Rapid Bioassessment in Wadeable Streams & Rivers by Volunteer Monitors

Annual Summary Report # 10
2008

State of Connecticut
Department of Environmental Protection
Bureau of Water Protection & Land Reuse
Gina McCarthy, Commissioner

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COVER: Over the past 10 years the RBV program has been able to capture the interest and enthusiasm of young and old alike. Team work combining the "good" eyesight of the young with the knowledge and experience of the old make for a very successful and enjoyable experience.

Executive Summary

The Rapid Bioassessment in Wadeable Streams and Rivers by Volunteer Monitors program (RBV) is a macroinvertebrate collection protocol developed by the Connecticut Department of Environmental Protection, Bureau of Water Protection and Land Reuse, Ambient Monitoring Program (herein referred to as WPLR). The goal of RBV is to provide volunteer monitoring programs with a quick, efficient, and standardized methodology for the collection of macroinvertebrate community data from wadeable streams. This data can be used to screen for either very good or very poor water quality and augment monitoring conducted by WPLR. All support materials including a more detailed description of the program, the RBV methodology, data sheets, sorting guides, macroinvertebrate cards, informational brochure, and annual summary reports are available on the DEP volunteer monitoring web page (www.ct.gov/dep/rbv). To obtain additional information about RBV or to become involved, please contact Mike Beauchene, volunteer monitoring coordinator, by phone (860) 424-4185 or email mike.beauchene@ct.gov

2008 PARTICIPATION STATISTICS:

Number of monitoring locations (Appendix A)	**96**
Number of samples collected	**105**
Number of waterbodies monitored	**58**
Number of fall samples > or = 4 "Most Wanted" types	**14**
Number of individual participants	**350**
Number of groups participating in 2008	**20**
Number of groups participating for the first time	**6**
Number of groups returning for another year	**14**

WPLR would like to thank all of the participants who collected RBV data under the sponsorship of the following groups and individuals: **Bob Anderson, Craig Bobrowiecki, Pete Burke, Boy Scout Troop 925/Turkey Hill School PTA Orange, Connecticut Audubon Society at Pomfret, Bolton Conservation Commission, Enfield Conservation and Inland Wetlands Commissions, Farmington River Watershed Association, Friends of the Hockanum River Linear Park, MDC-Poquonock WPCF, Nature Conservancy-Devils Den, Nature Conservancy-Salmon River Coalition, Park River Assessment Program, Darby Polanski, Pomperaug River Watershed Coalition, Bonnie Potacki, Quinebaug/Shetucket Heritage Corridor (Five Mile River Watershed Association), Three Rivers Community Technical College, Trout Unlimited-Candlewood Valley Chapter, and Washington Montessori School.**

The RBV Program

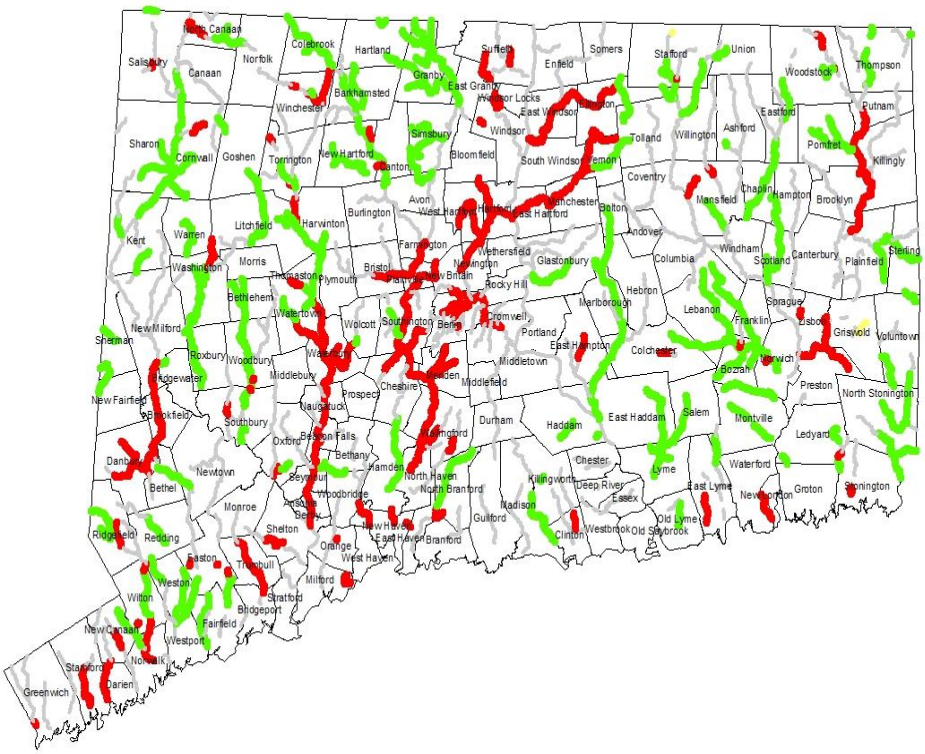
The RBV protocol includes 33 macroinvertebrate taxa, each with distinct shape, structure, color, or behavior (Appendix B). In order for an organism to make the RBV list each must meet 3 criteria; first the organism should have a statewide distribution, second the organism should provide key information about the river system, and third the organism has a unique behavior or morphological characteristic easily observed by first time participants. Each of these organisms has been placed into 1 of 4 categories ***most wanted*** (panels 1-8b) consists of macroinvertebrates typically found in streams characterized by outstanding water quality. ***Moderately wanted*** (panels 9-14) are those found in a range of conditions from outstanding to good water quality. ***Least wanted*** (panels 15a-g) consists of those found in all types of water quality conditions, from outstanding to poor. *Others* (no panels have been developed) represent organisms that can be very common but do not provide enough information to be included in the RBV method. The "other" category of organisms was added to the RBV program starting in 2005 based on suggestions from RBV participants. Detailed information about each organism can be found on the field identification panels. The panels are available on the DEP web page at (http://www.ct.gov/dep/lib/dep/water/volunteer_monitoring/rbvcards.pdf). The name of each of the 3 qualitative categories is intended to characterize water quality and is not intended to imply that those in the least wanted category are harmful or result in nuisance conditions. No organism included in the RBV protocol has higher or lower ecological value than any other.

