkey vultures. There is at least one deer yard in each town within close proximity to the river. Very well-drained soils on raised railroad beds offer one of the last refuges for the rare New England cottontail rabbit along the Connecticut River in New Hampshire. Wild turkeys concentrate at riverfront farms, which also host migrating geese.

Recreation: Many recreational opportunities are available on the Connecticut River in the Wantastiquet region, including swimming, scuba diving, boating, and waterskiing. There are 13 boat launches in this segment, and navigability of the river by a variety of boats is a valued aspect of recreation here. The Belle of Brattleboro operates scenic cruises, and the marina in Brattleboro occasionally hosts an unofficial steamboat regatta. Jetskis are commonly used from Chesterfield south to the Vernon Dam. Birdwatching, hiking, cross-country skiing, bicycling, horseback riding, and snowmobiling, along the riverbank and on former railroad beds, are popular forms of recreation, as is hiking along the Wantastiquet Trail by the river and up Wantastiquet Mountain. Picnicking is enjoyed on the islands and at access points. The fish ladder at the Vernon Dam is also an attraction.

Agriculture: Connecticut River Valley floodplain soils of the Wantastiquet region are among the most productive soils in either state. The average sales of agricultural products per acre on these soils is substantially higher than elsewhere in the New Hampshire and Vermont valley. Deep, nutrient-laden sandy loam is widespread on the valley floor, and the stony loams of the valley walls have excellent forest sustaining properties. Close to the river, the frost-free growing season is considerably longer than on adjacent uplands anywhere else in either state, greatly multiplying the agricultural value of riverfront lands, which are also less susceptible to drought. During most of the 20th century, these soils have been used to grow crops to support dairy, sheep, and livestock farming, although within the last five years, vegetable, fruit, and ornamental production have increased.

Historic and Archeological Resources: The Connecticut River has long woven the natural and cultural fabric of the valley together to create the industrial and agricultural heritage of the Wantastiquet region. Historic agricultural settings throughout the region define its rural character. Diverse small-scale industries, followed later by large-scale manufacturing, have depended upon the river for their power, and once also depended upon the river to move their raw products to market. Remaining historic villages and covered bridges are highly valued.



Towns of the Wantastiquet Subcommittee

Land Use and Development: The Connecticut River and its corridor's forests, wetlands, and farmlands offer a special scenic beauty that is appreciated by both residents and visitors. Because of the return of the river's water quality, it is once again attractive to those who want to make their homes close by its banks.

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Potential Uses

There could be viable Atlantic salmon and American shad populations throughout the segment, particularly with better fish passage into smaller tributaries through properly located culverts. New recreational trail corridor easements could function as habitat connections for some species. Farmers could use assistance to plant forage crops for turkeys and other wildlife on land they no longer use, allowing them to justify keeping this land open. There could be additional boat access in the town of Westmoreland and more access for canoes and kayaks in general. There are opportunities for interpretive trails and centers, better use of abandoned railroad lines and roads, campsites, and more connections between Vermont and New Hampshire trail systems. There is potential for a tourist excursion train along the river from Brattleboro to Charlestown, and for better local markets for local produce and specialty foods, particularly through farm stands and regional farmers' markets. Hobby farming could help keep land open and maintain demand for farm-oriented support services. Horse-drawn sleigh and wagon rides could serve the large tourist industry, which in turn could support another market for hay. There is potential for further diversity of products, including more maple sugar production, local beef and lamb, more value-added dairy products, locally bottled water, and manure as a cash crop. Tourists could be attracted by and better appreciate the Wantastiquet region's history and pre-history, bringing more dollars into the area through "heritage tourism."

Pollutants can reach the river if a homeowner mows a lawn too close to the waterway.

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Current Problems and Threats

Water Quality: Significant amounts of organic matter and nutrients are believed to be entering the Wantastiquet reach from streambank soils, agricultural runoff, tributaries, and upstream sources. As the river passes through this most densely populated portion of its upper watershed, it can acquire an even heavier load of pollutants. The slowing of flow through the Vernon impoundment may promote algal blooms. The Subcommittee is concerned about soil and water contamination from junkyards and landfills, leachate disposal, and the potential for pollution from marinas, all of which could threaten aquatic habitat, public health, recreation, and water supplies. Land development, inadequate culverts, and poor drainage ditch construction are primary sources of eroded sediments. Other contaminants enter the river from parking lot runoff and direct dumping of snow. Improper use of fertilizers, pesticides, and other toxic materials on the home landscape can allow these pollutants to reach the river, especially if the homeowner mows a lawn too close to the waterway without leaving an adequate buffer of natural vegetation to catch pollutants. Streambank erosion and removal of riparian vegetation are important problems in the Wantastiquet region. Conventional stabilization with rock riprap has a number of disadvantages: it may actually speed up the flow of water, contributing to flooding downstream, and can start new erosion.

Fisheries: The community of aquatic organisms upon which fish feed declines in quality from north to south. Just below the Bellows Falls Dam, it appears to be good, while farther downstream, the aquatic community indicates moderate pollution by organics and nutrients. Below Vernon Dam, the aquatic macroinvertebrate community is rated as poor. Potentially harmful concentrations of chromium and PCBs have been found in fish collected in the Brattleboro area and below the Ashuelot River. Erosion and sedimentation destroy spawning habitat. An entire year of fish reproduction can be lost if fish eggs are allowed to dry as a result of water level fluctuations.

Habitat: Floodplain forests, of which only remnants remain, are now altered by flow regulation. Areas of suitable habitat are becoming fragmented, interfering with dispersal of wildlife. As dairy farms decline, the wildlife habitat they provide is threatened. The vegetation of the islands in the river needs better understanding, but there are current funding inadequacies in state Natural Heritage Inventory programs. Class III wetlands remain largely unprotected. The introduction of invasive species such as purple loosestrife and *Phragmites* displaces native plants which offer better food or cover for wildlife. If introduced into the hospitable waters of the Connecticut River system, the zebra mussel could drastically alter food chains and cause problems for industry and recreation.

Recreation: Conflicts occur between canoes/kayaks and power boats, and between jetskis and fishermen. The current trail system on the New Hampshire side needs better signage, maintenance, and connections. There is inadequate access for canoes and kayaks. The parking area at the Hinsdale boat ramp is often full and cars with trailers park along the road on private property. Boaters are sometimes unaware of the boat speed law and proper boating etiquette, and heavy use by power boats can cause bank erosion and threaten safety. It may not be safe to swim in the mainstem during or shortly after storm events due to polluted runoff.

Agriculture: The long-term loss of agricultural land and the region's ability to help feed itself amid a growing world-wide food shortage are key concerns. Some farmland is being allowed to go fallow, increasing the cost and effort necessary to bring it back into production, and prompting its sale for non-agricultural purposes. The increasingly close juxtaposition of farm and residential land use sometimes leads to conflicts. Costs are high for a farming operation from the beginning, and the cost of compliance with many environmental regulations and best management practices also takes a toll. There are still some farms in the area without adequate manure storage to protect water quality. Where livestock are allowed access to streams, bacteria can enter the water and make it unsafe for swimming. The riverfront farmer may have to battle bank erosion on one hand and on the other, the disrespect of recreationists who damage crops or use his land without asking permission.

Prime farmland soils should be given a priority protection status.

Historical and Archeological Resources: Historic buildings are still lost to decay or indifference. Road "improvement" projects may detract from the character of the area by removing stone walls or culverts and changing the nature of rural roads. Agricultural landscapes and the identity of historic village clusters can be lost to insensitive development. Archeological sites are threatened by bank erosion and by looting. Historic bridges may deteriorate if they are taken out of service and funds are not available for their maintenance.

Land Use and Development: Riverbank erosion threatens housing and roads built close to the river in North Walpole and elsewhere. Good agricultural land is being lost to residential and commercial development, along with riparian buffers and exposure of soils to erosion. In some places, development increasingly threatens the scenic character of the river corridor. Under current town regulations, the capacity exists to double the number of homes within ½ mile of the river, at least on the New Hampshire side, which could have an undesirable impact upon farmland and the region's rural character.

Objectives

Improve the balance of compatible uses of the land; minimize the impact of forestry and agricultural practices on the river while preserving these uses of the land. Discourage polluting industrial uses. While the focus of this plan is the mainstem of the Connecticut River, the Wantastiquet Subcommittee recognizes that the river's tributaries have a significant influence, because many valued fish use them for breeding, and because the quality and quantity of water delivered by the tributaries directly affects the mainstem. The Subcommittee values the diversity of wildlife here, and seeks to balance multiple uses of the region with wildlife requirements through conservation rather than strict preservation.

The Subcommittee seeks to maintain economically viable agriculture in the region. Prime farmland soils should be given a priority protection status. These soils are so valuable that holding them open for agriculture and feeding humans is justified for the future.

