Chapter 1 - Common concerns in Basin 14

Section 1-3 Nonpoint source pollution in Basin 14

COMMON GOAL: REDUCE THE AMOUNT OF NPS POLLUTION AND SEDIMENT ENTERING BASIN 14 STREAMS, RIVERS AND LAKES.

Objective: Reduce levels of NPS pollution from agricultural, developed, and forested lands.

Strategy	Key Players	Funding source	Timeframe	Status
1. Enroll farmers into CREP or State BMP buffer programs on one mile of riverbank in Basin 14.	NRCS, AAFM	CREP, State BMP funding	2112	
2. Continue offering Nutrient Management Plan (NMP) courses and financial incentives with a goal of 50% of the acreage of agricultural lands in the watershed with current NMP and 100% in the Ticklenaked Pond watershed.	NRCS, AAFM, UVM -Ext	EQIP, NMPIG	2112	
3. Continue and expand work with agricultural producers to reduce runoff from farmsteads and farm fields with a priority on farms within the Ticklenaked Pond watershed.	NRCS, AAFM	EQIP, State BMP	Ongoing	
4. Lead a series of educational workshops for part-time farmers and horse owners in Basin 14 covering best management practices.	NRCS, WRNRCD, CCNRCD, UVM - EXT	CRJC PG	2010	
5. Provide outreach to landowners about impacts of over-fertilizing lawns and the importance of establishing and maintaining buffer strips along streams and ponds to reduce NPS pollution. Distribute "Don't P on the Lawn" brochure.	CC's, CCNRCD, WRNRCD	CRJC PG, WEF, C&C	2010	
6. Hold educational workshops for forest landowners with forestry groups such as Vermont Coverts.	NRCS, DFPR, Local Vermont Coverts cooperators, Center for Woodland Education	WEF	2008 ongoing	*possible skidder bridge workshop in the region
7. Increase logger education on water quality issues through the Center for Woodland Education, the LEAP program and the Vermont Loggers Association's Forestry Academy to encourage good forestry practices in the watershed.	NRCS, DFPR, Local Vermont Coverts cooperators, Center for Woodland Education, LEAP program	WEF	2008 ongoing	

Section 1-5 Transportation-Related Pollution in Basin 14

COMMON GOAL: MINIMIZE CONFLICTS BETWEEN STREAMS' NATURAL FUNCTIONS AND TRANSPORTATION INFRASTRUCTURE.

Objective: Reduce erosion from road surfaces, ditches and banks in Basin 14.

Strategy	Key Players	Funding source	Timeframe	Status
8. Hold a series of Local Roads workshops in Basin 14 to increase awareness of maintenance measures that will reduce gravel road erosion. Encourage the participation of all town highway managers and road crews in the watershed.	town selectboards and road commissioners, Local Roads Program, RMP	NVRCDC, CRJC PG	2010	
9. Develop capital road improvement budgets for all towns in Basin 14.	town selectboards, road commissioners	Better Backroads grants	2012	
10. Identify Better Backroad grant opportunities by touring watersheds with road commissioners from each town. Apply for Better Backroad grants in all watershed towns to address the most serious road-related erosion problems.	DEC, road commissioners, selectboards, Local Roads Program	Better Backroads grants, municipal stormwater mitigation grants, town highway funds	2012	
11. Compile guidance on winter sanding and salt application and distribute to towns in Basin 14 to encourage the development of policies that will reduce salt and sand application in the watershed. Provide outreach to the general public on the impacts of salt and sand application to reduce the pressure for their expanded use.	Road commissioners, VTrans, Local Roads Program, DEC	N/A	2010	Article on this topic in Vermont Local Road News.

Strategy	Key Players	Funding source	Timeframe	Status
12. Work with road crews in the watershed to put in a grant for a hydroseeder that could be used by all towns in the watershed and possibly landowners to stabilize ditches.	Road crews and commissioners, CC's, and selectboard members in the basin, VTrans	Municipal Stormwater Mitigation Grant, Better Backroads grant	2008	Missed 2008 Deadline
13. Work with all municipalities in the watershed to adopt and actively implement the following programs or standards: **A.** Town road and bridge standards consistent with or exceeding those listed under Town Roads & Bridges Standards, Handbook for Local Officials, VTrans 2004. **B.** Driveway/highway access (curb cut) construction ordinances meeting the standards outlined in the Highway Access Policy and Program Guidance and Model Ordinance, VT Local Roads Program, May 1997.	Road crews and commissioners, CC's, and selectboard members in the basin, VTrans	Town Funds, Increased state match for class 2 road projects and reimbursement for disaster relief.	2012	
14. Compile available bridge and culvert survey data in the basin and present this information to watershed towns and develop a list of priority culverts for replacement based on likely hood of culvert failure, geomorphic impacts and aquatic species passage concerns.	Road crews and commissioners, CC's, and selectboard members in the basin, VTrans, TRORC, NVDA, RMP, DFW	Better Backroads grant, UCM&E	2009	Culvert analysis program completed.
15. Work with town road commissioners and selectboard members to replace top priority culverts in each town.	Road crews, CC's, and selectboard members, VTrans, TRORC, NVDA, RMP, DFW	Better Backroads grant, UCM&E	2010	
Section 1-6 Lakes, Dams and Wetlands in Basin 14				
COMMON GOAL: PROTECT AND RESTORE THE NATURAL ENVIRONMENTS OF LAKES AND PONDS IN BASIN 14 TO SUPPORT WATER QUALITY, RECREATION AND AESTHETICS.				
Objective: Prevent the spread of aquatic and riparian invasive species in Basin 14.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
16. Hold a Vermont Invasive Patrollers workshop in Basin 14 and form survey groups to patrol the watershed to identify and control new riparian or aquatic species populations before they are well established.	lake associations, VIP, DEC - AIS, NEKISI	ANC, Watershed Grants, CRJC	2009	Complete. Held workshop in summer of 2008 at Lake Fairlee.
Objective: Define levels of mercury contamination in Harveys Lake and Lake Fairlee.				
17. Evaluate the levels of mercury in Harveys Lake and Lake Fairlee and tailor fish advisories to these results.	DEC, DOH, DFW	State funds	2012	
Objective: Protect and restore wetlands in the Basin 14.				
18. Work with conservation commissions to map existing wetlands and wetland functions and values covering at least half of the towns in the watershed. Use this information to prioritize the protection or restoration of wetlands in the watershed.	CC's. VT Wetlands Section	UCM&E, CRJC PG, Watershed Grant	ongoing	West Fairle and Corinth Surveys completed. Thetford survey proposed.
19. Complete one wetland protection or restoration project in Basin 14.	VT Wetlands Section, UVLT, CC's.	UCM&E, CRJC PG	2012	Possible UVLT wetland conservation project in Thetford.
Objective: Increase the length of natural flow conditions in Basin 14.				
20. Identify existing dams which are no longer used in the watershed and are candidates for removal. Remove one dam in Basin 14 and restore the natural flows and riverine habitat.	Dam Task Force, CRWC, Hydrology Program, private dam owners	UCM&E	2012	