The RBV Method

The RBV method is based upon the Rapid Bioassessment Protocols developed by the US EPA and implemented by DEP ambient monitoring staff (Barbour et al 1999, Plafkin et al 1989). The RBV protocol requires that the participants sample the macroinvertebrate community from a stream riffle habitat and produce a voucher collection accompanied by a data sheet (Appendix B). A voucher collection is produced by placing at least one specimen of each type of organism collected into a leak-proof container with a descriptive label and isopropyl alcohol. The data sheet documents the different organisms present at the site as well as the relative abundance of each in the sample. Both the voucher sample and the data sheet are submitted to WPLR. The contents of the vial are verified against the field data sheet and then entered into a Microsoft Access database. It is important to note that the final data for the sample is based upon the voucher collection and not what has been recorded on the data sheet. If an organism is listed on the data sheet but not present in the voucher collection, it does not count.

The RBV program occurs annually in the fall and takes approximately 2 hours to complete at the monitoring site. Prior to collecting the macroinvertebrates most participants attended a 3-hour training session in which the WPLR volunteer monitoring coordinator describes the program and introduces the participants to the RBV methodology. WPLR has 20 sets of equipment available for short-term loan to participants. Those groups that have participated for at least 2 years and feel confident with the methodology may opt to forgo the official WPLR training session and simply borrow the equipment.

Biological data use: The primary use of macroinvertebrate data by WPLR is to compare the community structure to narrative biological criteria described in the current water quality standards. This process is described in the Consolidated Assessment and Listing Methodology (CT CALM 2008). This comparison can provide an assessment of the degree of impairment and therefore the degree to which water quality standards are supported (CT 305(b) 2008). The figure below represents the aquatic life use support assessments reported in the 2006 Water Quality Report to Congress (CT 305(b) 2008).



Additional information regarding CALM and the 305(b) report can be found on the DEP web site and links are provided at the end of this report.

Data collected according to the RBV protocol can be used as a screening tool to identify stream sections with either very high or very low water quality. The documentation (voucher collection) of key indicator organisms (the most wanted) in a section of a stream provides a record of the benthic community present for a collection date and time. However, the absence of such indicators in any sample does not automatically mean the water quality is low, but rather further information may be required. In some situations current WPLR protocol may be necessary to definitively assess water quality. It is important to note that the "least wanted" are able to thrive in many environmental conditions while the "most wanted" thrive only under conditions of low environmental stress. Therefore the most definitive RBV data are the collections with good representation of organisms in the "most wanted" category.

For those samples with 4 or more types of organisms in the "most wanted" category WPLR's monitoring staff are confident the location fully supports the state water quality standard for aquatic life (CT WQS 1997). Samples with 3 or fewer types in the "most wanted" category do not definitively indicate impairment or water quality degradation. In these situations additional review is conducted by WPLR to determine the particular species present, land use characteristics upstream of the monitoring location, and the potential for sampling/methodology errors.

RBV limitations

The RBV method was developed to be a simple, non-technical, and enjoyable method for use by citizens interested in evaluating the water quality of a local resource while concurrently generating useful information for WPLR. To date the program has been successful at meeting both objectives. However, to accomplish these, the RBV method requires the participant preserve at least one of each different type of organism present. The final list of organisms in a sample is based on WPLR review of the datasheet against the organisms present in the voucher collection. If the organism is not in the voucher but recorded on the datasheet, it is not counted as part of the sample, even if the organism was actually present. Successful implementation of the RBV method is dependant upon an adequate collection of a sample from a riffle habitat, sorting organisms to find all of the different types present, and most importantly placing 1of each into a leak-proof container with alcohol and a label. It is not dependant upon accurate identification by the participant. Any variable (site selection, incomplete collection, high stream flow, inclement weather conditions, nuisance insects, rushed time constraints, or rotted/desiccated voucher specimens) that reduces the quality or completeness of any step in the RBV method may ultimately reduce the number of different types found. As a result, errors made will tend to underestimate the macroinvertebrate community present and may overestimate water quality degradation. To insure that each organism present at a site is documented, it is critical that at least one of each different type of organism is placed in the voucher collection. In most situations sampling by WPLR using the current WPLR protocol will be necessary to definitively assess water quality.