The improving condition of the river has led to increasing pressure for recreational uses of all types. These uses should be better managed to minimize threats to the river and human safety, while maximizing the opportunities to enjoy this singular natural resource. The varied and rich cultural and historic heritage of the Wantastiquet region should remain evident for the enjoyment and education of both residents and visitors.

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RECOMMENDATIONS

The following recommendations are made by a consensus of the diverse membership of the Wantastiquet Region River Subcommittee.

FEDERAL AGENCIES *should:*

- fund state resource agencies to monitor for the presence of toxic substances in the water, fish, and sediments

U.S. Army Corps of Engineers *should:*

- communicate more effectively with NEP and its successors about planned releases from flood control dams
- avoid sudden major releases that allow heavy sediment loads to pass from impoundments

U.S. Department of Agriculture *should:*

- establish an agricultural land protection program to ensure that the better agricultural soils are kept available
- key cost-share projects into the performance base; if there is limited funding, prioritize
- support Northeast Dairy Compact

- maintain or increase funding for Cooperative Extension Service, Natural Resources Conservation Service, and Conservation Districts

Farm Services Agency *should:*

- extend grants to any farmer interested in making improvements related to non-point pollution abatement
- adopt consistent, simple terms for cost-sharing programs

Cooperative Extension Service *should*:

- work with farmers to develop nutrient management plans and encourage use of best management practices
- educate homeowners about the wise use and disposal of fertilizers, pesticides, and toxic materials
- provide information to builders and landowners about composting toilets
- educate the public about the value of locally-produced foodstuff
- educate the public and current and would-be farmers about the concept of community-supported agriculture
- provide accessible education both for people interested in hobby farming and for full-time farmers
- encourage small part-time farming as a viable form of agriculture
- discourage gardeners from planting purple loosestrife

Natural Resources Conservation Service *should:*

- work with farmers to help them make use of the Environmental Quality Incentive Program of the 1996 Farm Bill
- assist farmers on sources of help with improvements such as fencing to keep livestock out of streams
- ensure that all farms in region have adequate manure storage and are making the optimum use of the nutrients
- cooperate with Agway on implementation of research into satellite-based evaluation of soil fertility
- advise farmers on appropriate measures for bank stabilization

Federal Emergency Management Agency *should:*

- work with towns to ensure accuracy of floodplain maps
- advise towns on sources of technical and financial assistance to identify potential flood and erosion hazards

Federal Energy Regulatory Commission *should:*

- fund state and federal resource agencies to review the water quality effects of dams on the Connecticut River and its tributaries. Site specific studies should be required of the licensees at both the Vernon impoundment and downstream from the dam.
- encourage better coordination among all the dams affecting the Connecticut River
- encourage citizen participation in dam relicensing
- give as much consideration to recreation, fisheries, and aquatic habitat as to power generation during dam relicensing

U.S. Fish and Wildlife Service *should:*

- consult with dam operators in scheduling of major drawdowns and releases to avoid impacts upon fish migration and reproduction
- continue its efforts to restore the Atlantic salmon and American shad to this segment of the Connecticut River Basin
- educate valley residents and communities about the habitat needs of wildlife and effects of human activity

- protect fish habitat through protection of streambank buffers and other water quality improvements
- facilitate cooperation among ski areas, landowners, and the public for maintenance of fisheries
- study the role of the Connecticut River and its tributaries as a migration corridor for birds
- conduct workshops for boat owners and others about zebra mussel
- work with state agencies and local organizations to protect Retreat Meadows and Wantastiquet Mountain through cost-share challenge grants for conservation easements or fee title acquisition
- make information available to landowners on stewardship
- use incentive programs for landowners for good habitat stewardship
- conduct research on the impact of various actions upon species and the environment
- support funding of Natural Heritage Inventory programs in the states
- evaluate and update current natural heritage inventory lists, and note populations which may be naturally low because they are located on the fringe of their species' natural range
- prioritize species for protection in terms of their relative danger from encroachment

STATES *should:*

- adopt a favorable taxation policy for agricultural land, particularly protected land
- retain current use legislation in New Hampshire and strengthen it in Vermont
- approach owners of large agricultural parcels to explore means of protecting these lands, perhaps through a Tri-State Scenic Byway scenic/agricultural easement
- fund their farmland protection programs

Water Quality agencies *should:*

- continue and increase water quality monitoring; New Hampshire should consider including more biological monitoring
- revisit water quality classification system
- protect groundwater recharge areas; provide accurate maps of aquifers and aquifer recharge areas to the towns
- examine proposed additional discharges for the river to see if it can assimilate the additional waste load and still meet the water quality standards of **both** states
- educate town road agents about BMPs for road, ditch, and culvert maintenance
- identify areas where swimming should be discouraged
- continue testing of fish tissues for heavy metals and other toxics
- recommend recycling of fluorescent light bulbs to reduce mercury entering the environment
- educate public on permitting process to avoid unpermitted actions that could impact water quality
- take active role in educating people to promote riverbank stability; favor vegetative and other less intrusive means of bank stabilization, in combination with stone toe where necessary
- work with citizen monitoring groups, NEP or its successors, and watershed associations to survey bank erosion and include study of river siltation
- encourage streamside buffers
- adopt the same setbacks for landfills in both states
- ensure responsible disposal or application of biosolids and adequately fund supervision of regulations

- New Hampshire complete development of instream flow rules for Connecticut River; address drawdowns for repairs
- consider user fees for consumptive water withdrawals over a threshold which will not impact small users but which will encourage water conservation by larger users
- install stream gauges near ski area withdrawal points to accurately determine flow
- ask ski areas to seek alternative water storage for snowmaking instead of direct withdrawal from streams
- study further the impact of dams on water quality and whether historic low flow is an adequate minimum
- continue bracketed water quality monitoring for source of hydrocarbons in Whetstone Brook; check fishery in this brook to see if trout populations have recovered following chlorine spill
- improve the landfill cap and collect and treat leachate at Brattleboro landfill
- conduct water quality monitoring above and below Hinsdale wastewater treatment plant for possible toxicity
- conduct similar tests in Sackett's Brook
- investigate possible illegal dump one mile north of Herrick's Cove on Route 5 and the quality of a discharge from Boise Cascade just upstream from the Route 9 bridge

Fish and Game/Wildlife agencies *should:*

- continue or enhance cooperation between the states, particularly enforcement
- use median February flow as a minimum to maintain winter habitat; examine impacts of water flows, particularly during late winter and early spring, on tributaries used as spawning waters
- help establish connections between remnant floodplain forests and other riparian habitats
- promote riparian buffers both to filter sediment and other pollutants and to provide riparian wildlife habitat
- work with farmers to ensure seasonal and year-round wildlife habitat needs are integrated with farm activity
- collect fish population data for this reach of the river, through creel surveys and direct censusing; seek information from area sportsmen's clubs and bass tournament fishermen
- conduct fish and macroinvertebrate community studies to determine the impact of flow regulation, if any, and whether habitat has been lost due to erosion and sedimentation
- make information available to the public at access points
- maintain close communication with dam operators to schedule drawdowns and releases to avoid impacts to fish migration and reproduction
- protect native habitats and their animal communities with a combination of strategies
- encourage inventory of riparian wildlife populations and vegetation growing on the islands
- set up osprey nesting platform at Great Meadows and islands
- provide nest boxes for kestrels, screech and saw whet owls, wood ducks, and hooded mergansers
- lease or purchase development rights on privately-owned riverfront farms
- New Hampshire should establish wildlife food blocks at the Cheshire County Farm
- Vermont should investigate the status of New England cottontail rabbits

- New Hampshire Department of Transportation should work with New Hampshire Fish and Game Department in managing abandoned railroad beds for New England cottontail rabbits
- work with New England Power Company or its successors to install osprey nesting platforms and to manage for rabbit cover when clearing under its power lines
- New Hampshire should retain ownership of railroad rights of way
- New Hampshire should complete boat access in Walpole
- New Hampshire work with Upper Valley Land Trust to develop trails and canoe campsite on Dunshee Island
- involve state archeology offices in selection of campsite locations
- encourage education of residents and visitors

Department of Safety Services, Marine Patrol *should:*

- provide boater education, particularly on the erosion impacts of boat wakes
- provide more consistent enforcement of existing boat speed laws
- seek mapping to better define the width of the river for enforcement of speed laws
- encourage canoeists and kayakers to use the sides of the river to help avoid conflict with power boaters

Transportation agencies *should:*

- add sidewalk to Route 9 bridge to facilitate cross-river trail connections
- provide attractive signage at river crossings identifying the Connecticut River
- support the efforts of local trails organizations such as the Ashuelot Rails to Trails Association, and the development of their partnership with state natural resource agencies and town governing bodies
- work with state Historic Preservation Offices to establish fund for maintenance of historic bridges
- ensure adequate public participation in the early stages of planning road and bridge projects