Chapter 2 - The Stevens River Watershed				
Section 2-2 Improving Water Quality Awareness in the Stevens River Watershed				
GOAL: ESTABLISH BASELINE WATER QUALITY MEASUREMENTS OF THE STEVENS RIVER WATERSHED AND PRESENT THIS INFORMATION TO THE PUBLIC.				
Objective: Identify reference reaches in the Stevens River watershed.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
21. Use all available good quality data on the physical, chemical, and biological values of the waters, and collect any additional necessary data in the watershed to establish reference reaches.	Peacham Conservation Commission, DEC	LaRosa, CRJC PG	2009	Macroinbertrabriate and fish sampling completed in 2007
Objective: Expand and consolidate monitoring data in the watershed to provide a complete picture of the current water quality conditions.				
22. Provide results of water quality testing and information about the water quality of the watershed to the public through schools, the web, and the local library.	Stevens River Watershed Council, school, libraries, local media	CRJC PG	2009	
23. Continue lay monitoring programs in the watershed. In 2012 follow up on 2005 and 2007 stream sampling to determine if success has been made in addressing sources of sediment and phosphorus, and to look into any new threats to water quality in the Stevens River watershed.	Peacham Conservation Commission, Stevens River Watershed Council	LaRosa, CRJC PG	2012	
Section 2-3 Nonpoint Source Pollution in the Stevens River Watershed				
GOAL: REDUCE THE AMOUNT OF SEDIMENT AND NPS POLLUTION ENTERING THE STEVENS RIVER.				
Objective: Reduce conflicts between road infrastructure and the Stevens River, reducing pollution and long term maintenance costs.				
24. Support the creation of an active conservation commission in Barnet to act as advocates for the watershed including such things as supporting driveway and private road ordinances, following up on bridge and culvert surveys and seeking funding.	selectmen, planning commissions, interested citizens	NA	2012	
25. Evaluate runoff from the Peacham and Barnet municipal sand piles and cover if needed.	selectmen, road foremen	town funds, Municipal Stormwater Mitigation Grant	2009	
Objective: Reduce nonpoint pollution from the agricultural, developed, and rural landscape.				
26. Participate in the Source to Sea clean up to clean up trash and historical dump sites along the river's edge. Work with local communities to reduce the number of abandoned cars along the Stevens River and in the Stevens River watershed.	Peacham Conservation Commission, community volunteers, CRWC	NEKWMD, CRWC	2010	
Section 2-4 River Corridor Management in the Stevens River Watershed				
GOAL: MAINTAIN AND WHERE NEEDED, RESTORE THE EQUILIBRIUM CONDITION OF THE STEVENS RIVER.				
Objective: Identify and protect stable reaches.				
27. Complete Phase 1 and Phase 2 geomorphic assessments of the Stevens River watershed including an analysis of the results and a final report.	CCNRCD, RMP,	UCM&E, RCG	2009	
28. Protect land along the Stevens River where there are existing riparian buffers, significant wetlands, or where land is important to maintaining the rivers stability as determined by the geomorphic assessments and future river corridor plan.	private landowners, UVLT, municipalities, CCNRCD, Peacham Conservation Commission	UCM&E, VHCB, USDA	2012	
Objective : Increase the participation of the public and towns in stream corridor protection.				
29. Present Phase 1 and 2 geomorphic assessment results to the general public and	CCNRCD, RMP, towns	UCM&E	2009	

