

Appendix C. Summary of Recommendations, arranged by responsible party

Federal	Congress	<ul style="list-style-type: none"> take immediate priority action to reduce mercury contamination of the region. continue to advance legislation to curb the introduction of acid-rain producing pollutants, and of airborne mercury.
	USGS	<ul style="list-style-type: none"> maintain existing gages for public safety. Cooperate to add gages on Eastman and Mink Brooks, and consider adding a gage on the lower Mascoma River near its confluence with the Connecticut and on the lower Waits River.
	US Army Corps of Engineers	<ul style="list-style-type: none"> work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. coordinate flood control dam operations with mainstem dams to avoid local flooding where possible when flood waters need to be released from Union Village Dam. maintain the discharge from Union Village Dam at periods of low flow at run of river levels, or inflow=outflow, to protect aquatic life downstream. Institute larger water releases from the Union Village Dam every few years to maintain a more natural channel shape in the Ompompanoosuc River. The Corps should enable fish passage changes at the dam. provide financial assistance to Lebanon and Hartford to complete the elimination of CSOs. conduct a study of the effects of dam-related 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.
	FERC	<ul style="list-style-type: none"> institute a ramping rate at Wilder Dam in the next FERC license, to reduce soil piping in the riverbanks of the impoundment and to minimize negative effects on aquatic and riparian habitat; include a provision for emergency gate operation, such as in the context of a "black start" when the dam is needed to provide immediate power in case of a blackout. Assess possible effects of sediment build-up behind Wilder Dam and the extent to which it has affected flood storage capacity. Require the company to maintain discharge at run of river levels at periods of low flow in the next FERC license, to protect aquatic life downstream. encourage a dialogue between the owner of Wilder Dam and independent engineers to ascertain what steps could be taken at Wilder Dam to reduce its effects on the banks of the river, downstream as well as upstream.
	EPA	<ul style="list-style-type: none"> identify mechanisms for decreasing carbon dioxide emissions. work with the states to establish updated rules for disposal or return of unused medicines. Provide support to Hospitals for a Healthy Environment, a non-profit organization headquartered in the Upper Valley, to work with medical providers for more responsible disposal of medicines. Provide funding for education about disposal of pharmaceuticals and personal care products. continue with cleanup at the Elizabeth Mine and other mines.
	Cooperative Extension Service	<ul style="list-style-type: none"> educate hobby horse owners about ways to manage their land and animals to protect water quality. educate the general public about the many water quality protection measures used by and/or required of farmers, including regulations surrounding septage spreading. educate landowners, conservation commissions, and consulting foresters about the value of riparian buffers.
	NRCS & county conservation districts	<ul style="list-style-type: none"> work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. survey the Upper Valley reach of the river for the presence of hidden riverbank undercuts, and identify and test a means of restoring these cavities. revisit Birch Meadow Farm and other such projects to help the landowner evaluate the project's success, consider replanting unsuccessful parts of the buffer, and consider lessons learned in establishing buffers. sponsor a fluvial geomorphic assessment of the Connecticut River throughout the Upper Valley. continue research into appropriate methods of bank stabilization including the funding of test areas; expand education of riparian landowners concerning methods of stabilization such as conducting targeted workshops in municipalities along the river; expand programs that offer professional and financial assistance to riparian landowners for appropriate methods of bank stabilization; investigate ways to simplify the permitting process.
	US Fish & Wildlife Service	<ul style="list-style-type: none"> work with the states to establish updated rules for disposal or return of unused medicines.
	FEMA	<ul style="list-style-type: none"> apply hydrologic studies of the entire river completed in 2003 to update flood insurance rate maps for Lebanon, Hartford, and other Upper Valley towns upstream.
States	VT legislature	<ul style="list-style-type: none"> adopt statewide shoreland protection. continue to fund the CREP program. continue to advance legislation to curb the introduction of acid-rain producing pollutants, and of airborne mercury.
	NH legislature	<ul style="list-style-type: none"> consider developing shoreland protection measures for tributaries not currently covered by the Shoreland Protection Act. continue to advance legislation to curb the introduction of acid-rain producing pollutants, and of airborne mercury. pass legislation banning the use of phosphorous in dishwashing and laundry detergents, as Vermont has.

	Transportation agencies	<ul style="list-style-type: none"> • restore and retain riparian buffers to capture road pollutants. Minimize road runoff directly into waterways. • develop incentives for towns to use road sediment catchment systems. • keep culverts clear of woody debris. • work with state agriculture departments and natural resource agencies to educate the public and landowners about invasive species, rethink the timing of roadside mowing, and take care when disposing of spoils from mowing and excavation.