Departments of Agriculture *should:*

- provide more marketing assistance to farmers, particularly in New Hampshire
- encourage the University of New Hampshire to maintain its agricultural program and to expand collaboration with other New England state universities where appropriate

Historic Resources agencies *should:*

- protect archeological sites with appropriate bank stabilization
- provide education for town officials, students, homeowners on historic resources
- seek greater cooperation between state archeology offices and local citizens

TOWNS *should:*

- recognize the ability and nature of the river to move within its floodplain and to erode its banks
- consider prohibiting building in the 100 year floodplain to protect property values, retain flood storage, open space, and the scenic qualities of the river corridor, and help minimize taxation to pay for disaster relief
- consider building setback from river/streams: recommend at least 100', consider increasing this on steep slopes or highly permeable soils
- consider a minimum lot size in areas dependent upon septic systems, determined by soil type, not to exceed 1 unit per at least 150' of shoreland frontage
- consider minimum setbacks of at least 100' for septic system leachfields

- consider confining allowable uses of riverfront land to agriculture and residential; discourage more intensive use
- minimize public expenditures on capital improvements such as roads close to the river
- consider requiring maintenance of a riparian buffer for visual screening, absorption of sound and pollutants, and bank stability
- consider prohibiting establishment or expansion of salt storage yards, solid waste and hazardous waste facilities, and auto junkyards within at least 250' of the river
- preserve agricultural and forest lands along the river; support agricultural activities through town policies
- encourage siting of development for minimum impact upon agricultural soils, such as through cluster zoning
- consider undertaking an inventory of agricultural soils in order to know where to encourage development and where to restrict it to agricultural use
- dedicate to conservation funds a significant percentage of the funds from penalties assessed when land is taken out of current use, and use these funds to secure conservation easements on valuable agricultural lands
- consider a cost/benefit analysis to discover the value to the town of protecting open space through savings in costs of schooling, fire and police protection, and other services on land that is not developed for housing; regional planning commissions can assist with such analysis
- approach owners of large agricultural parcels to explore means of protecting these lands
- check culverts to be certain that they are located at the proper elevation to allow passage of fish; add low profile bars within steeper, larger culverts where appropriate to create small pools for easier passage
- encourage construction of additional public access for canoes, kayaks, and other cartop boats
- reduce nonpoint pollution from urban runoff, landfills, industrial and municipal sources
- ensure that riverside construction activities do not impact banks and buffers
- raise funds locally to support citizen water quality monitoring; encourage water quality monitoring by schools and the Abenaki Riverkeepers program
- ensure that town road agents use BMPs for road, ditch, and culvert maintenance to save the town money and to prevent siltation; follow best management practices for applying salt to roads, and consider establishing limited salt areas near waterways
- consider adopting local ordinance on biosolid application
- hold hazardous waste collection days
- consider a wellhead protection program and provide information on wellhead protection to new property owners
- support use of best management practices for forestry, agriculture, road maintenance, and construction as a means of limiting nutrient and sediment runoff into waterways and protecting streambank buffers
- consider asking developers to follow best management practices for erosion and sedimentation control
- reduce taxes if the utility of the land is limited by the presence of endangered species
- ask local conservation commission to review sites under scrutiny in subdivision approval process for species and habitats of concern, with the understanding that they can request additional information

- conservation commissions should identify the Class III wetlands in their town. This could be accomplished for riparian wetlands by floating the river, checking observations against orthophotos, and comparing results with current town regulations to determine which wetlands are already protected.
- encourage birdwatching and other low impact forms of recreation
- work with local trails organizations such as the Ashuelot Rails to Trails Association
- encourage construction of additional access for canoes, kayaks, and other cartop boats. Improvements to existing access and new access to accommodate trailered boats should be added only after good planning and with awareness of the potentia environmental impact
- encourage development of marinas off-river, if there is sufficient need, to avoid petroleum product contamination, additional power boat and jetski traffic, and erosion
- consider expanding the parking facilities for the Hinsdale boat ramp
- request that FEMA check floodplain maps to be sure they are accurate
- consider requiring that site plans for riverfront developments include plantings for visual screening; consider view from across the river and from the river for recreationists
- encourage enforcement of sand and gravel pit reclamation requirements
- consider design standards to address light pollution and encourage shielded or directional lighting
- encourage conservation measures such as easements to protect scenic and recreational areas
- consider allowing multiple uses in historic village buildings to permit economically viable use, to maintain the vitality of historic village centers, and to discourage suburban sprawl

LANDOWNERS *should:*

- follow current laws
- learn about the wise use and disposal of fertilizers, pesticides, and toxic materials
- retain or plant buffers of natural vegetation along the riverbank for privacy, to keep pollutants from entering the river, to protect fish habitat and provide wildlife habitat, and to help stabilize the bank
- select vegetative stabilization methods or where appropriate, vegetative methods with a rock toe to slow serious erosion problems that threaten structures. Recognize that people cannot stop erosion, only speed it up or slow it down.
- know location of and regularly maintain on-site septic systems
- consider use of composting toilets
- preserve agricultural and forest lands along the river
- support use of best management practices for forestry and agriculture to limit nutrient and sediment runoff
- monitor beaver activity along the riverbank and look for exotics in riverfront wetlands
- establish permanent communication and cooperation with the U.S. Fish and Wildlife Service through the Conte Refuge
- consider conservation easements on their property

Farmers *should:*

- use best management practices to reduce nonpoint source pollution
- work with conservation districts and Cooperative Extension Service to prepare total nutrient management plan for their farm, to make best use of available nutrients,

reduce potential for water quality impacts, economize in fertilizer purchases, and determine where and when biosolid application could benefit the farm operation
- consider participating in the Environmental Quality Incentives Program of the 1996 Farm Bill
- become more aware of estate tax issues and seek advice on estate planning.
- plant millet, corn, winter rye, and fruiting shrubs near the river to provide forage for wild turkeys

CITIZENS AND LOCAL CITIZEN GROUPS *should* :

- continue to have a recognized role in the hydro dam relicensing process
- encourage water quality monitoring by schools
- enjoy boating on the river, particularly from canoes, kayaks, pontoon boats, and other craft which pose little threat to eroding riverbanks; canoeists and kayakers should use the sides rather than the middle of the river to avoid conflicts with power boats
- nominate the Cold River into the New Hampshire Rivers Management and Protection Program to permit citizen-based planning for this major tributary to the Connecticut River
- consider a similar approach for the West River through Vermont's Outstanding Resource Waters program
- Ashuelot River local management advisory committee should look into the efficiency of the Keene wastewater treatment facility
- work with governmental agencies, NEP or its successors, and landowners to survey streambank erosion
- limit consumption of fish from the river as warranted by test results
- participate in the Scenic Byway Study
- participate in translating CRJC cultural heritage resources inventory into educational material that will be useful to towns, citizens, and heritage-tourism oriented businesses
- Subcommittee should verify trail information on GIS database in regional planning commissions
- Friends of Pisgah (New Hampshire) act as umbrella group for local trails organizations
- address trail erosion with increased trail maintenance; provide better signage, publish information, explore possible connections between systems
- Audubon Society chapters should advise on local birding areas and how to reach them
- Upper Valley Land Trust should work with New Hampshire Fish and Game Dept. and state archeologists to develop primitive campsites
- historical societies educate their fellow citizens about local history and how it relates to the Connecticut River; consider writing and publishing histories of their town and conducting oral history interviews

Sportsmen's Clubs *should:*

- cooperate with state agencies to provide information about fish populations
- promote use and protection of streambank buffers to improve water quality and fish habitat
- participate in the dam relicensing process

BUSINESS COMMUNITY *should:*

- establish regional wholesale/retail farmers' markets
- keep agricultural infrastructure strong
- provide education to real estate customers about farming practices and being good neighbors to farms
- support a multi-community cooperative approach to developing heritage tourism (Bellows Falls Vermont-Walpole, New Hampshire, for example)
- support establishment of a Precision Valley Heritage Corridor for towns which contributed to the history of precision manufacturing and the machine tool industry, such as Keene
- media carry regular features on topics of local history and heritage
- select existing commercial and industrial buildings for rehabilitation rather than building new facilities

DAM OPERATORS *should:*

- NEP or its successors install permanent signage at its boat launches, reminding the public of boat speed law, the problem of bank erosion, and proper boating etiquette
- communicate closely with state and federal fish and game/wildlife agencies to schedule dam repairs, drawdowns, and releases in order to avoid impacts upon fish migration and reproduction; local experts should also be asked to cooperate to provide an opportunity for a consensus opinion
- cooperate with one another to manage flow effectively and avoid sudden releases of sediment
- NEP and its successors recognize wildlife habitat value of its extensive riverfront lands, and manage them appropriately in cooperation with state fish and game/wildlife agencies

Appendices to the

CONNECTICUT RIVER

Corridor Management Plan

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Individuals, Agencies & Organizations

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Regional Planning Commissions

North Country Council (NH)
Northeastern Vermont Development Association (VT)
Southern Windsor County Regional Planning Commission (VT)
Southwest Regional Planning Commission (NH)
Two Rivers/Ottauquechee Regional Planning Commission (VT)
Upper Valley/Lake Sunapee Regional Planning Commission (NH & VT)
Windham Regional Commission (VT)

Towns

We thank the towns of Colebrook, Littleton, Lyme, Thetford, Windsor, Claremont, and Westmoreland for generously providing meeting space for the local river subcommittees.