riparian landowners to expand public understanding of river dynamics including best practices to promote stable streams.				
30. Develop a river corridor plan for Barnet and Peacham to develop conservation and restoration priorities.	CCNRCD, RMP, towns, DEC, selectboards, Peacham Conservation Commission	UCM&E, RCG	2011	
31. Create minimum consistent zoning that would protect rivers in the watershed through setbacks and riparian buffer ordinances, and flood hazard zones and overlay districts.	CCNRCD, RMP, Towns, DEC, selectboards, Peacham Conservation Commission, NVDA	UCM&E, RCG	2012	
Objective: Recognize reaches of the Stevens River where it is out of equilibrium and where needed, restore riparian vegetation.				
32. Implement restoration or corridor protection projects at the Barnet School and on other reaches identified through the geomorphic assessments and river corridor planning process.	Local landowners, RMP, CCNRCD	319, UCM&E, tree programs, CREP, RCG	2012	
Section 2-5 Lakes and Dams in the Stevens River Watershed				
GOAL: PROTECT AND RESTORE THE NATURAL ENVIRONMENTS OF LAKES AND PONDS IN THE STEVENS RIVER WATERSHED TO SUPPORT WATER QUALITY, RECREATION AND AESTHETICS.				
Objective: Protect areas of existing natural lakeshore and on developed lakeshores, increase riparian vegetation and reduce erosion and nutrient runoff.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
33. Ensure the protection of portions of undeveloped shorelines on Fosters, Ewell, and Martins Ponds through voluntary conservation of at least one property on these lakes and ponds.	State of Vermont, VRC, Towns of Barnet and Peacham, Planning commissions.	VHCB	2012	
34. Maintain existing shoreline vegetation through the creation of shoreline zoning with vegetated buffers for all watershed towns.	State of Vermont, Towns of Barnet and Peacham, Planning commissions, VLCT.	NA	2012	
35. Hold a workshop or series of workshops on lakeshore management to cover such topics as buffer restoration and low impact lawn care and landscaping.	Lake Associations, Land Trusts, DEC, planning commissions	Watershed Grant, CRJC PG	2009	
Objective: Prevent the spread of aquatic and riparian invasive species to the Stevens River watershed.				
36. Continue efforts of the Harveys Lake Association to prevent invasive species spread through use of the boat wash and boater education.	Harveys Lake Association, DEC - AIS	ANC	ongoing	
37. Increase the level of communication between lake associations and residents to prevent spread of invasive species into the watershed. Send out a mailing to lake and pond residents about exotic species and other common lake and pond issues.	Lake Associations, DEC - AIS, DEC	ANC, local fundraising	2009	
Objective: Prevent, eliminate or reduce the negative impacts of dams and water withdrawals in the Stevens River watershed.				
38. Address the issue of the back flow of water from South Peacham Brook into Harveys Lake.	Harveys Lake Association, DEC		2012	
39. Continue ongoing discussions between the Ben's Mill Trust and state and federal regulators on alternatives for repowering the historical Ben Threshers Mill.	Ben's Mill Trust, DEC, F&W, US F&W	Local Fundraising, historic preservation grants, CLG	2012	

Chapter 3 – The Wells River Watershed				
Section 3-2 Improving Water Quality Awareness in the Wells River Watershed				
GOAL: ESTABLISH BASELINE WATER QUALITY MEASUREMENTS IN THE WELLS RIVER WATERSHED AND PRESENT THIS INFORMATION TO THE PUBLIC.				
Objective: Provide a complete picture of the current water quality conditions through expand monitoring.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
40. Expand the volunteer monitoring program with a minimum of monthly sampling of turbidity, oxygen, conductivity, temperature and pH along the main stem of the Wells River.	volunteers, Newbury Conservation Commission, DEC, WRWC	Borrow equipment, LaRosa, EPA	2008	
Objective Make water quality testing results easily available to members of the watershed				
41. Alert the public to any alarming water quality data or trends in the results by getting this information to lake associations, municipalities, newspapers and other interested parties.	DEC, WRWC, DFPR, BLUE camp, LMP, other volunteers	State funds, CRJC PG,	ongoing	
42. Make annual water quality data easily accessible online and linked to lake association and town web sites.	DEC, Watershed Council, BLUE camp, LMP, lake associations	State funds, CRJC PG	2009	
Objective: Increase the involvement of students and volunteers in collecting water quality data.				
43. Involve one class of students and volunteers in watershed sampling such as macroinvertribate sampling, chemical sampling, or fish surveys.	WRWC, Blue Mountain School, libraries	LaRosa	2008	
44. Continue the BLUE camp by establishing partnerships between local schools and summer programs. Continue its mission of informing local students and the local community of the relationship between land use and water quality.	WRWC , WRNRCD, UVM watershed Alliance	Sustainable future grants, CRJC PG, Ducks or Trout Unlimited, local funding	2012	Completed. worked out camp with VINS and continued school program in 2008.
Section 3-3 Nonpoint Source Pollution in the Wells River Watershed				
GOAL: REDUCE THE AMOUNT OF SEDIMENT AND NON POINT POLLUTION ENTERING THE WELLS RIVER.				
Objective: Reduce levels of NPS pollution from the agricultural, developed, and rural landscape.				
45. Monitor the Newbury Landfill and paper mill disposal site for leachate into the Wells River and address any concerns as they are found. Provide information to landowners about proper handling of historical dump sites on their property.	CC's, selectboards, Vermont Waste Management Division		ongoing	Site Visit planned for 2009 at Paper mill disposal site
46. Identify gravel pits in the watershed and work with landowners to revegetate any gravel pits that are causing sedimentation in the Wells River.	DEC, conservation commissions	WHIP	2008	
47. Encourage low impact development standards to reduce stormwater runoff from commercial developments and local villages.	CC's, town selectboards, TRORC, NVDA, DHCA, DEC	604b	ongoing	
Section 3-4 Wells River Stream Channel Instability and Aquatic Habitat				
GOAL: MAINTAIN AND, WHERE NEEDED, RESTORE THE EQUILIBRIUM CONDITION OF THE WELLS RIVER				
Objective: Protect stable reaches, intact floodplain, and forested river corridors.				
48. Complete Phase 1 geomorphic assessments of the Wells River watershed and Phase 2 geomorphic assessments with a priority of the following Six locations: ➢ the S curves above West Groton where bank has been armored; ➢ around possible impacts from dams on Lake Groton and Ricker Ponds; ➢ in Groton Village; ➢ near South Ryegate on reaches where the Route 302 has been moved;	CNRCD, NVDA, RMP	UCM&E, RCG	2009	Phase 1 SGA is in progress. Scheduled to be completed by