	Fish & wildlife agencies	<ul style="list-style-type: none"> • conservation officers notify their sister water quality agencies when water quality problems are observed. • continue to cooperate with watershed groups and conservation commissions to understand and address the Didymo infestation. Provide better color photographs on posters at boat launches. Use fishing license applications to educate the public.
	NH Dept. of Safety	<ul style="list-style-type: none"> • establish a comprehensive program of education for boaters concerning the impact of boat wakes; provide sufficient funding to enable increased enforcement of existing regulations concerning boat wakes.
States	Environmental agencies (NH DES and VT DEC)	<ul style="list-style-type: none"> • provide funding to ensure adequate and regular water quality monitoring; identify monitoring gaps and ensure coverage; continue to encourage volunteer water quality monitoring activities on tributaries. • communicate results of water quality monitoring more readily to the public, especially to conservation commissions. • investigate new methods to capture pollutants and encourage research into new technology; share the information with towns. • continue and expand education of landowners, developers, and land use boards on the value of maintaining riparian buffers. • take immediate priority action to reduce mercury contamination of the region. • identify and eliminate sources of PCB contamination. • identify mechanisms for decreasing carbon dioxide emissions. • work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. • develop an instream flow policy for rivers and streams that contribute to the flow of the Connecticut River. • work with large water users to examine their present water use and identify areas for conservation. • do not allow landfills, salvage yards, and junkyards to be located above aquifers or on varves. • assist towns and landowners in prioritizing and clean up contaminated groundwater sites and monitor for possible MtBE contamination. Educate people to handle automotive fluids, pesticides, medicines, and other chemicals properly so they don't contaminate their own wells, and educate them about less hazardous alternatives. Educate people to keep their septic systems functioning properly with regular maintenance. Educate people about the source of their water, including carrying water bottles filled from their own tap for drinking, rather than purchasing bottled water. • educate the public and local governments about the benefits of reclaiming gray water and water conservation. Explore ways to reuse or reduce wastewater and new technology to avoid new discharges to the river or to groundwater. Explore alternatives to adding conventional wastewater treatment plants. • provide financial assistance to Lebanon and Hartford to complete the elimination of CSOs. • work with EPA to establish updated rules for disposal or return of unused medicines. • develop best practices for resource recovery activities at landfills. • work with towns to improve prevention of runoff problems related to large scale clearing for development. • continue to cooperate with watershed groups and conservation commissions to understand and address the Didymo infestation. Provide better color photographs on posters at boat launches.
	NH DES	<ul style="list-style-type: none"> • conduct biomonitoring in areas of intensive development, such as riverside development in West Lebanon, to search for ecological effects of pollution. • evaluate whether sediments at the Wilder site pose any human health risks to swimmers, since a river recreation facility is under consideration for this site. • maintain existing gages for public safety. Cooperate to add gages on Eastman and Mink Brooks, and consider adding a gage on the lower Mascoma River near its confluence with the Connecticut. • evaluate whether requests for withdrawals have increased in order to decide whether the 20,000 gallon threshold for registering water users should be lowered. • educate town officials and landowners about the Comprehensive Shoreland Protection Act, including responsibility for enforcement, and should continue to offer training sessions on the Shoreland Protection Act for realtors that would count toward continuing education requirement. Provide adequate Shoreline Protection staffing for compliance. • consider working with the regional planning commissions on a bridge and culvert survey program similar to Vermont's. • pursue fluvial hazard erosion mapping similar to Vermont's.
	Vermont DEC	<ul style="list-style-type: none"> • consider adding a gage on the lower Waits River. • explore establishing a program to register water users. • identify and map groundwater supplies working with the towns. • update its posting of hazardous sites on the web.

Towns	town management	<ul style="list-style-type: none"> • avoid incineration of construction and demolition debris, which can put heavy metals and dioxins into the air. • identify mechanisms for decreasing carbon dioxide emissions. • monitor dams within their borders, for safety and environmental reasons. Educate the public about local flood hazards and emergency procedures. • sponsor more regular household hazardous waste collections. • pursue careful and prompt maintenance of all wastewater treatment facilities which discharge into waters which reach the Connecticut River. Encourage tertiary treatment. Reduce phosphorus entering from wastewater treatment facilities - encourage use of low-phosphorus detergents. • in NH, ask for help from regional planning commissions and NH DOT to survey culverts and bridges to identify those that are undersized; also note if they block fish passage and seek grants for replacing them where necessary. • Lebanon should continue seeking funds to clean up the Westboro Rail Yard.