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Illustrations & Maps

The Connecticut River Joint Commissions are pleased to feature the work of Connecticut River Valley artists in this publication.

Matt Brown of Lyme, New Hampshire created the cover illustration using a self-taught method which pursues the tradition of color woodblock printing developed in Japan during the 18th century. Each color is printed from a separate carved block, using rice paste as the binder and a hand-held baren and brushes as the printing tools. Matt is a state-juried member of the League of New Hampshire Craftsmen.

Joan Waltermire of Flying Squirrel Graphics in Vershire, Vermont is the creator of pen and ink drawings of plants, fish and wildlife, seen in Vermont Woodlands magazine and other publications.

Susan Berry Langsten of Cottage Designs in Lebanon, New Hampshire has contributed her pen and ink drawings of a riparian buffer and historical scenes to other CRJC publications, including the Challenge of Erosion and The Cultural Landscape of the Connecticut River Valley in New Hampshire and Vermont.

Christine (Fuchslocher) Castenas of Charlestown, NH and New York City, did the farm-to-market drawing.

Cheryl Sallen, freelance graphic artist of Reading, Vermont, created the maps appearing in this publication, in consultation with Bill Bridge of the Upper Valley Land Trust.

Design & Printing

Susan MacNeil prepared the design of this publication, in consultation with Kelly Short of Canterbury Communications in Canterbury, New Hampshire. Printing is by Letter Man Press of Claremont, New Hampshire.

APPENDIX A

THE NEW HAMPSHIRE RIVERS MANAGEMENT & PROTECTION ACT (RSA 483)

The 1992 designation of the Connecticut River into the New Hampshire Rivers Management and Protection Program established the following classification Criteria and Management Practices.

FOR ALL RIVER SEGMENTS

- management shall ensure rights of riparian owners to use the river for forest management, agricultural, public water supply, and other purposes compatible with instream public uses
- DES shall review and consider adopted local river corridor management plans before issuing permits
- water quality shall be restored to or maintained at least at the Class B level; significant adverse impacts on water quality or other instream public uses shall not be permitted
- no permanent channel alteration, including dredging, shall be permitted except for construction or maintenance of a project such as public water supply intake
- DES shall encourage vegetative bank stabilization
- land application of solid waste (except manure, lime, wood ash, sludge, septage) shall be immediately incorporated into the soil, and set back 250' from normal high water mark
- no new solid waste landfill within 500 year floodplain; any new landfill to be set back at least 100' from edge of floodplain and screened; may be 250' from river if outside 500 year floodplain
- any existing solid waste facility within 250' of river may continue to operate under existing permit provided it does not degrade beyond permit area
- protected instream flow level shall be established by DES
- no interbasin transfers of water shall be permitted
- motorized boats operating within 150' of shore shall travel at the slowest possible speed necessary to maintain steerage way, but at no time shall exceed 6 miles/hour (except natural segment) (pre-existing state law)

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FOR A NATURAL RIVER SEGMENT

(One seven-mile segment of the Connecticut River between Brunswick, Vermont and Stratford, New Hampshire has been designated as "natural.")

- free-flowing segment of at least five miles in length
- high quality of natural and scenic resources
- shorelines in primarily natural vegetation; river corridors generally undeveloped
- development, if any, is limited to forest management and scattered housing
- minimum distance to paved public road is 250' except where sight and sound are screened by natural barrier
- management shall perpetuate natural character as defined above, and ensure rights of riparian owners to use the river for forest management, agricultural, public water supply, and other compatible purposes (in addition to that described above)
- no dam or other structure that alters natural character of river shall be constructed
- no channel alteration activities except temporary alterations to repair or maintain bridge, road, or riprap which was in place at time river was designated

- water quality shall be maintained at Class A or B or restored to Class A
- no new solid waste facility permitted in corridor; existing, permitted and secure landfill cannot be expanded within 100' of the 500 year floodplain, and must be visually screened with vegetation
- no new hazardous waste facilities storing for more than 90 days permitted within corridor
- non-motorized watercraft only except for emergency purposes

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FOR RURAL RIVER SEGMENTS

- river corridors are partially or predominantly used for agriculture, forest management, dispersed or clustered residential development
- some instream structures may exist, including low dams, diversion works, and other minor modifications
- no minimum distance for roads
- at least three miles in length
- existing water quality at least Class B or restorable to Class B
- management shall maintain and enhance natural, scenic, and recreational values of the river protection (in addition to that described above)
- no new dam shall be constructed; repair of failed dam permitted only at same location, same impoundment level within six years of date of failure
- new hydropower facilities may be allowed at existing dams only if they are run-of-the-river, include no significant diversions, and impoundment height is constant and not above maximum historic level

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FOR RURAL-COMMUNITY RIVER SEGMENTS

- flow through developed areas with existing or potential community resource values such as those defined in official town plans or land use controls
- river corridor has combination of open space, agricultural, residential, commercial, industrial land uses
- readily accessible by road or railroad
- may include impoundments or diversions
- at least three miles in length
- existing water quality at least Class B or restorable to Class B
- management shall maintain/enhance the natural, scenic, recreational and community values of the river
- management shall include rights to use river for residential, recreational, commercial, industrial, flood control and other community uses as noted
- no new dam shall be constructed; repair of failed dam permitted only at same location, same impoundment level and only within 6 years of date of failure
- new hydropower facilities may be allowed at existing dams only if they are run-of-the-river, include no significant diversions, and impoundment height is constant and not above maximum historic level

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FOR COMMUNITY RIVER SEGMENTS

- flow through developed or populated areas and possess existing or potential community resource values such as those identified in official town plans or land use controls
- combination of open space, agricultural, residential, commercial, industrial land uses; may include urban centers
- readily accessible by road or railroad
- may include existing/potential impoundments, hydropower diversions, flood control, water supply
- at least one mile in length

- existing water quality at least Class B or restorable to Class B
- management shall maintain/enhance natural, scenic, recreational, and community values of river
- management shall include rights to use river for hydroelectric energy production and flood control protection (in addition to that described above)
- new dams permitted if consistent with protection of resources for which segment designated, and only if they are run-of-the-river, include no significant diversions, and impoundment height is constant and not above maximum historic level for site

DESIGNATIONS of the CONNECTICUT RIVER *(RSA 483:15)*

Rural river: from outlet of Fourth Connecticut Lake to a point .3 miles above Second Lake Dam
Community river: from the point above Second Connecticut Lake Dam to a point .3 miles below dam
Rural river: from point below Second Connecticut Lake Dam to a point .3 miles above First Lake Dam
Community river: from point above First Connecticut Lake Dam to a point .3 miles below the dam
Rural river: from point below First Connecticut Lake Dam to a point .3 miles above Murphy Dam
Community river: from point above Murphy Dam to a point 2 miles below Murphy Dam
Rural river: from point 2 miles below Murphy Dam to Bishop Brook in Stewartstown
Community river: from Bishop Brook to Leach Creek in Canaan, Vermont
Rural river: from Leach Creek to confluence with Mohawk River
Rural-community river: from confluence with Mohawk River to the Columbia-Colebrook town line
Rural river: from the Columbia-Colebrook town line to Wheeler Stream in Brunswick, Vermont
Natural river: from Wheeler Stream to the Maidstone-Stratford Bridge
Rural river: from the Maidstone-Stratford Bridge to a point one mile above the breached Wyoming Dam
Community river: from one mile above to one mile below the breached Wyoming Dam
Rural river: from one mile below the dam site to a point .3 miles above the Simpson Paper Co. Dam
Community river: from .3 miles above the Simpson Paper Co. Dam to .3 miles below the dam
Rural river: from the point below the Simpson Paper Co. Dam to .4 miles above the Moore Dam
Community river: from .4 miles above the Moore Dam to .6 miles below the Moore Dam
Rural river: from the point below the Moore Dam to a point .3 miles above the Comerford Dam
Community river: from the point above the dam to a point .2 miles below McIndoes Falls Dam
Rural river: from the point below the dam to a point .3 miles above the Ryegate Dam (Dodge Falls)
Community river: from the point above the Ryegate Dam to a point .2 miles below the dam
Rural river: from the point below the Ryegate Dam to the Ammonoosuc River in Bath
Community river: from the Ammonoosuc River to the point where routes 135 and 10 meet in Haverhill
Rural river: from this intersection to Storrs Pond Brook in Hanover
Rural-community river: from Storrs Pond Brook to Dothan Brook outlet in Hartford, Vermont
Community river: from Dothan Brook to .3 miles below the Wilder Dam
Rural-community river: from .3 miles below Wilder Dam to the Lebanon-Plainfield town line
Rural river: from Lebanon-Plainfield town line to Blow-Me-Down Brook in Cornish
Rural-community river: from Blow-Me-Down Brook to northern end of Chase Island in Cornish
Rural river: from northern end of Chase Island to southern side of Williams River in Bellows Falls
Community river: from southern side of Williams River to the Saxtons River in Westminster
Rural-community river: from the Saxtons River to the bridge between Westminster Station and Walpole
Rural river: from the bridge to the Brattleboro-Dummerston town line
Rural-community river: from Brattleboro-Dummerston town line to Sprague Brook
Community river: from Sprague Brook to a point .3 miles below the Vernon Dam
Rural river: from below the Vernon Dam to the Massachusetts border