➢ above and below the interstate bridge; and ➢ in the Town of Newbury to provide the basis for FEH mapping.				
49. Protect floodplains identified through the geomorphic assessments as important for maintaining the stability of the Wells River. Work with land trusts to include language in conservation easements that protect floodplains and buffers for maintaining or restoring stream stability.	UVLT, RMP, VRC, conservation commissions	UCM&E, VHCB	2012	
50. Protect and provide public access to unique features along the river. The Wells River has many waterfalls, historical mill sites, and beautiful areas where it is important to maintain public access to help keep people connected with the river. Some of these sites include: ➢ Boltonville Falls ➢ the chutes and historical foundations at the Fish and Wildlife Access ➢ Access to the Wells River from the Wells River Railroad	conservation commissions, VRC, UVLT, CVT, Historic preservation	VHCB, Town Conservation Funds	2012	
Objective: Encourage increased participation from the public and towns in stream corridor protection.				
51. Develop a river corridor plan for the Wells River watershed to reduce human river conflicts and to protect buffers of an appropriate width for the river type.	NVDA, TRORC, selectboards, CNRCD	RCG, UCM&E	2010	
52. Encourage and advise towns on including minimum building setbacks and natural buffers along streams in town plans and zoning. Help to coordinate between towns to provide consistent protection for the Wells River for its entire length.	NVDA, TRORC, VLCT	604b	As town plans and zoning are revised	
53. Develop and implement an FEH overlay district for the Town of Newbury, and begin this process in other towns in the watershed.	NVDA, TRORC, selectboards, planning commissions, and CC's	RCG, UCM&E	2012	
54. Provide information to the public about the importance of riparian buffers.	CC's, SEWER, CCNRCD	CRJC PG, Watershed Grant	2010	
Objective: Restore the Wells River in unstable reaches and on reaches without sufficient buffers.				
55. Restore the riverbank along the Longmore pit and adjacent historical gravel pits.	NVDA, WRNRCD, Town of Newbury, landowners	UCM&E, USACE	2012	
56. Identify, prioritize and restore unstable reaches as determined by Phase 1 and 2 geomorphic assessments.	NVDA, CCNRCD, towns, riparian landowners	UCM&E	2012	
Section 3-5 Transportation-Related Water Quality Issues in the Wells River Watershed				
GOAL: MINIMIZE CONFLICTS BETWEEN STREAMS' NATURAL FUNCTIONS AND TRANSPORTATION INFRASTRUCTURE				
Objective: Reduce conflicts between bridges and culverts and the Wells River.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
57. Complete ANR bridge and culvert surveys of the watershed and compile this information for use by towns to prioritize bridge and culvert replacement. Work with town road commissioners and the district fisheries biologist during the survey to focus efforts on priority areas of the watershed.	NVDA, ANR, Town road commissioners	604b, 319, RCG	2010	Bridge and culvert survey completed for portion of Wells River watershed but remainder needs to be surveyed.
Section 3-6 Lakes and Dams in the Wells River Watershed				
GOAL: PROTECT AND RESTORE THE NATURAL ENVIRONMENTS OF LAKES AND PONDS IN THE WELLS RIVER WATERSHED TO PROTECT WATER QUALITY, RECREATION AND AESTHETICS.				
Objective: Protect areas of existing natural lakeshore and on developed lakeshores, increase riparian buffers and reduce erosion and nutrient runoff.				
58. Ensure the protection of portions of undeveloped shorelines on Groton, Ricker,	lake associations, land	VHCB	ongoing	

and Ticklenaked Ponds through voluntary conservation of at least one property along these lakes and ponds.	trusts, State of Vermont, planning commissions, VLCT			
59. Maintain existing lakeshore vegetation through the creation of shoreline zoning in all watershed towns including language on vegetated lakeshore buffers.	State of Vermont, Towns and planning commissions, VLCT		2012	
60. Hold a workshop or workshop series on lakeshore management to cover such topics as buffer restoration and low impact lawn care and landscaping.	lake associations, DEC, conservation commissions	CRJC PG, Watershed Grant	2009	
Objective: Prevent the spread of invasive species to watershed lakes, ponds and rivers.				
61. Continue efforts of the Lake Groton Association to prevent invasive species spread through use of boat washes, inspections and boater education.	DFPR, DEC-AIS, lake associations	Watershed Grant, ANC	ongoing	
62. Increase communication between the State Parks, the Lake Association, and the Town of Groton and develop new efforts such as a sticker program or boat launch "greeter" monitoring program for Lake Groton and Ricker Pond.	Lake Associations, DEC-AIS, DFPR, Town of Groton, CCNRCD	Watershed Grant, ANC	ongoing	
Objective : Reduce phosphorus levels in Ticklenaked Pond to meet Vermont Water Quality Standards.				
63. Finalize the TMDL for Ticklenaked Pond in cooperation with the Ticklenaked Pond Association, CCNRCD, NRCS, and Town of Ryegate. The TMDL will lay out necessary watershed phosphorus loading reductions needed to meet water quality standards as well as the potential need for internal treatment to address internal loading of phosphorus in Ticklenaked Pond.	TNPA, DEC, NRCS, CCNRCD, Ryegate Selectboard	EPA	2008	
64. Identify the primary watershed sources of phosphorus in the Ticklenaked Pond watershed through land-use modeling, stream and watershed surveys and through community outreach efforts and develop a plan to reduce annual watershed phosphorus loading by 26 kilograms (57 pounds) or the amount required in the final Ticklenaked Pond TMDL.	TNPA, DEC, NRCS, CCNRCD, Ryegate Selectboard and Road Commissioner	EPA, UCM&E, Watershed Grant, Better Backroads Grant, CRJC PG, 319, C&C	2008	
65. Work with the local community and partners to address each major source of phosphorus identified in the watershed study. Likely efforts will include working with watershed residents to improve shoreline management practices, improve roads and driveways to reduce erosion, reduce the use of fertilizer, and continued work with the agricultural community to reduce phosphorus loading.	TNPA, DEC, NRCS, CCNRCD, Ryegate Selectboard and Road Commissioner	EPA, UCM&E, Watershed Grant, Better Backroads Grant, CRJC PG, 319, C&C	2009	Stream walk and road and driveway surveys completed in 2008
66. Once commitments have been made to reduce phosphorus loading in the Ticklenaked Pond watershed and if, deemed necessary in the TMDL and supported by the local community, seek funding to complete an internal sediment-phosphorus inactivation treatment in Ticklenaked Pond to address the internal loading of phosphorus.	TNPA, DEC, CCNRCD, Ryegate Selectboard, local congressional and state legislative representatives	EPA, legislative appropriations at the State or National level	2009	
67. If necessary implement sediment-phosphorus treatment, including completion of necessary planning and permitting processes.	TNPA, DEC	EPA, legislative appropriations at the State or National level	2011	

Chapter 4 – The Waits River Watershed

Section 4-2 Water Quality Outreach in the Waits River Watershed

GOAL: DEVELOP A GOOD UNDERSTANDING OF THE WATER QUALITY IN THE WAITS RIVER WATERSHED AND INCREASE THE AWARENESS OF WATERSHED RESIDENTS ABOUT ANY WATER QUALITY CONCERNS AND BASIC ACTIONS THEY CAN TAKE TO ADDRESS THESE CONCERNS.