TO BECOME INVOLVED

A daylong training/data collection workshop can be held for your organization free of charge*. The workshop is structured around instructional power-point presentations in the morning and data collection in the afternoon.

The data collection process is completed on site at a riffle (fast flowing rocky bottom). Participants wade into the water, dislodge the organisms into a net by scrubbing the rocks, sort and identify the different organisms present, and preserve a representative set of organisms for verification. At the completion of the session the data is submitted to the CT DEP for incorporation into water quality assessments.

RBV workshops are scheduled on a first come first serve basis with priority for first time programs. Since the data collection occurs in the fall and there are a fixed number of weekend days, it is better to schedule well in advance. Every attempt will be made to accommodate each workshop request. WPLR will provide all of the necessary equipment **except for waders, hip boots or other waterproof foot ware**.

TO BECOME INVOLVED*:
The prerequisites to sponsor a workshop are to:

1.) Assemble a group of a least 6 adults
2.) Reserve a meeting room centrally located to the potential monitoring stations. The room must have electricity and be capable of holding all of the participants.
3.) Contact Mike Beauchene to schedule a workshop date by phone (860) 424-4185 or email at mike.beauchene@ct.gov

*Individuals not associated with a monitoring program can be linked with a program in their local area.

2008 RBV Summary:

2008 marked the 10th year citizen groups collected and submitted samples to WPLR under the RBV program. Approximately 350 participants collected a record 105 (87 fall and 18 spring) samples (Figure 1).

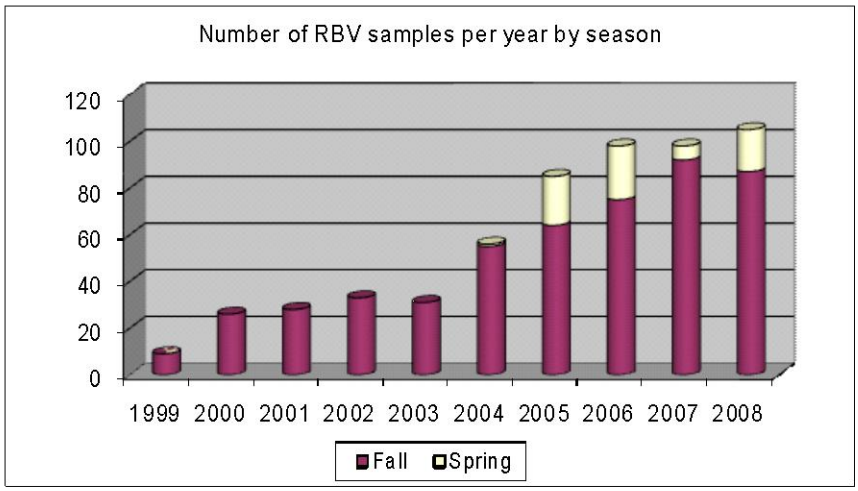


Figure 1. The number of RBV samples collected and submitted to WPLR by RBV participants. The number of samples has grown 5 fold since the program inception.

Locations: Twenty citizen groups collected 105 samples from 96 locations on 58 different waterbodies during 2008 (Figure 4). A description of each sample location is provided in Appendix A.

Table 1 is a list of each RBV organism present in each of the voucher collections submitted to DEP for 2008. The entries in the table are sorted alphabetically by stream name and basin number and then by greatest number of "most wanted" types to least. Each row is a sample as described by the stream name, collection date, basin id and site number. The number at the top of each column in the table corresponds to the panel number on the RBV datasheet and RBV identification materials. Panels 1-8b are in the most wanted category, 9-14 in the moderately wanted category, and panel 15a-15g are in the least wanted category.