APPENDIX B

NEW HAMPSHIRE COMPREHENSIVE SHORELAND PROTECTION ACT (RSA 483-B)

Minimum protection measures defined by this Act appear below. The Connecticut River and others designated into the New Hampshire Rivers Management and Protection Program before January 1, 1993 are presently exempt. Shoreland protection for these rivers is the responsibility of riverfront communities and, in the case of the Connecticut River, the CRJC and the local subcommittees. In the event that the New Hampshire cities and towns along the river do not adopt the proposals made in the plan prepared by their local subcommittee, the legislature will re-examine the exemption provided in RSA 483-B and propose minimum standards defined by the Act for the area within 250 feet of the river's ordinary high water mark. In either case, the riverfront community must adopt river protection standards into its local zoning ordinance.

For further information, contact the Shoreland Coordinator at NH Dept. of Environmental Services at 603-271-3503.

LIMITS WITHIN THE PROTECTED SHORELAND — 250 ft

- Prohibited Uses:
  - Establishment/expansion of salt storage yards, auto junk yards, solid waste & hazardous waste facilities.
  - Use of fertilizer, except limestone, within 25 feet of the reference line. Low phosphate, slow release nitrogen fertilizer allowed beyond 25 foot zone.
- Uses Requiring State Permits:
  - Public water supply facilities
  - Public water & sewage treatment facilities
  - Public utility lines
  - Existing solid waste facilities
  - All activities regulated by the DES Wetlands Bureau per RSA 482-A

OTHER RESTRICTED USES

- All new lots, including those in excess of 5 acres, are subject to subdivision approval by DES.
- Setback requirements for all of new septic systems are determined by soil characteristics.
- Minimum lot size in areas dependent on septic systems determined by soil type.
- Alteration of Terrain Permit standards reduced from 100,000 square feet to 50,000 square feet.
- Total number of residential units in areas dependent on on-site sewage & septic systems, not to exceed 1 unit per 150 feet of shoreland frontage.

NATURAL WOODLAND BUFFER RESTRICTIONS — 150 ft

- Where existing, a natural woodland buffer must be maintained.
- Tree cutting limited to 50% of the basal area of trees, and 50% of the total number of saplings in a 20 year period. A healthy, well-distributed stand of trees must be maintained.
- Stumps and their root systems must remain intact in the ground within 50 feet of the reference line.

NEW SEPTIC SYSTEM LEACHFIELD SETBACKS

- 125 feet where soil down gradient of leachfield is porous sand & gravel. — 125 ft
- 100 feet where soil maps indicate presence of soils with restrictive layers within 18 inches of natural soil surface. — 100 ft
- 75 feet where soil map indicates presence of all other soil types. — 75 ft
- 75 feet minimum setback from rivers.

PRIMARY BUILDING LINE*

- Primary buildings setback behind line. — 50 ft

REFERENCE LINE

- For coastal waters = highest observable tide line
- For rivers = ordinary high water mark
- For natural fresh water bodies = natural mean high water level
- For artificially impounded fresh water bodies = water line at full pond

* If a municipality establishes a shoreland setback for primary buildings, whether greater or lesser than 50 feet, that defines the Primary Building Line for that municipality.

APPENDIX C

MODEL ORDINANCES

In the Riverwide Perspective of this plan there are a number of recommendations for local adoption of ordinances that address water quality, groundwater, shoreland, important agricultural soils, and other resources. The regional planning commissions are an excellent source for model ordinances, and have the expertise to assist a town in translating the vision articulated in this plan into language which can accomplish its goals, and to integrate it with the town's current policies and plan.

We recognize that the present guidelines in each town are different. Some have no special provisions for the Connecticut River and its tributaries in their town plans or zoning ordinances. Others have elaborate statements in their town plans, which may or may not be carried through into the authority of zoning regulations or site development standards guiding the town's development.

Some specific model ordinances to consider are:

- Model Shoreland Protection Ordinance, *prepared by the New Hampshire Office of State Planning, 1992*
- Model River Protection Regulations for Vermont Rivers and Streams, *prepared by the Vermont Natural Resources Council, 1990*
- Aquifer Protection District Draft Model Zoning Amendment, *prepared by the Upper Valley/Lake Sunapee Regional Planning Commission for CRJC's Grafton County Nonpoint Pollution Project, 1992*
- River Protection Overlay District Draft Model Zoning Amendment, *prepared by the Upper Valley/Lake Sunapee Regional Planning Commission for CRJC's Grafton County Nonpoint Pollution Project, 1992*
- Model Stormwater Management and Erosion Control Regulation, *prepared by the New Hampshire Association of Conservation Districts, 1996*

APPENDIX D

REFERENCES & FURTHER READING

◇Connecticut River Water Quality Assessment, NH Dept. of Environmental Services and VT Dept. of Environmental Conservation, 1994. Prepared for the CRJC with support from the Environmental Protection Agency, this bi-state assessment of the watershed is written for a non-technical audience and describes general and specific water quality issues on the Connecticut River mainstem and its tributaries. It answers seven questions regarding water quality for each subcommittee region: Is river water drinkable? Can the fish be eaten? Are the existing dams contributing to a water quality problem? Is the river healthy from an aquatic life point of view? Can I safely swim in the Connecticut River? Can I use the water for water supply, irrigation, and other purposes? Can I discharge additional wastes to the river? It also answers the question of whether NH and VT contribute to the nutrient pollution of Long Island Sound. The report includes an extensive technical appendix and presents the states' strategies for correcting water pollution in the basin.

◇ Along the Northern Connecticut River: An Inventory of Significant Instream Features, Connecticut River Joint Commissions, 1994. This inventory contains the available information relating to in-stream features of the Connecticut River mainstem for both sides of the river. It covers water quality features, such as location of water quality and streamflow gauging stations, water withdrawals, and wastewater treatment facilities; river flow and riverbank features, such as dams, impoundments, and significant streambank erosion sites; and recreational features, such as whitewater segments, boat launch sites and campgrounds. Information is presented by local river subcommittee region both in tables and on GIS-based maps. An extensive annotated bibliography covers both technical publications and those focusing on Connecticut River history and travel. The inventory is also provided on a computer disk in the front of the notebook for easy reference. Designed to be user-friendly, it can be run on a personal computer using MS-DOS. The appendix includes instructions on how to operate the disk.

LIVING WITH THE RIVER series of publications by the Connecticut River Joint Commissions:

◇ A Homeowner's Guide to Nonpoint Source Water Pollution in the Connecticut River Valley, 1994. This booklet offers useful hints for homeowners on managing runoff, caring for septic systems, conserving water, and dealing with yard waste, bugs, and chemicals. It also offers alternatives for toxic household products and a directory of sources of help.

◇ The Watershed Guide to Cleaner Rivers, Lakes, and Streams, Brian Kent, 1995. Liberally illustrated, this guide describes the causes of nonpoint pollution, suggests ways to reduce and prevent it from reaching waterways, and provides basic ideas that citizens can use to help improve water quality in the valley. The report covers a number of best management practices for construction sites, developed areas, backyards, septic systems, gravel and sandpits, marinas, farms, golf courses, woodlots, and storage of hazardous materials, and includes a useful directory.

◇ A Citizen's Guide to River Monitoring in the Connecticut River Valley, Geoff Dates, River Watch Network, 1995. This user-friendly guide is intended to help people establish long-term, community-based, and scientifically credible river monitoring programs in the valley.

◇ The Challenge of Erosion in the Connecticut River Watershed, 1996. A series of informational fact sheets on riverbanks and buffers summarize the findings of a year-long multi-agency investigation into riverbank erosion. Written for the riverfront landowner or interested citizen, they cover river dynamics and the many causes of erosion, riparian buffers, streambank stabilization techniques, field assessment of problem sites, and a guide to permitting requirements on each side of the river.