Objective: Increase the scope and reliability of water quality information collected in the Waits River watershed and provide this information to the public.

Strategy	Key Players	Funding source	Timeframe	Status
68. Work with the Biomonitoring and Aquatic Studies Section to locate biological monitoring sites in the Waits River watershed that will address community concerns. One site of concern is the Waits River near the Waits River Valley School because this site has ongoing testing by the local school which has suggested lower water quality.	BASS, interested community members, River Bend Career and Technical Center	State funds	2007-2008	Completed
69. Continue and expand school and community based water quality testing in the watershed. Integrate local testing information in the watershed and make this available to the public. Work with new programs and groups to expand testing.	Waits River Valley School, Oxbow High School, River Bend Career and Technical Center, DEC	CRJC PG, WEF, UCM&E, Watershed Grant	ongoing	
70. Identify areas of the Waits River watershed which may be at risk for specific types of pollution such as *E. coli*, nutrient enrichment, sedimentation, or metals due to local land uses to guide future water sampling efforts.	Waits River Valley School, Oxbow High school, River Bend Career and Technical Center, DEC, CC's	CRJC PG, WEF, UCM&E, Watershed Grant	2008	
71. Begin a volunteer water quality testing program in the Waits River watershed to identify some of the water quality issues in the watershed including *E. coli* at the Waits River Valley School and at other swimming locations in the watershed. Publicize results to increase awareness in the community.	Waits River Valley School, Oxbow High School, River Bend Career and Technical Center, DEC, Bradford and Corinth CC's	LaRosa, CRJC PG, WEF, UCM&E, Watershed grant	2010	
Objective: Increase the awareness in the watershed about good land stewardship to reduce water pollution in the Waits River watershed.				
72. Conservation commissions will help distribute the booklet *A Place You Call Home* produced by Northern Woodlands in 2006. This publication discusses important land management principals for landowners many of which are related to water quality.	Northern Woodlands, conservation commissions		2007-2008	Completed
73. Provide opportunities for adults to learn about the Waits River. Continue field trips to sites along the Waits River, tributaries and other sites in the watershed to increase local knowledge of this great resource and current threats.	Bradford and Corinth conservation commissions, DEC	WEF, CRJC PG	Ongoing	

Section 4-3 Nonpoint Source Pollution in the Waits River Watershed

GOAL: REDUCE THE AMOUNT OF SEDIMENT AND NONPOINT SOURCE POLLUTION ENTERING THE WAITS RIVER.

Objective: Reduce road-related erosion and the impacts of undersized culverts on streams, fish and wildlife in the watershed.

74. Present the results of the bridge and culvert survey of the Waits River watershed to selectboards and road commissioners in the watershed.	TRORC, conservation commissions, DFW	319, 604b, UCM&E, RCG	2009	
75. Work with towns in the watershed to incorporate bridge and culvert survey data into plans for bridge and culvert replacement. Develop a plan to replace at a minimum those structures in each town which are at high risk for failure, or are barriers to significant fish or wildlife habitat.	Bradford and Corinth conservation commissions, town selectboards, ANR, TRORC	Better Backroads grants, UCM&E, VTrans, Municipal Stormwater Mitigation Grant	2009 – 2011	

Objective: Reduce NPS pollution from agricultural lands while maintaining an active agricultural community in the Waits River watershed.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
76. Develop and encourage participation in agricultural best management programs that work for farmers in the Waits River watershed where valleys are narrow and farms have limited land to give up for buffers.	WRNRCD, NRCS, AAFM	CREP, Vermont Agricultural Buffer Program	ongoing	
77. Reevaluate the existing agricultural impairment in the Waits River watershed and address the impairment if this water is still not meeting water quality standards.	WRNRCD, NRCS, AAFM	EQIP, 319, BMP	2009	
78. Participate in the Source to Sea Clean up to clean up any sections of the Waits River and its tributaries with trash. Publicize this event to increase awareness of this problem.	CRWC, Bradford and Corinth conservation commissions		ongoing	
79. Support the passage of a tire deposit or other legislation that reduces the incentive to dispose of tires in streams and rivers. Work with other New England states to pass similar legislation so loss of sales from local tire dealers is limited.	Bradford and Corinth conservation commissions	NA	ongoing	
Section 4-4 River Corridor Management in the Waits River Watershed				
GOAL: RETURN THE WAITS RIVER AND ITS TRIBUTARIES TO AN EQUILIBRIUM CONDITION.				
Objective: Develop an understanding of the fluvial geomorphic processes acting in the Waits River and its tributaries and provide this information to the public.				
80. Complete Phase 1 geomorphic assessments of the Waits River and its tributaries keeping communities informed about the results.	TRORC, Bradford and Corinth conservation commissions, RMP	VEF, RCG, UCM&E	2007	Completed
81. Complete a Phase 2 geomorphic assessment of the Waits River and its tributaries that are identified as needing additional assessment during the Phase 1 geomorphic assessment or by community members.	TRORC, Bradford and Corinth conservation commissions, RMP	RCG, UCM&E	2009	
82. Present the results of the Phase 1 and 2 geomorphic assessments to members of the Waits River watershed.	Bradford and Corinth CC's, RMP, Redstart Consulting			
Objective: Increase the involvement of watershed towns in managing the Waits River based on fluvial geomorphic principles.				
83. Complete a River Corridor Plan for the Waits River to identify riparian conservation priorities, river corridor protection strategies and restoration projects to move the Waits River towards an equilibrium condition.	TRORC, RMP, Bradford and Corinth conservation commissions	RCG, UCM&E	2009 - 2010	
84. Develop fluvial erosion hazard overlay districts for towns in the Waits River watershed.	TRORC, RMP, conservation and planning commissions and selectboards, DFW	UCM&E, RCG	2012	Completed for Bradford and Corinth
Objective: Improve the aquatic habitat, stabilize streambanks, and reduce water temperatures in the Waits River and its tributaries.				
85. Locate local tree stock appropriate for riparian buffer plantings and engage local volunteers to complete riparian buffer plantings along the Waits River and its tributaries.	NRCS, Bradford and Corinth conservation commissions	CREP funds, UCM&E, C&C	Ongoing	
86. Complete restoration projects identified in the river corridor plan and compatible with information collected in the geomorphic assessments. Restoration projects should improve fish habitat as well as restore the equilibrium condition of the Waits River as suggested by Phase 2 geomorphic assessments.	RMP, Bradford and Corinth conservation commissions, DFW	UCM&E, RCG, CRJC PG	2009	