	Planning boards & commissions	<ul style="list-style-type: none"> • adopt ordinances prohibiting filling and building in the 100-year floodplain and on flowage rights of way. Consider establishing a building setback that reflects local soil conditions and the historic record of soil loss into the river, and ensure that buildings are set a safe distance back from the river even when outside of the floodplain. Include recommendations in master plans concerning water quality and shoreline protection measures and implement them by adopting regulations supporting those measures. Encourage developers and landowners to establish and/or maintain buffers of native vegetation along rivers and streams for privacy and pollution control. • encourage developers to keep natural drainage patterns and use swales and depressions (“rain gardens”) to reduce runoff, and work with developers to follow through on 2002 Upper Valley stormwater conference. Include “low impact development” ideas as they review projects, and at how to change existing development to reduce runoff and promote stormwater infiltration. Require additional treatment to remove oil, metals, and other pollutants for new discharges to surface waters and dry wells, and ensure that these treatment systems are maintained over time. • require sedimentation and erosion controls before, during and after construction, and do not permit septic systems close to water bodies.
Towns	Planning boards & commissions	<ul style="list-style-type: none"> • ask regional planning commissions for help with culvert and bridge survey to identify those that may be too small or damaged, ineffective, or plugged. • understand their capacity for providing drinking water and establish a baseline for use. Take advantage of surficial geology mapping assistance available from state geological survey offices. Confirm with the state whether their identified water supply information is correct. Identify old dump sites to look for those close to ground and surface water supplies. Evaluate water supplies for short and long term growth. Ensure adequate setbacks and lower density for clearing, building, and septic systems over recharge areas. Consider wellhead protection; take advantage of community source water protection grant and loan programs. Work with large water users to examine their present water use and identify areas for conservation. • not allow landfills, salvage yards, and junkyards to be located above aquifers. • understand the limited capacity of Wilder impoundment to assimilate further waste when planning future development. • do not permit landfills to be located on aquifers or varves. • in NH, do not issue permits for projects that violate state shoreland protection law. • work with state geologists to map varves in their towns, to be sure major construction takes these soil features into account. • focus on smart growth to help avoid the need for new roads near rivers and streams; when they are necessary, design them to include adequate riparian buffers. • protect the river and its tributaries from storm water runoff by requiring suitable filtration of the runoff and minimizing impervious surfaces adjacent to water bodies. Discourage roads and development on steep slopes to control stormwater runoff. Work with states to improve prevention of runoff problems related to large scale clearing for development. • consider a cost of community services study to investigate how conservation easements can help keep town service and school costs down if the land is not developed into house lots or into second homes which could later become year-round residences.
	conservation commissions	<ul style="list-style-type: none"> • consider setting up water quality monitoring programs in their towns and share results. • work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. • in the Mascoma River watershed, nominate the Mascoma River into the NH Rivers Management and Protection Program. • educate people to handle automotive fluids, pesticides, medicines, and other chemicals properly so they don't contaminate their own wells, and inform them about less hazardous alternatives. Educate people to keep their septic systems functioning properly with regular maintenance. Educate people about the source of their water, including carrying water bottles filled from their own tap for drinking, rather than purchasing bottled water taken from somebody else's aquifer. • educate people to wrap and discard their unused and out-dated medicines in regular household trash rather than flushing. • strongly encourage citizens to make use of regular household hazardous waste collections, including organizing car pooling or “waste pooling.” Encourage mercury product recycling, especially of new low wattage long-life light bulbs and electronics, and encourage paint swaps and educate the public on how to dispose of paint, since paint is expensive to treat. • hold an annual “Green Up” Day. • educate pet owners to pick up pet waste by providing information when dogs are registered. • investigate how conservation easements can promote agriculture and protect water quality. • educate landowners to establish, maintain and enhance the native riparian buffer vegetation on their property. • promote responsible stewardship of forest lands. • communicate with landowners around ponds and rivers covered by the Shoreline Protection Act. • educate the public and town recreation departments about invasive aquatic species.

	Road crews	<ul style="list-style-type: none"> • use best management practices (BMPs) for handling and disposing of toxic substances. • restore and retain riparian buffers to capture road pollutants. • be sure that culverts and bridges are sized properly in order to carry the water that might come their way during larger storms. Keep culverts clear of woody debris. • support a policy of salt reduction on roads as well as prioritize efforts to identify and introduce use of less toxic salt substitutes. Locate all salt storage at least 250 feet from rivers. • follow snow disposal best management practices. Snow should be stored on flat, pervious surfaces, such as grass, and at least 100 feet from the edge of a stream or river, with a silt barrier between the snow and the stream. There are larger setbacks for snow disposal near public wells. Once snow melts, debris should be quickly cleared from the site and brought to the landfill. Sweep bridges first in spring to capture solids that remain from winter sanding, before washing. Towns should test the areas where they have piled snow for many years, to see if lead has accumulated in the soil. • minimize road runoff directly into waterways. • rethink the timing of roadside mowing, and take care when disposing of spoils from mowing and excavation.