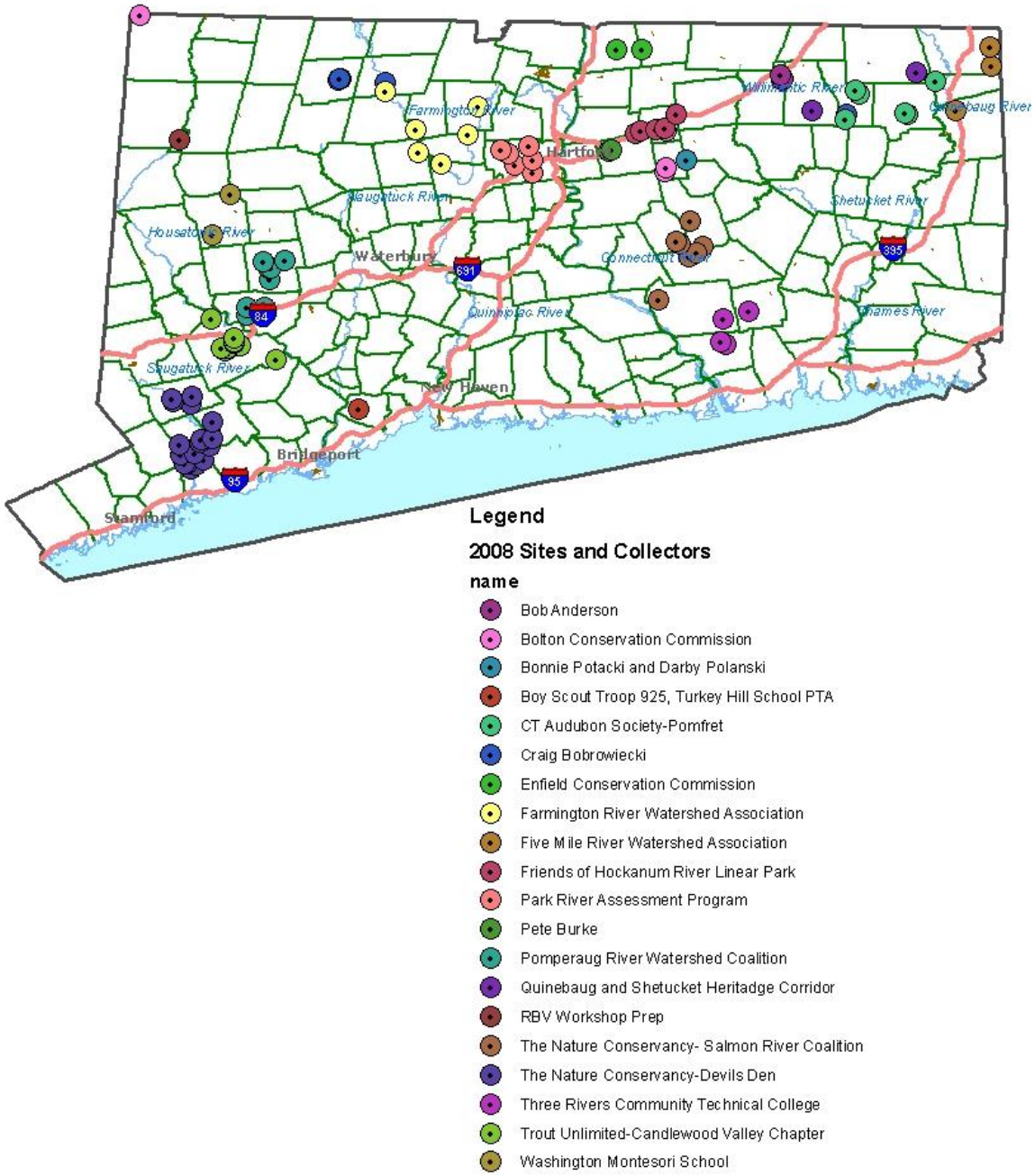


Figure 4. 2008 RBV sample collection locations and entity responsible for the collection. A description of each of the locations can be found in Appendix A.

Table 1. The organisms present in each of the 105 voucher collections submitted to WPLR during 2008. The samples are sorted alphabetically by stream name and basin number and then descending by the greatest number of most wanted types present in a voucher. The panel number corresponds to the RBV datasheet, identification cards, and sorting guide. Of the 105 samples collected, only those with 4 or more total most wanted from a fall sample date (BOLD) are used to indicate full support of aquatic life use goals.

Stream	DEP ID	date	Town	1	2	3	4	5A	5B	5C	6A	6B	7	8A	8B	Total most	9	10	11	12	13A	13B	14	total mod	15A	15B	15C	15D	15E	15F	15G	total least	Others
Aspetuck River	2480	10/25/2008	Easton		X			X			X					3	X	X		X		X	X	5								0	3
Aspetuck River	1304	10/25/2008	Easton		X			X								2	X	X	X		X		X	5				X		X		2	0
Aspetuck River	2479	10/25/2008	Fairfield		X			X								2	X	X		X			X	4								0	2
Aspetuck River	1	10/25/2008	Fairfield		X											1	X	X	X		X			4								0	0
Aspetuck River	1299	10/25/2008	Westport		X			X								2	X	X						2							X	1	1
Beaver Brook	1236	10/25/2008	Lyme		X			X						X		3	X			X		X	X	4				X				1	2
Beaver Brook	1236	4/19/2008	Lyme					X		X	X		X			4	X	X		X		X	X	5					X			1	0
Beaver Brook	1545	10/25/2008	Weston													0	X						X	2								0	0
Blackledge River	1248	10/5/2008	Bolton					X								1	X	X				X	X	4								0	0
Blackledge River	12	10/4/2008	Colchester		X			X			X					3	X	X			X		X	4						X	X	2	0
Blackmore Brook	2792	10/4/2008	Thompson					X						X		2	X	X	X	X		X	X	6								0	1
Bungee Brook	**466**	**10/24/2008**	**Eastford**		**X**			**X**		**X**	**X**					4	**X**	**X**	**X**	**X**		**X**	**X**	6					**X**			1	1
Bunnell Brook	**2266**	**10/25/2008**	**Burlington**	**X**	**X**			**X**			**X**					4	**X**	**X**	**X**			**X**		4				**X**				1	1
Burhams Brook	**1239**	**10/25/2008**	**East Haddam**		**X**			**X**						**X**	**X**	4	**X**	**X**	**X**			**X**	**X**	5							**X**	1	1
Burhams Brook	1239	4/19/2008	East Haddam		X	X		X		X						4	X	X	X			X	X	5		X		X		X	X	4	0
Cemetary Brook	2782	9/20/2008	Hartford													0								0	X	X		X	X		X	5	3
Deep Brook	47	10/18/2008	Newtown								X		X			2	X	X	X	X				4							X	1	2
Deep Brook	1992	10/18/2008	Newtown		X		X									2		X	X			X	X	4								0	5
Deep Brook	2473	10/18/2008	Newtown		X						X					2	X	X	X	X			X	5		X		X			X	3	4
Deep Brook	1993	10/18/2008	Newtown									X				1	X	X	X	X		X		5				X	X		X	3	3