◆ Cultural Landscape of the Connecticut River in New Hampshire and Vermont, Richard Ewald, draft report 1995, final report in publication. An illustrated report to the National Park Service from the CRJC, covering pre-history and early settlement, transportation, agriculture, industry, conservation, culture and government, architecture and settlement patterns, and tourism and recreation. Includes maps identifying selected sites of interest.

◆ Connecticut River Historic Sites Database, in preparation by Inherit NH for the CRJC. Computerized database of some 2800 historic sites in 27 riverfront communities from the MA border north to Orford and Fairlee.

◆ Connecticut River Valley: Opening New Markets for Agriculture, Conference Proceedings and Recommendations, 1994. This report reviews a valley-wide conference sponsored by the CRJC, and presents dozens of recommendations dealing with financing, market regulations, government support, processing and distribution, agri-tourism, cooperatives and contract marketing, and community supported agriculture. Farmland trends taken from supporting research papers are also summarized.

◆ Connecticut Valley Inventory, Vols. I and II, NH Connecticut River Valley Resource Commission (of the CRJC), 1989. Written in non-technical language, these two volumes are a source of basic information about the river and the NH side. Volume I covers corridor character, protected parcels, surface water quality, public access, boating suitability, fisheries, and endangered species. Volume II covers flood hazard areas and impoundments, aquifers, historic and archeological resources, and wildlife.

◆ The Connecticut River: Agenda for the Year 2000, NH Connecticut River Valley Resource Commission and VT Connecticut River Watershed Advisory Commission, 1989. This report is the conference proceedings of the "Bridges for Tomorrow" conference held jointly by the two state commissions. It includes visions in the areas of land use, water quality, aesthetics, economic development, and recreation. The report includes a description of the resource, watershed map, and strategies for the future.

◆ Findings to Support Classification of Segments of the Connecticut River, NH Connecticut River Valley Resource Commission, 1991. These findings, prepared with the help of citizens along the length of the river, nominated 34 specific segments of the river in several categories for classification and instream protection through the NH Rivers Management and Protection Program.

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◆ Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials, NH Dept. of Environmental Services, 1994. This useful reference explains nonpoint source pollution and concisely covers the best management practices, current laws and regulations, and reasons for concern for the top ten land use activities which can cause pollution. Individual actions are highlighted, as well as current watershed protection and planning.

◆Buffers for Wetlands and Surface Waters in New Hampshire, Audubon Society of New Hampshire, Concord, NH, 1995. A detailed look at the functions and benefits of shoreland buffers.

◆ Canoeing on the Connecticut River, Gary W. Moore, New England Power Co., 1996. Conveniently sized, up-to-date canoeing guide for the river in New Hampshire and Vermont. Provides useful information on portages, hazards, water flow, hunting and fishing rules, and contacts for river conditions.

◆ The Complete Boating Guide to the Connecticut River, Connecticut River Watershed Council, Easthampton, MA, 1986. This guide covers the river's passage through all four states, and includes illustrations, historical anecdotes, and maps.

◆ Connecticut River Erosion Inventory, Grafton County Conservation District in cooperation with the Soil Conservation Service, 1992. This study inventoried and classified erosion sites on the 89 miles of the river in Grafton County, NH. The three volumes include photographs and location and adjacent land use assessments.

◆ Connecticut River Erosion Inventory of Coos County, NH and Essex County, VT, Coos Co. Conservation District and Essex County Natural Resources Conservation District, 1995. This is a report on a field assessment of all erosion sites on the river in these two counties using the criteria developed by the 1992 Grafton County inventory and includes field data sheets, color photographs, and topographic maps marking the erosion sites, which are color coded for severity. A summary report is also available for public information.

◆ Connecticut River Basin Natural Valley Storage, Water Resources Study Reconnaissance Report, U.S. Army Corps of Engineers, 1994. This report for the Connecticut River Valley Flood Control Commission identifies critical natural valley storage areas in the basin and evaluates the potential impacts of continued development of these storage areas.

◆ Connecticut River Drainage Basin, Report on Water Pollution, prepared by Federal Security Agency Public Health Service, 1951. This report covering the four watershed states provides a detailed look at pollution sources and impairments on the mainstem and in the subwatersheds, and is interesting for comparison with the 1994 Connecticut River Water Quality Assessment.

◆ Finding Common Ground: Conserving the Northern Forest, Northern Forest Lands Council, Concord, NH, 1994. This report presents the findings and recommendations of the collaborative effort to reinforce the traditional patterns of land ownership and uses of large forest areas in the Northern Forest of NH, VT, NY, and ME.

◆ A Guide to the Connecticut River Primitive Campsites, Upper Valley Land Trust, Hanover, NH, 1996. Map and description of a system of 17 campsites along the river.

◆ Guide to the Preparation of Local River Corridor Management Plans, NH Dept. of Environmental Services, 1997. This guide is intended to help individuals and groups in NH develop a river corridor management plan, particularly local advisory committees working under the guidelines of the NH Rivers Management and Protection Program. It covers organization, setting goals, clarifying river values and threats, creating the plan, getting the plan approved, and implementing and monitoring the success of the plan.

◆ Improvement of Fisheries Management Techniques, NH Fish and Game Dept., 1993. Report of a creel survey on a 30 mile section of the Connecticut River between Pittsburg and Stratford, NH.

◆ Initial Consultation Document, Fifteen Mile Falls Project L.P. #2077, New England Power Company, 1996. Prepared by the company as part of the procedure of relicensing this hydroelectric project, Volume I contains a description of the sites, operations, and environmental and social setting of the three dams at NEP's Fifteen Mile Falls development. Volume II contains a series of maps relating to the project.

◆ Living with the River: a Landowner's Guide to Erosion Control on the Connecticut River, 1993. Public information pamphlet based on the results of the Grafton County survey, is available from the county conservation district.

◆ Native Vegetation for Lakeshores, Streamsides, and Wetland Buffers, VT Dept. of Environmental Conservation, 1994. This guide describes buffer strips and contains general considerations, native plant descriptions and maps of hardiness zones in VT for buffer strip enhancement.

◆ Natural Resources: An Inventory Guide for New Hampshire Communities, Upper Valley Land Trust and UNH Cooperative Extension Service, 1992. This manual is intended to help volunteer groups prepare, evaluate, and use the results of a local natural resource inventory. The text covers mapping options, and discusses a number of features a community might want to include in its inventory.

◆ New Hampshire's Inland Fisheries Operational Management Investigations for Region 4, NH Fish and Game Dept., 1995. Report of a study of Connecticut River walleye between Bellows Falls and Wilder dams.

◆ New Hampshire Natural Heritage Inventory, NH Dept. of Resources and Economic Development, 1995. Listing of plant and animal species and plant communities of special concern in each NH town along the Connecticut River, their rarity rank on a global and state level, listing under the federal Endangered Species Act, date last observed, and USGS quadrangle map.

◆ New Hampshire Resource Protection Project, New England Interstate Pollution Control Commission and Environmental Protection Agency, 1995. This project is a cooperative endeavor among federal, state and local government agencies along with private conservation and business interests. Its goal is to identify high priority natural resource areas in NH and assist in those regions' protection planning efforts. Using GIS technology, the study analyzed data on wildlife habitat, drinking water supplies, forestry, agriculture, recreation, and pollution threats. Six areas in NH were targeted for attention based on the value of their natural resources; two of the six are located in the area covered by this Plan: the Connecticut Lakes, and the river valley in the vicinity of Plainfield, Cornish, and Claremont.

◆ Public Access Plan for New Hampshire's Lakes, Ponds, and Rivers, NH Office of State Planning, 1991. This report covers public access efforts to date, standards for access, and discussions of needs and funding options.

◆ Silvio Conte National Fish and Wildlife Refuge Final Action Plan and Environmental Impact Statement, U.S. Fish and Wildlife Service, 1995. This extensive report details the findings of the Service in addressing Congress's direction to establish a wildlife refuge in the Connecticut River Valley, and environmental and economic consequences of five alternative plans of action. In addition to description of the plant, fish, and wildlife resources of the watershed, the report identifies sources of funding assistance, technical support, public concerns and comments, and various management options for land, water, and public education. The report also describes "special focus areas" identified by the Service.

◆ Vermont Recreation Plan, VT Dept. of Forests, Parks, and Recreation, 1993. This exhaustive report is contained in four volumes: Task Group Report, Assessment and Policy, Natural, Cultural, Human, and Recreational Resources, and Survey Report.

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MAPS

Series of GIS maps produced for the CRJC and the local river subcommittees by MicroDATA, with the support of VT Agency of Natural Resources, 1994. NOTE: These same maps are presented in Along the Northern Connecticut River: An Inventory of Significant Instream Features at a scale of 1:63,360.