Section 4-5 Wetlands, Dams, Ponds and Invasive Species in the Waits River Watershed.				
GOAL: PROTECT AND RESTORE WETLAND, AQUATIC AND RIPARIAN HABITATS IN THE WAITS RIVER WATERSHED.				
Objective: Reduce the spread of exotic invasive aquatic and riparian species in the Waits River watershed				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
87. Host a workshop on invasive species in the watershed to educate the community about inadvertently planting or spreading these species.	Bradford and Corinth CC's, WRNRCD	CRJC PG , WEF, Watershed Grant	2010	Completed: Japanese Knotweed control workshop held in 2008 near watershed
88. Complete a demonstration project along the Waits River on control methods for Japanese knotweed, including the proper disposal of Knotweed, to prevent its spread. Encourage landowners to mow or cut areas of knotweed on private property.	private landowners, conservation commissions	CRJC PG , UCM&E	2011	
89. Post signs about invasive species at all boat launches along the Connecticut River and the Waits River stating what aquatic invasive species are present at the location and what should be done to prevent their spread to or from the waterbody.		DEC, DFW	2009	
Section 4-6 Impaired and Altered Waters in the Waits River Watershed				
GOAL: RESTORE IMPAIRED WATERS AND BETTER MANAGE WATERS OF CONCERN BEFORE THEY BECOME IMPAIRED FOR ALL WATERS IN THE WAITS RIVER WATERSHED.				
Objective: Restore Pike Hill Brook				
90. Develop and implement a plan with the USGS, EPA, State of Vermont and local community to remediate the Pike Hill Mine and restore Pike Hill Brook to meet Vermont Water Quality Standards as part of the Superfund process.	EPA, DEC, USGS, Corinth Conservation Commission and selectboard, local residents and landowners.	Superfund, private companies or responsible parties	2012	
Objective: Address sediment and temperature issues caused by habitat alteration on the Waits River the South Branch.				
91. Complete strategies in Section 4-4 of this plan to restore the physical condition of the Waits River.				

Chapter 5 – The Ompompanoosuc River Watershed

Section 5-2 Nonpoint Source Pollution in the Ompompanoosuc River Watershed

GOAL: REDUCE THE AMOUNT OF SEDIMENT AND NONPOINT SOURCE POLLUTION ENTERING THE OMPOMPANOOSUC RIVER.

Objective: Reduce *E. coli* levels in the Ompompanoosuc River to meet Vermont Water Quality Standards.

Strategy	Key Players	Funding source	Timeframe	Status
92. Continue the volunteer *E. coli* sampling program for Ompompanoosuc River until *E. coli* sources in the watershed have been identified and bracketed. Add sites or new techniques to better bracket potential *E. coli* sources as needed.	Thetford, West Fairlee and Norwich conservation commissions, USACE	LaRosa, CRJC PG , USACE, Watershed Grant	ongoing	On hold due to lack of funding…
93. Provide the results of *E. coli* testing to the public along with information on actions (such as cleaning up pet waste along the river and maintaining septic systems) that landowners can take to help reduce *E. coli* levels.	Thetford, West Fairlee and Norwich conservation commissions, DEC, USACE, Local Media outlets	NA	ongoing	
94. Identify and correct failing septic systems and provide public education on proper septic system maintenance.	conservation commissions, DEC	C&C, Vermont Home Loan Fund	2010	

Objective: Reduce nonpoint source pollution from agricultural and developed lands in the watershed.

95. Establish buffers along the Ompompanoosuc River with the following priorities: a. West Branch of the Ompompanoosuc River between Strafford and South. Strafford. b. East Branch of the Ompompanoosuc River between Brimstone Corner and Crossroad. c. Along Blood and Middle Brooks flowing into Lake Fairlee.	NRCS, AAFM, conservation commissions, Lake Fairlee Association	CREP, WHIP, C&C, UCM&E	2012	Draft proposals for planting along Ompompanoosuc Below Union village Dam and along Lake Fairlee outlet stream for 2010.
96. Distribute brochures on AAPs, pasture management, barnyard areas and other topics relating to water quality to horse and small farm owners through tack shops and veterinarians.	WRNRCD, NRCS, AAFM, tack shops, veterinarians	CRJC PG, WEF	2009	
97. Recommend the adoption of low impact development standards by local towns to address the issue of stormwater runoff.	conservation commissions, planning commissions	NA	2012	

Section 5-3 River Corridor Management in the Ompompanoosuc River Watershed

GOAL: PROTECT AND RESTORE THE EQUILIBRIUM CONDITION OF THE OMPOMPANOOSUC RIVER.

Objective: Protect stable reaches, intact floodplain and forested river corridors.