Deep Brook	2472	10/18/2008	Newtown								X					1	X	X	X	X		X		5							X	1	1
Deep Brook	1992	4/28/2008	Newtown					X					X			2	X		X	X		X		4				X				1	2
Deep Brook	2472	4/28/2008	Newtown					X					X			2	X	X	X	X				4				X	X			2	2
Deep Brook	2473	4/28/2008	Newtown			X				X						2	X	X	X	X		X		5		X			X		X	3	5
Deep Brook	47	4/28/2008	Newtown													0								0				X				1	2
Deep Brook	1993	4/28/2008	Newtown													0	X		X			X		3								0	1
Farmington River	741	10/18/2008	Canton		X			X			X					3	X	X	X			X		4								0	1
Fawn Brook	2781	10/4/2008	Hebron		X			X						X		3	X	X	X	X		X	X	6								0	1
Fawn Brook	**2780**	**10/4/2008**	**Marlborough**		**X**		**X**	**X**			**X**					**4**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**7**							**X**	**1**	**2**
Fenton River	2788	10/11/2008	Willington		X			X		X						3	X	X	X	X			X	5								0	0
Fenton River	2789	9/18/2008	Willington		X			X								2	X	X	X					3					X			1	0
Fivemile River	2462	9/25/2008	Killingly		X			X								2	X	X	X	X	X		X	6				X				1	0
Fivemile River	2466	9/20/2008	Thompson					X								1	X	X	X		X		X	5					X			1	3
French Brook	1534	10/5/2008	Bolton				X	X			X					3	X			X			X	3				X				1	0
Gages Brook	1240	10/11/2008	Tolland		X			X			X					3	X		X	X			X	4								0	3
Gunn Brook	1444	5/15/2008	Cornwall		X	X	X	X		X			X			6		X						1				X	X		X	3	4
Halfway River	**2762**	**10/18/2008**	**Newtown**					**X**		**X**	**X**		**X**			**4**	**X**	**X**	**X**				**X**	**4**							**X**	**1**	**1**
Harris Brook	**1237**	**10/25/2008**	**Salem**		**X**			**X**		**X**				**X**		**4**	**X**	**X**	**X**		**X**	**X**	**X**	**6**								**0**	**0**
Harris Brook	1237	4/19/2008	Salem	X	X			X					X			4		X	X		X	X	X	5					X			1	0
Higland Lake Outflow	2774	6/16/2008	Winchester					X								1	X							1				X				1	1
Higland Lake Outflow	2775	6/16/2008	Winchester										X			1	X							1		X		X				2	1
Higland Lake Outflow	2773	6/16/2008	Winchester													0	X							1		X						1	0
Hockanum River	112	10/13/2008	Manchester													0	X							1								0	1
Hockanum River	119	10/13/2008	Manchester													0	X	X						2								0	1
Hockanum River	2777	10/13/2008	Manchester													0	X							1	X		X				X	3	0
Hop Brook	1015	10/18/2008	Simsbury		X			X								2	X	X	X	X				4					X		X	2	3
Hop River	**1122**	**10/18/2008**	**Coventry**					**X**		**X**	**X**		**X**			**4**	**X**	**X**	**X**			**X**		**4**					**X**			**1**	**2**
Jeremy River	2370	10/4/2008	Colchester		X			X							X	3	X	X	X	X	X	X	X	7						X		1	0
Judd Brook	**954**	**10/4/2008**	**Colchester**		**X**			**X**					**X**	**X**		**4**		**X**		**X**		**X**	**X**	**4**				**X**			**X**	**2**	**1**
Little River	1063	10/10/2008	Putnam					X								1	X	X		X	X	X	X	6						X		1	0
Little River	2346	10/25/2008	Redding		X			X		X						3	X	X	X			X		4				X				1	3
Little River	2769	10/25/2008	Redding		X											1		X	X	X				3								0	1