Regional organizations	Regional Planning Commissions	<ul style="list-style-type: none"> • evaluate the area's wastewater treatment system capacity. Understand the limited capacity of Wilder impoundment to assimilate further waste when planning future development. • in NH, survey culverts and bridges to identify those that are undersized; also note if they block fish passage and seek grants for replacing them where necessary. • Upper Valley Lake Sunapee Regional Planning Commission should seek a grant to conduct a brownfields inventory of its member towns, and prioritize cleanup.
	Upper Valley Land Trust	<ul style="list-style-type: none"> • work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. • help towns and landowners understand how conservation easements can promote agriculture and protect water quality.
	solid waste districts	<ul style="list-style-type: none"> • assist towns in holding more frequent household hazardous waste collections and sites. • assist towns in exploring options to create greater recycling markets, especially for plastics, and encourage more recycling of more materials. Explore incentives for greatly reducing solid waste, including construction materials.
Utilities	Trans Canada	<ul style="list-style-type: none"> • request the help of Two Rivers/Ottawaquechee Planning Commission for a Phase I brownfields assessment of its property near the former paper mill site in Wilder, as part of the redevelopment of the area, and pursue a Phase II assessment (drilling, sampling, and monitoring) if approved by EPA.. • alert towns if a problematic ice jam is anticipated.
	Railroad	<ul style="list-style-type: none"> • abandon policy of eliminating the riparian buffer where the tracks pass along the river's edge, and avoid using herbicides near water. Seek a native species for vegetative cover that grows thickly and only a few feet high, that can be controlled with mowing every 5-10 years. Employ best management practices in siting structures such as salt sheds in order to protect water quality. • expand testing of groundwater near the Ely salt shed, particularly in swales below the shed. • locate all salt storage at least 250 feet from rivers.
Business		<ul style="list-style-type: none"> • recycle as much material as possible. • Local outfitters and guides and outdoor stores where bait is sold should educate their customers and participants about Didymo and other invasives, and urge them to clean their gear. Pet shops should educate their customers not to release aquarium animals or plants.
Volunteer groups	Watershed groups	<ul style="list-style-type: none"> • participate in the relicensing process for Wilder Dam. • Mascoma River Watershed Council should consider nominating the Mascoma River into the NH Rivers Management and Protection Program.
	Recreation groups	<ul style="list-style-type: none"> • local recreation programs should educate their participants about Didymo and other invasives, and urge them to clean their gear. • fishermen should not release unused bait into the water. • boaters or divers traveling from waters infested with zebra mussel must wash and dry all equipment before reuse, hose off the boat, diving gear or trailer, and drain and flush the engine cooling system and live wells of the boat, bait buckets and the buoyancy control device from diving equipment.
Landowners	Dam owners	<ul style="list-style-type: none"> • Managers of other tributary dams where flow can be managed, such as at Mascoma Lake, should coordinate operations with mainstem dams during spring runoff. • consider removing dams that no longer serve a purpose and cost more to fix than the benefits they offer or are a threat to areas downstream.
	Developers	<ul style="list-style-type: none"> • minimize road runoff directly into waterways. • include infiltration methods such as many small swales and runoff basins to capture runoff for groundwater recharge.
	Farmers	<ul style="list-style-type: none"> • those who do not yet have a nutrient management plan should work with conservation districts and Cooperative Extension Service to prepare one; employ best management practices. Farmers should not cultivate or pasture to the edge of the river or streambank; Vermont farmers should take advantage of the CREP program to cover the costs of reserving a riparian buffer area. Eliminate non-point sources of bacterial contamination, such as from livestock which have access to the river and its tributaries.
	Forest landowners	<ul style="list-style-type: none"> • avoid logging on steep slopes near the river, and in the riparian buffer. • consider conserving forest lands.

	Waterfront landowners	<ul style="list-style-type: none"> • work with public and private entities to retain current natural flood storage, such as in wetlands and floodplains. • learn about the proper use and disposal of fertilizers, pesticides, and toxic materials; refrain from using fertilizer within 250' of rivers, and consider alternatives to chemical fertilizers, herbicides, and pesticides. Consult CRJC's <i>Homeowner's Guide to Nonpoint Source Pollution in the Connecticut River Valley</i> (1994).
	All landowners	<ul style="list-style-type: none"> • use best management practices (BMPs) for handling and disposing of toxic substances. • avoid burning of household trash, which is illegal in both states. • know the location of and regularly maintain on-site septic systems. • aquarium owners should not release aquarium plants and animals into the water but dispose of them by freezing or drying before putting them in the trash.