98. Complete Phase 1 geomorphic assessments of the Ompompanoosuc River watershed and Phase 2 geomorphic assessments for the East Branch and any tributaries rated as fair or poor by the Phase 1 assessment.	TRORC, RMP, conservation commissions	UCM&E, CRJC PG, RCG, WEF	2009	Phase 1 assessment under way
99. Protect floodplains identified through the geomorphic assessments as important for maintaining the stability of the Ompompanoosuc River. Work with land trusts to include language in conservation easements that protect floodplains and buffers for maintaining or restoring stream stability.	UVLT, RMP, VRC, AAFM, NRCS, conservation commissions	UCM&E, VHCB, CREP, C&C	2012	

Objective: Increase the participation of the public and town government in stream corridor protection.

100. Develop river corridor plans covering the Ompompanoosuc River watershed to reduce human/river conflicts. River Corridor plans will also prioritize the protection of the river corridor, including floodplains and buffers, and the completion of projects where this will provide the most benefit to the Ompompanoosuc River.	TRORC, RMP, DEC, conservation commissions	UCM&E, RCG	2011	

101. The watershed council recommends the inclusion of minimum building setbacks from rivers and natural buffers in accordance with the state Act 250 buffer recommendations in town plans and zoning, and the adoption of FEH overlay districts.	RMP, TRORC, Local Conservation and planning commissions. VLCT, selectboard members	Municipal Planning Grant, RCG	2012	
102. The watershed council recommends the development of state and federal incentives to encourage town adoption of FEH overlay districts by municipalities.	RMP, TRORC, FEMA	State funds, FEMA, RCG	2012	
Objective: Restore unstable reaches of the Ompompanoosuc River and reaches without sufficient buffers.				
Strategy	**Key Players**	**Funding source**	**Timeframe**	**Status**
103. Implement restoration projects in areas identified through river corridor plans including the West Branch of the Ompompanoosuc River, River Corridor Management Plan (see Table 5-2) and future plans developed for the remainder of the Ompompanoosuc River watershed.	RMP, TRORC, DEC, conservation commissions	UCM&E, CRJC PG, RCG, WHIP, C&C	2007-2012	
Section 5-4 Transportation-Related Pollution in the Ompompanoosuc River Watershed				
GOAL: MINIMIZE CONFLICTS BETWEEN STREAMS' NATURAL FUNCTIONS AND TRANSPORTATION INFRASTRUCTURE.				
Objective: Reduce conflicts between bridges and culverts and the Ompompanoosuc River's natural functions.				
104. Complete bridge and culvert surveys on all the tributaries to the Ompompanoosuc River and compile this information for use by towns to prioritize bridge and culvert replacement.	TRORC, ANR, Town road commissioners, VTrans	319, 604b, HMGP	2008	Completed
Objective: Reduce erosion from road surfaces, ditches and banks.				
105. Provide information to local recreation organizations about erosion control techniques for trails, stream and river access points, and proper bridge and culvert construction. Develop a proposal to use a VYCC watershed crew to restore impacted sites. Identify sensitive areas where access should be limited.	VYCC, VAST, VASA Root District Riding Club, Upper Valley Trails Alliance, Cross-Rivendell Trail Association, VMBA, Coyote Hill.	VYCC, 319	2010	
106. Review layouts of municipal garages in the watershed with each municipality to control runoff from salt and sand piles at municipal garages. Develop a set of cost effective management practices and municipal garage layouts that minimize erosion runoff and assist towns in completing these improvements.	road commissioners, selectboard members, Local Roads Program	Town funding, C&C, Stormwater Mitigation Grants.	2011	
Section 5-5 Lakes, Dams and Wetlands in the Ompompanoosuc River Watershed				
GOAL: PROTECT AND RESTORE THE NATURAL ENVIRONMENTS OF LAKES AND PONDS IN THE OMPOMPANOOSUC RIVER WATERSHED TO PROTECT WATER QUALITY, AQUATIC HABITAT, RECREATION AND AESTHETICS.				
Objective: Protect areas of existing natural lakeshore and on developed lakeshores, increase riparian buffers and reduce erosion and nutrient runoff.				
107. Ensure the protection of the shoreline of Miller Pond, Lake Abenaki and Lake Fairlee through voluntary conservation of one shoreline property.	UVLT, conservation planning and zoning commissions, select boards, lake associations	VHCB, Watershed Grant	Ongoing	
108. Maintain existing lakeshore vegetation through the creation of shoreline zoning in all watershed towns including language on vegetated lakeshore buffers.	conservation and planning commissions, select boards, lake associations, VLCT, TRORC	NA	Ongoing	
109. Encourage the restoration of shoreline vegetation on lakes and ponds in the watershed working with existing groups to apply for grants to cover shoreline	lake associations, conservation commissions,	Watershed Grant, 319	Ongoing	