Mashamoquet Brook	1541	9/19/2008	Pomfret			X		X								2	X		X	X		X	X	5							X	1	2
Mashamoquet Brook	1164	9/12/2008	Pomfret					X								1	X	X	X	X		X		5						X		1	1
Meadow Brook	1917	10/4/2008	Colchester													0	X	X		X		X		4								0	1
Mill Brook	2793	10/11/2008	Woodstock				X	X		X						3	X			X		X	X	4								0	0
Moodus River	1634	10/4/2008	East Haddam					X			X					2	X		X		X	X		4	X							1	0
Morgan Brook	408	10/24/2008	Barkhamsted		X			X								2		X	X				X	3							X	1	3
Mount Hope River	2791	9/13/2008	Ashford		X		X	X								3	X	X	X	X		X		5					X		X	2	1
Natchaug River	1319	10/17/2008	Eastford					X			X					2	X		X	X			X	4						X	X	2	1
Natchaug River	2776	6/20/2008	Eastford		X			X								2			X		X	X	X	4								0	2
Nod Brook	1243	10/18/2008	Avon										X			1	X	X	X	X				4			X					1	0
Nonewaug River	230	10/12/2008	Woodbury		X			X			X					3	X	X		X			X	4								0	3
Nonewaug River	770	10/4/2008	Woodbury		X			X								2	X	X		X	X	X		5								0	1
North Branch Park River	2274	9/20/2008	Hartford													0	X	X	X				X	4	X	X	X	X		X		5	4
North Branch Park River	2783	9/20/2008	Hartford													0			X	X				2	X		X			X	X	4	2
Pine Brook	2779	10/4/2008	Colchester				X	X					X			3	X	X				X		3				X				1	0
Pomperaug River	934	10/5/2008	Southbury		X						X					2	X	X	X	X				4	X					X	X	3	2
Pomperaug River	1313	10/4/2008	Southbury		X			X								2	X	X		X		X		4	X							1	1
Pomperaug River	**1990**	**10/12/2008**	**Woodbury**	**X**	**X**					**X**	**X**	**X**				**5**	**X**		**X**	**X**		**X**		**4**					**X**		**X**	**2**	**2**
Pond Brook	**1523**	**10/18/2008**	**Newtown**		**X**			**X**			**X**		**X**			**4**	**X**	**X**	**X**					**3**	**X**							**1**	**2**
Pootatuck River	**1198**	**10/18/2008**	**Newtown**		**X**			**X**		**X**	**X**	**X**	**X**			**6**	**X**	**X**	**X**	**X**		**X**	**X**	**6**	**X**						**X**	**2**	**3**
Pootatuck River	281	10/18/2008	Newtown					X	X		X					3	X			X		X	X	4								0	1
Pootatuck River	2278	5/3/2008	Newtown					X					X			2	X			X				2				X			X	2	1
Railroad Brook	1176	10/5/2008	Vernon					X								1	X	X				X	X	4								0	0
Roaring Brook	1081	10/18/2008	Farmington					X			X					2	X	X	X	X			X	5	X			X	X			3	4
Sages Ravine Brook	2768	10/18/2008	Salisbury							X			X			2	X							1								0	1
Saugatuck River	2483	10/25/2008	Redding		X					X						2	X	X	X					3				X	X			2	2
Saugatuck River	2771	10/25/2008	Redding		X			X								2	X	X	X		X			4					X			1	0
Saugatuck River	318	10/25/2008	Weston		X			X								2	X		X		X			3	X							1	1
Saugatuck River	1296	10/25/2008	Weston		X											1	X	X	X			X		4								0	0
Saugatuck River	320	10/25/2008	Westport		X						X					2	X	X	X	X	X			5								0	1
Scantic River	1136	10/18/2008	Enfield		X											1	X		X	X			X	4	X						X	2	1

Scantic River	2778	10/18/2008	Somers												0			X	X				2	X							1	1
Shepaug River	1839	11/3/2008	Washington		X			X		X						3	X	X	X	X		X	X	6								0	2
Shepaug River	1037	5/12/2008	Washington	X	X			X		X			X			5	X		X		X			3								0	0
Sprain Brook	2772	10/4/2008	Woodbury		X			X								2	X	X	X			X		4								0	1
Still River	1542	10/25/2008	Eastford		X			X					X			3	X	X	X	X			X	5				X				2	1
Tankerhoosen River	**345**	**10/11/2008**	**Vernon**				**X**	**X**	**X**		**X**		**X**			5	**X**	**X**	**X**	**X**				4							**X**	1	1
Tankerhoosen River	344	10/11/2008	Vernon					X			X					2	X	X	X	X		X	X	6								0	1
Tankerhoosen River	1120	10/11/2008	Vernon					X		X						2	X	X	X					3								0	2
Tankerhoosen River	1121	10/11/2008	Vernon					X								1	X	X	X			X		4							X	1	0
Tinkerville Brook	2790	9/22/2008	Willington		X		X	X								3		X	X	X		X		4								0	0
Transylvania Brook	597	10/4/2008	Southbury													0	X		X	X				3					X		X	2	2
Trib to Eight Mile River	1238	10/25/2008	Lyme				X	X		X						3	X	X	X				X	4	X	X						2	2
Trib to Eight Mile River	1238	4/19/2008	Lyme			X				X			X			3						X	X	2					X			1	0
Trib to Trib to Trout Brook	2785	9/20/2008	West Hartford								X					1	X	X					X	3					X	X	X	3	2
Trib to Trout Brook	2784	9/20/2008	West Hartford													0	X	X	X				X	4							X	1	1
Trout Brook	1049	9/20/2008	West Hartford													0			X				X	2			X				X	2	5
Weekepeemee River	1468	10/12/2008	Bethlehem		X						X					2	X	X						2								0	2
Wepawaug River	1714	5/13/2008	Orange	X				X								2								0								0	3
West Branch Farmington River	1777	6/19/2008	Barkhamsted	X	X			X					X			4	X				X	X	X	4								0	1
West Branch Saugatuck River	1287	10/25/2008	Weston		X			X								2	X	X	X			X	X	5								0	0
West Branch Saugatuck River	1999	10/25/2008	Weston		X			X								2	X	X						2								0	0
West Branch Saugatuck River	2484	10/25/2008	Weston		X											1	X	X						2		X						1	0
West Branch Saugatuck River	2770	10/25/2008	Westport		1											1	X	X	X			X	X	5								0	0

“4 or MORE”

WPLR use of the RBV data for aquatic life use support assessments = "4 or more types of the most wanted category":

The distribution of most wanted types in the 105 samples by season was 0 to 6 for spring 2008 and 0 to 5 for fall 2008 (Table 1). Twelve of the fall 2008 voucher samples had 4 or more types in the most wanted category (Table 2) while 18 voucher samples just missed the “4” criteria by 1 with 3 (Table 3).