Northern Connecticut River - Recreation. Map displays surface waters, roads, railroad routes, public boat launch sites, campgrounds, waterfalls and cascades, and whitewater segments for all NH and VT riverfront towns. Scale 1:100,000

Northern Connecticut River - Water Quality. Map displays NH Rivers Program segment designations, VT wastewater management zones, water quality sampling stations, gauge stations, point discharges, water withdrawals, hydro electric water use, municipal water supplies, surface waters, roads, and railroad routes for all NH and VT riverfront towns. Scale 1:100,000

Northern Connecticut River - River Flow and Shorelines. Map displays dam sites, impoundment zones, shoreline erosion distinguished as severe or moderate/unclassified, surface waters, roads, and railroad routes for all NH and VT riverfront towns. Scale 1:100,000

Headwaters Region - Water Quality, River Flow and Shorelines, and Recreation. Series of three maps as above, showing the towns of Pittsburg/Canaan through Northumberland/Maidstone, scale 1:31,680

Riverbend Region - Water Quality, River Flow and Shorelines, and Recreation.. Series of three maps as above, showing the towns of Lancaster/Guildhall through Haverhill/Newbury, scale 1:31,680

Upper Valley Region - Water Quality, River Flow and Shorelines, and Recreation. Series of three maps as above, showing the towns of Piermont/Bradford through Lebanon/Hartford, scale 1:31,680

Mt. Ascutney Region -Water Quality, River Flow and Shorelines, and Recreation. Series of three maps as above, showing the towns of Plainfield/Hartland through Charlestown/Rockingham, scale 1:31,680

Wantastiquet Region - Water Quality, River Flow and Shorelines, and Recreation. Series of three maps as above, showing the towns of Walpole/Westminster through Hinsdale/Vernon, scale 1:31,680

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Northern Connecticut River, Canada to Massachusetts - 150 Foot Buffer Zone, MicroDATA, 1994. GIS map produced for the CRJC showing all NH and VT riverfront towns. Displays restricted boat speed zone within 150 feet of shore, and areas greater than 150' from shoreline, surface waters, roads, and railroad routes. Scale 1:100,000

◆

Highlights of the New Hampshire Natural Resource Protection Project, New England Interstate Water Pollution Control Commission and the Environmental Protection Agency, 1996. GIS maps prepared for each of the five CRJC local river subcommittees show agricultural lands, unfragmented natural lands and shorelines, high value freshwater wetlands, drinking water supplies and pollution threats, bald eagle wintering sites, conservation and public lands, and some natural heritage inventory sites. Scale varies. Copies of the maps have been provided to NH riverfront towns through the local river subcommittees.

Connecticut River Rapids Macrosite, The Nature Conservancy, 1994. Draft GIS map prepared for U.S. Fish and Wildlife Service and Connecticut River Rapids Macrosite Committee, showing state and federally listed and candidate species, some protected lands, and potential pollution sources in the watershed region from the mouth of the Ompompanoosuc River to Weathersfield Bow. Scale 1:100,000

◆

GIS maps produced for the CRJC and local river subcommittees in 1994 by the U.S. Fish and Wildlife Service Connecticut River Coordinator's Office:

Communities. Series of maps showing the general location of unidentified biological communities of concern and their rarity within the watershed, in all the watershed towns in each LRS region. Accompanied by descriptive listing of these communities and their rarity rank on a state, watershed, and global scale, location unidentified. Scale 1:100,000

Plants. Series of maps showing the general location of unidentified plant species of concern and their rarity within the watershed, in all the watershed towns in each LRS region. Accompanied by descriptive listing of these species and their rarity rank on a state, watershed, and global scale, location unidentified. Scale 1:100,000

Wildlife. Series of maps showing the general location of unidentified wildlife species of concern and their rarity within the watershed, in all the watershed towns in each LRS region. Accompanied by descriptive listing of these species and their rarity rank on a state, watershed, and global scale, location unidentified. Scale 1:100,000

Bald Eagles in the Connecticut River Watershed. Map shows bald eagle use areas in the four-state watershed.

Waterfowl in the Connecticut River Watershed. Map shows waterfowl use areas in the four-state watershed.

Atlantic Salmon in the Connecticut River Watershed. Map shows the anticipated future fishery, current and future stocking and resting areas, and current and future migratory pathways for salmon in the four-state watershed.

American Shad in the Connecticut River Watershed. Map shows the current fishery, current and future stocking, spawning and resting areas, and current and future migratory pathways for shad in the four-state watershed.

Blueback Herring in the Connecticut River Watershed. Map shows current fishery, current and future stocking, spawning and resting areas, and current and future migratory pathways for herring in the four-state watershed.

◆

Connecticut River Basin Sampling Stations, NH Dept. of Environmental Services, 1994. Series of three GIS maps covering the entire watershed in NH and VT shows surface waters, sub-watershed boundaries, NPDES outfalls, and water quality sampling stations for the Connecticut River Watch Program, NH Dept. of Environmental Services, and VT Dept. of Environmental Conservation. Scale 1:150,000

◆

Series of GIS maps produced by North Country Council with support of NH DES, 1996:

Agriculturally Important Soils, Pittsburg-Clarksville, NH. GIS map created for the Headwaters LRS of all agriculturally important soils, as defined by Soil Conservation Service within ½ mile of the Connecticut River. Soils are distinguished as in active agricultural use or inactive, both protected and unprotected from development, and those soils lost to development. Total acreage of each category is provided.
Agriculturally Important Soils, Stewartstown-Northumberland, NH (As above).
Agriculturally Important Soils, Dalton-Lancaster, NH. (As above, created for the Riverbend LRS).
Agriculturally Important Soils, Haverhill-Littleton, NH (As above).

◆

Ascutney River Subcommittee Connecticut River Corridor Land Use, Upper Valley/Lake Sunapee Regional Planning Commission, 1996. GIS map prepared for the Mt. Ascutney LRS with support of NH DES, showing residential/commercial land use, croplands/pasture, forested land, farmsteads, gravel pits/utilities, and conservation lands in the area between Route 12A and the Connecticut River. Individual maps cover Plainfield, Cornish, Claremont, and Charlestown, NH. Scale 1:18,000

Potential Conflicts with Connecticut River Water Quality, Southern Windsor County Regional Planning Commission, 1993. GIS map of area between VT Route 5 and the river in Windsor, Weathersfield, and Springfield, showing buildings and recreation sites, land use, and land cover in addition to surface waters, roads and railroads, and town boundaries. Scale 1:16,000

Trails and Railroad Beds, Southwest Regional Planning Commission, 1995. GIS map showing trails and railroad beds covers the towns of Walpole, Alstead, Surry, Westmoreland, Keene, Chesterfield, Swanzey, Winchester, and Hinsdale. Scale 1:48,000

Windham Region Trails, Windham Regional Commission, 1995. Map shows several classifications of existing and proposed trails, Class 4 roads, public lands, regional and resort centers, and functional class roads in the Windham planning region of southeastern VT. Scale 1:100,000

Development Constraints by Soil and Existing Land Use, Southwest Regional Planning Commission, 1997. GIS map produced for the Wantastiquet LRS with support from NH DES shows important farmland, slopes 15% or greater, wetlands, and six categories of land use, with property lines, within ½ mile of the Connecticut River in Walpole, Westmoreland, Chesterfield, and Hinsdale. Acreage of each soil and land use type is included. Scale 1:42,000

Flood Area, Zoning, and Land Use, Southwest Regional Planning Commission, 1997. GIS map produced for the Wantastiquet LRS with support of NH DES shows 100 and 500 year floodplains and land use zones within

½ mile of the Connecticut River in Walpole, Westmoreland, Chesterfield, and Hinsdale. Acreage of the flood area and each zoning type is included. Scale 1:42,000

◆

Connecticut River Resource Protection Project. *Series of GIS maps produced by Windham Regional Commission for the Wantastiquet LRS and the riverfront Windham region towns, with support from the CRJC Partnership Program, 1997. Maps produced both for the region including Rockingham, Westminster, Putney, Dummerston, Brattleboro, and Vernon, and for each individual town. Scale varies.*

Protected Lands. Map includes Act 250 restrictions, and lands protected by conservation easement, fee ownership, and management agreements. Surface waters and major roads are included.

Water Resources. Map shows the watersheds of public water supplies and wellhead protection areas, in addition to surface waters and major roads.

Natural Resources. Map displays deer wintering areas, state fragile areas, slopes greater than 25%, and natural heritage inventory sites for vertebrates and invertebrate species, significant natural communities, and plant species, in addition to surface waters and major roads.

Current Use Lands. Map shows lands enrolled in the current use program for agriculture and for forestry, in addition to surface waters and major roads.