plantings and by holding educational workshops on good shoreline management.	DEC			
Objective: Prevent the spread of invasive aquatic and riparian species to watershed lakes and rivers.				
110. Continue to increase the effectiveness and efficiency of Eurasian watermilfoil control in Lake Fairlee.	Lake Fairlee Association, DEC - AIS	ANC, Local fundraising, municipal grants	ongoing	
111. Increase communication between lake associations, municipalities, and watershed residents and visitors on actions to prevent invasive aquatic and riparian species spread.	Lake Fairlee and Lake Morey Lake Association, DEC - AIS, Federation of Vermont Lakes and Ponds, selectboards and conservation commissions of Thetford, Fairlee, West Fairlee.	ANC, Watershed Grant	2010	
Objective: Minimize the negative impacts of dams in the watershed.				
112. Research the feasibility of eliminating the winter pool at the Union Village Dam to minimize the impacts of water level fluctuations on the Ompompanoosuc River. If this is feasible then update the management of the dam to eliminate the pool.	DEC Hydrology program, USACE	USACE	2011	
113. Review any large water withdrawal proposals in the watershed to ensure that they do not reduce fish passage, alter sediment regimes, or reduce flows or groundwater levels to significantly impact aquatic habitat.	DEC Hydrology program, Friends of the Ompompanoosuc River, Stream Alteration Engineer, F&W			
114. Compile existing ecological information on the wetlands on the lower Ompompanoosuc River in the backwater of the Connecticut River from Wilder Dam. Research any impacts from water level fluctuations on this environment and to migrating birds that use this site.	Norwich Conservation Commission, DEC Hydrology program, DEC	CRJC PG, UCM&E	2012	
Section 5-6 Impaired and Altered Waters in the Ompompanoosuc River Watershed				
GOAL: RESTORE ALL IMPAIRED WATERS IN THE OMPOMPANOOSUC RIVER WATERSHED TO MEET VERMONT WATER QUALITY STANDARDS AND IMPROVE THE MANAGEMENT OF ALL WATERS OF CONCERN BEFORE THEY BECOME IMPAIRED.				
Objective: Restore Copperas Brook, Lords Brook, Ely Brook, Schoolhouse Brook and the West Branch and main stem of the Ompompanoosuc River to meet Vermont Water Quality Standards.				
115. Complete strategies 91 thorough 93 to reduce *E. coli* levels in the Ompompanoosuc River to meet Vermont Water Quality Standards.	DEC, conservation commissions, USACE	LaRosa, Watershed Grant, CRJC PG	2012	
116. Continue the work of the EPA and the State of Vermont to complete the superfund process to restore Lords Brook, the West Branch of the Ompompanoosuc River and Copperas Brook, to meet VWQS with community input from the Elizabeth Mine Citizen Advisory Group (EMCAG).	EPA, DEC, EMCAG	Superfund, state funds for ongoing site maintenance	Ongoing	
117. Complete the final cleanup proposal and begin the remediation of the Ely Mine minimizing environmental impacts and impacts to historical elements of the site. Restore Schoolhouse Brook to meet VQWS.	EPA, DEC, Local communities	Superfund, state funds for ongoing site maintenance	Ongoing	

Acronyms

319	Federal section 319 grants for NPS pollution abatement
604b	Federal section 604b pass through funds for regional planning commissions
AAFM	Vermont Agency of Agriculture Food and Markets
AAP	Acceptable Agricultural Practices
ALS	Aquatic Life Support
AMP	Acceptable Management Practices
ANR	Vermont Agency of Natural Resources
ANS	Aquatic Nuisance Species Program
BASS	Biological Assessment Studies Section
BLUE	Bartonville Land Use Explorers
BMP	Best Management Practices
CC	Conservation Commission
C&C	Clean and Clean watershed planning funds
CCC	Civilian Conservation Corps
CCNRCD	Caledonia County Natural Resources Conservation District
CLG	Certified Local Government Grants
CREP	Conservation Reserve Enhancement Program
CRJC	Connecticut River Joint Commissions
CRJC PG	Connecticut River Joint Commissions Partnership Grant
CRWC	Connecticut River Watershed Council
CVT	Cross Vermont Trail
DEC	Vermont Department of Environmental Conservation
DEC-AIS	Department of Environmental Conservation Aquatic Invasive Species Program
DFPR	Vermont Department of Forest Parks and Recreation
DFW	Vermont Department of Fish and Wildlife
DHCA	Vermont Department of Housing and Community Affairs
DOH	Vermont Department of Health
EMCAG	Elizabeth Mine Community Advisory Group
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEH	Fluvial Erosion Hazard
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
HMGP	Hazard Mitigation Grant Program
LaRosa	LaRosa Analytical Partnership Program
LEAP	Logger Education to Advance Professionalism
LMP	Lay Monitoring Program
NEKISI	North East Kingdom Invasive Species Initiative
NEKWMD	– North East Kingdom Waste Management District
NFIP	National Flood Insurance Program
NMPIG	Nutrient Management Incentive Grant Program
NPS	Nonpoint Source Pollution
NRCS	Natural Resource Conservation Service
NTCRA	Non Time Critical Removal Action
NVDA	Northeastern Vermont Development Association
NVRCDC	Northern Vermont Resource Conservation and Development Council
OCHP	Orange County Headwaters Project
ORW	Outstanding Resource Water
RCG	River Corridor Grant
RM	River Mileage
RMP	River Management Program (Agency of Natural Resources)
SCC	Strafford Conservation Commission
SEWER	Save Everyone's Wells River
TCRA	Time Critical Removal Action
TMDL	Total Maximum Daily Load
TNPA	Ticklenaked Pond Association
TRORC	Two Rivers Ottauquechee Regional Commission
UCM&E	Upper Connecticut River Mitigation and Enhancement Fund
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
US F&W	United States Fish and Wildlife Service
UVLT	Upper Valley Land Trust
UVM Ext	University of Vermont Extension
VAST	Vermont Association of Snow Travelers
VHCB	Vermont Housing and Conservation Board
VHCB	Vermont Housing and Conservation Board
VIP	Vermont Invasive Patrollers
VLCT	Vermont League of Cities and Towns
VTrans	Vermont Agency of Transportation
VRC	Vermont River Conservancy
VWQS	Vermont Water Quality Standards
VYCC	Vermont Youth Conservation Corps
WEF	Wellborn Ecology Fund
WHIP	Wildlife Habitat Enhancement Program
WMA	Wildlife Management Area
WRNRCD	White River Natural Resources Conservation District
WRWC	Wells River Watershed Council

Status Summary: Number of strategies completed in 2008 for Basin 14, 7 out of 117 or 6%
Number of strategies initiated but not completed in 2008 for Basin 14, 12 out of 117 or 12 %
Number of strategies with no action in 2008 for Basin 14, 98 out of 117 or 82%

2008 status	Basin 14 common		Stevens		Wells		Waits		Ompompanoosuc		Total	
Strategies completed	1/20	5%	0/19	0%	1/28	4%	4/24	17%	1/26	4%	7/117	6%
Strategies initiated	4/20	20%	1/19	5%	4/28	14%	1/24	4%	4/26	15%	14117	12%
Strategies with no action	14/20	75%	18/19	95%	23/28	82%	19/24	79%	21/26	81%	96117	82%