Table 2. 2008 RBV voucher samples that contained 4 or more “Most Wanted” types. The data are sorted alphabetically by stream name and then by the greatest number of “Most Wanted” types.

date	DEP ID	Stream	location	Town	basin	# of Most Wanted
10/24/2008	466	Bungee Brook	Mill Bridge Road	Eastford	3201	4
10/25/2008	2266	Bunnell Brook	Punch Brook confluence and Route 179	Burlington	4311	4
10/25/2008	1239	Burhams Brook	Mouth	East Haddam	4800	4
10/4/2008	2780	Fawn Brook	South Main Street at Kellogg Road	Marlborough	4706-00-2-R2	4
10/18/2008	2762	Halfway River	Jordan Hill Road	Newtown	6022-00-3-R3	4
10/25/2008	1237	Harris Brook	Mouth	Salem	4801	4
10/18/2008	1122	Hop River	South Rd. crossing	Coventry	3108	4
10/4/2008	954	Judd Brook	At mouth	Colchester	4702	4
10/12/2008	1990	Pomperaug River	town park (the Hollow) off Rte 317	Woodbury	6800	5
10/18/2008	1523	Pond Brook	Bridge at State Boat Launch	Newtown	6018	4
10/18/2008	1198	Pootatuck River	Tom's Brook Confluence (DS STP outfall)	Newtown	6020	6
10/11/2008	345	Tankerhoosen River	Tunnel Road	Vernon	4503	5

Table 3. 2008 RBV voucher samples that contained 3 "Most Wanted" types.

date	DEP ID	Stream	Location	Town	Basin	# of Most Wanted
10/25/2008	2480	Aspetuck River	Silver Hill Road	Easton	7202	3
10/25/2008	1236	Beaver Brook	bridge at 55-123 Beaver Brook Road	Lyme	4803	3
10/4/2008	12	Blackledge River	Confluence with Lyman Brook	Colchester	4707	3
10/18/2008	741	Farmington River	Steele bridge on Old Town Bridge Road	Canton	4300	3
10/4/2008	2781	Fawn Brook	Route 66	Hebron	4706	3
10/11/2008	2788	Fenton River	Balazs Road	Willington	3207	3
10/5/2008	1534	French Brook	French Road	Bolton	4707	3
10/11/2008	1240	Gages Brook	footbridge on Tolland Agricultural Center Property	Tolland	4503	3
10/25/2008	2346	Little River	Newtown Turnpike	Redding	7201	3
10/11/2008	2793	Mill Brook	Route 171 near Sprucedale Gardens	Woodstock	3707	3
9/13/2008	2791	Mount Hope River	Route 44	Ashford	3206	3
10/12/2008	230	Nonewaug River	Route 47 (Washington Road)	Woodbury	6802	3
10/4/2008	2779	Pine Brook	Colchester Fish and Game club property	Colchester	4705-	3
10/18/2008	281	Pootatuck River	Wasserman Way on Game Club Property (Mile Hill Rd)	Newtown	6020	3
11/3/2008	1839	Shepaug River	Rte 202 adjacent to dirt road	Washington	6700	3
10/25/2008	1542	Still River	Post Office at Eastford center	Eastford	3202	3
9/22/2008	2790	Tinkerville Brook	Bissonnett Pond at mouth	Willington	3207-	3
10/25/2008	1238	Tributary to Eight Mile River (PV brook)	trail crossing off MacIntosh Road	Lyme	4800	3