◆

Flood Hazard Boundary and Flood Insurance Rate Maps, Federal Emergency Management Agency, Boston, MA, various dates. These maps have been prepared as part of the National Flood Insurance Program. The flood hazard boundary maps show the extent of the one percent flood (a flood which has a 1% chance of occurring in any given year, erroneously called the "100 year flood") based on existing records and evidence. Flood insurance rate maps show the contour outlines of the one percent floodway (the part of the floodplain consisting of the channel and adjacent lands which carry floodwaters) and the natural flood storage area between the floodway and the outer limits of the one-percent floodplain. Potential elevations are shown of floods of varying frequency. These maps are used to determine actuarial insurance rates and local floodplain management areas. Hydrologic, geologic, and topographic data are used. Each town office has a set of these maps for public reference. Scale varies.

◆

Series of GIS maps created in 1992 by VT Geographic Information System with support of VT Agency of Natural Resources:

Connecticut River Watershed, Greenway Linkages and Compatible Sites. Displays all Vermont watershed towns within the working group area, showing various types of trails and utility corridors, campgrounds, scenic overlooks, major roads, and businesses potentially supporting a greenway. Scale 1:100,000

Connecticut River Watershed, Land Use Controls. Displays the status of land use controls in VT riverfront towns within the working group area, indicating whether zoning is in effect, as well as those towns with shoreland or groundwater protection regulations. Scale 1:100,000

◆

The Connecticut River Basin in New Hampshire and Vermont, USDA Soil Conservation Service Cartographic Center, 1989. Map produced for the NH and VT river commissions shows state, county, and local political boundaries, major roads, and surface waters in the watershed in NH and VT. Scale 1:267,000

APPENDIX E

NEW HAMPSHIRE & VERMONT COMMISSIONERS

1996-1997

NEW HAMPSHIRE

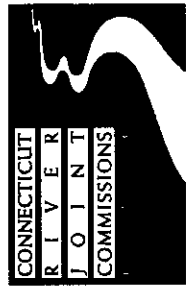
J. Cheston Newbold, Chair

Robert Christie, *Lancaster*
Michael Dannehy, *Woodsville*
Joan DeBrine, *Charlestown*
Richard Fabrizio, *North Haverhill*
Cleve Kapala, *Canterbury*
Kully Mindemann, *Keene*
Charles Puksta, *Claremont*
Robert Ritchie, *Haverhill*
Mary Sloat, *Northumberland*
Henry Swan, *Lyme*
Ann Sweet, *Sullivan*
John Tucker, *New London*

VERMONT

Peter Richardson, Chair

Dennis Borchardt, *Randolph*
Leonard Buchanan, *Brattleboro*
Peter Daniels, *Weathersfield*
Geoff Dates, *Hartland*
Kevin Geiger, *St. Johnsbury*
Peter Gregory, *Hartland*
Dick Hodge, *Ely*
Scott Labun, *Newbury*
John Lawe, *Norwich*
Beverly Major, *Westminster*
Tim McKay, *Peacham*
Lew Sorenson, *Dummerston*
Stephan Syz, *Montpelier*
Nat Tripp, *Barnet*


CONNECTICUT
RIVER
JOINT
COMMISSIONS

Voting Sheets

HOUSE COMMITTEE ON STATE-FEDERAL RELATIONS AND VETERANS AFFAIRS

EXECUTIVE SESSION on HCR33

BILL TITLE: **establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.**

DATE: March 07, 2000

LOB ROOM: 308

Amendments:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Motions: OTP, OTP/A, ITL, Re-Refer, Interim Study (Please circle one.)

Moved by Rep.

Seconded by Rep.

Vote: (Please attach record of roll call vote.)

Motions: OTP, OTP/A, ITL, Re-Refer, Interim Study (Please circle one.)

Moved by Rep. Young

Seconded by Rep. Lynott

Vote: 13-0 (Please attach record of roll call vote.)

CONSENT CALENDAR VOTE: 13-0

(Vote to place on Consent Calendar must be unanimous.)

Statement of Intent: Refer to Committee Report

Respectfully submitted,

Rep. James J. Fenton, Clerk

HOUSE COMMITTEE ON STATE-FEDERAL RELATIONS AND VETERANS AFFAIRS

EXECUTIVE SESSION on HCR33

BILL TITLE: **establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.**

DATE: 3-7-00

LOB ROOM: 308

Amendments:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Motions: OTP, OTP/A, ITL, Re-Refer, Interim Study (Please circle one.)

Moved by Rep.

Seconded by Rep.

Vote: (Please attach record of roll call vote.)

Motions: (OTP) OTP/A, ITL, Re-Refer, Interim Study (Please circle one.)

Moved by Rep. Young

Seconded by Rep. Lynott

Vote: (Please attach record of roll call vote.) 13-0

CONSENT CALENDAR VOTE:

(Vote to place on Consent Calendar must be unanimous.)

Statement of Intent: Refer to Committee Report

Respectfully submitted,

James J. Fenton

Rep. James J. Fenton, Clerk

OFFICE OF THE HOUSE CLERK 2000 SESSION

STATE-FEDERAL RELATIONS AND VETERANS AFFAIRS

Bill #: HCR-33 **Title:** Establishing a joint NH-VT cooperation Connecticut River

PH Date: 3/7/00 **Exec Session Date:** 3/7/00

Motion: _____ **Amendment #:** _____

MEMBER	YEAS	NAYS
Tufts, J Arthur, Chairman	✓	
Gagnon, Eugene L, V Chairman	✓	
Fields, Dennis H	✓	
Fenton, James J, Clerk	✓	
Rubin, George R		
Reardon, Neil J		
Flanders, David A		
Dalianis, Griffin T	✓	
Marple, Richard		
Ouellette, Dean		
Priestley, Anne K		
Quandt, Marshall E	✓	
Young, David A	✓	
Lynott, Margaret E	✓	
Domingo, Baldwin M		
Drabinowicz, A Theresa	✓	
Herman, Richard P	✓	
McDonald, James A	✓	
Vincent, Francis C		
Twardus, Joseph R		
Johnson, Gary Lance	✓	
McDonough-Wallace, Alice T	✓	
TOTAL VOTE:	13	0

Printed: 1/19/2000

Committee Report

COMMITTEE REPORT

COMMITTEE: **State-Federal Relations and Veterans Affairs**

BILL NUMBER: **HCR 33**

TITLE: establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

DATE: March 08, 2000 CONSENT CALENDAR YES ☒ NO ☐

☒ OUGHT TO PASS

☐ OUGHT TO PASS WITH AMENDMENT

☐ INEXPEDIENT TO LEGISLATE

☐ RE-REFER

☐ REFER TO COMMITTEE FOR INTERIM STUDY
(Available only in second year of biennium.)

STATEMENT OF INTENT
(Include Committee Vote)

The Connecticut River is a vital waterway for New Hampshire. HCR33 urges the congressional delegations of New Hampshire and Vermont to seek continued support from the New England Federal Partners for Natural Resources to the Connecticut River Joint Commission in order to carry out the recommendations of the Connecticut River Corridor Management Plan. The Committee voted 13-0, Ought to Pass.

Vote 13-0.

Rep. David A. Young
FOR THE COMMITTEE

Original: House Clerk
cc: Committee Bill file

USE ANOTHER REPORT FOR MINORITY REPORT

CONSENT CALENDAR

State-Federal Relations and Veterans Affairs

HCR 33, establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river. OUGHT TO PASS

Rep. David A. Young for State-Federal Relations and Veterans Affairs: The Connecticut River is a vital waterway for New Hampshire. HCR33 urges the congressional delegations of New Hampshire and Vermont to seek continued support from the New England Federal Partners for Natural Resources to the Connecticut River Joint Commission in order to carry out the recommendations of the Connecticut River Corridor Management Plan. The Committee voted 13-0, Ought to Pass. Vote 13-0.

COMMITTEE REPORT

COMMITTEE: **State-Federal Relations and Veterans Affairs**

BILL NUMBER: **HCR 33**

TITLE: establishing a joint New Hampshire-Vermont legislative cooperative effort regarding the Connecticut river.

DATE: 3/8/00 CONSENT CALENDAR YES ☑ NO ☐

☑ OUGHT TO PASS

☐ OUGHT TO PASS WITH AMENDMENT

☐ INEXPEDIENT TO LEGISLATE

☐ RE-REFER

☐ REFER TO COMMITTEE FOR INTERIM STUDY
(Available only in second year of biennium.)

STATEMENT OF INTENT
(Include Committee Vote)

Vote 13-0

Rep.
FOR THE COMMITTEE

Original: House Clerk
cc: Committee Bill file

USE ANOTHER REPORT FOR MINORITY REPORT

HCR33 OTP 13-0

The Connecticut River is a vital waterway for New Hampshire. HCR33 urges the congressional delegations of New Hampshire and Vermont to seek continued support from the New England Federal Partners for Natural Resources to the Connecticut River Joint Commission in order to carry out the recommendations of the Connecticut River Corridor Management Plan. The Committee voted 13-0, Ought to Pass.

David A. Young
For The Committee