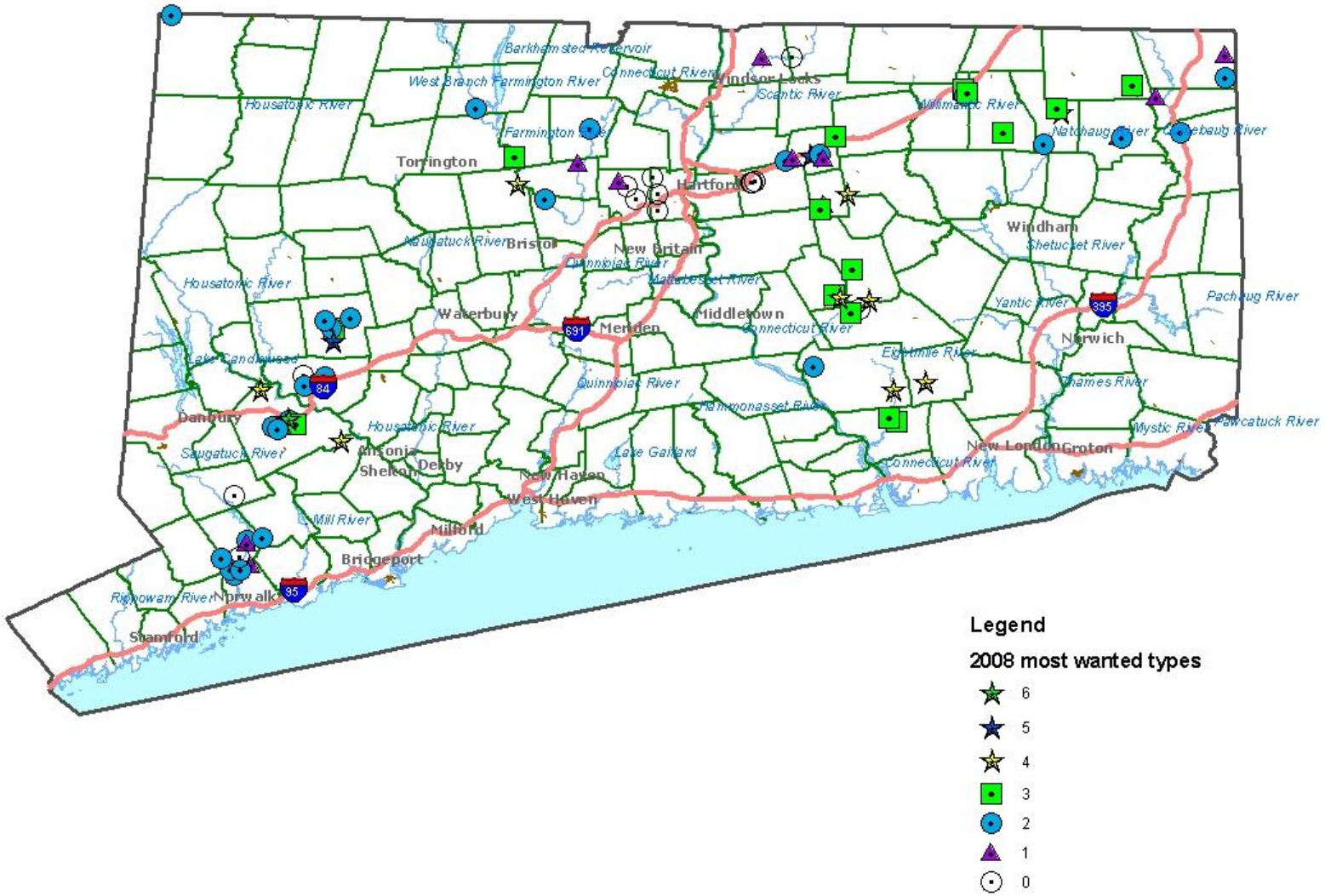


Figure 5. The number of most wanted types present in voucher samples submitted to WPLR collected in fall 2008. Fall samples with 4 or more indicate full support of ALUS goals. Site numbers can be cross-referenced with Table 2 or Appendix A.

References:

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Additional links with relevant information

USEPA volunteer monitoring: http://www.epa.gov/OWOW/monitoring/vol.html

USEPA biological monitoring: http://www.epa.gov/bioindicators/html/invertebrate.html

USGS water resources data for Connecticut: http://ct.water.usgs.gov/

Appendix A. The following provides a description of the location where an RBV sample was collected during 2008. Locations are sorted alphabetically by stream name then ascending basin number.

Stream	basinid	proximity	landmark	Municipality	Monitor name	DEPid	YLat	XLong
Aspetuck River	7202	at	Silver Hill Road	Easton	The Nature Conservancy-Devils Den	2480	41.2589	-73.3247
Aspetuck River	7202	upstream	Bayberry Lane	Fairfield	The Nature Conservancy-Devils Den	1	41.1864	-73.3429
Aspetuck River	7202	at	Wells Hill Road	Easton	The Nature Conservancy-Devils Den	1304	41.2287	-73.3241
Aspetuck River	7202	at	Judges Hollow Road	Fairfield	The Nature Conservancy-Devils Den	2479	41.2132	-73.3291
Aspetuck River	7202	Upstream	Confluence with Saugatuck River at Lyons Plain Rd	Westport	The Nature Conservancy-Devils Den	1299	41.1769	-73.3579
Beaver Brook	4803	Downstrea m	bridge at 55-123 Beaver Brook Road	Lyme	Three Rivers Community Technical College	1236	41.4100	-72.3289
Beaver Brook	7200	at	Good Hill Road	Weston	The Nature Conservancy-Devils Den	1545	41.1972	-73.3592
Blackledge River	4707	upstream	Confluence with Lyman Brook	Colchester	The Nature Conservancy- Salmon River Coalition	12	41.6084	-72.4263
Blackledge River	4707	500 DS	Deming Road	Bolton	Bolton Conservation Commission	1248	41.7518	-72.4454
Blackmore Brook	3400-07-1	upstream	Quaddick Town Farm Road	Thompson	Five Mile River Watershed Association	2792	41.9500	-71.8136
Bungee Brook	3201	downstrea m	Mill Bridge Road	Eastford	CT Audubon Society-Pomfret	466	41.8957	-72.0714
Bunnell Brook	4311	between	Punch Brook confluence and Route 179	Burlington	Farmington River Watershed Association	2266	41.7833	-72.9247
Burhams Brook	4800	at	Mouth	East Haddam	Three Rivers Community Technical College	1239	41.4603	-72.3343
Cemetery Brook	4400-02-1	upstream	Chandler Street in school nature park	Hartford	Park River Assessment Program	2782	41.7421	-72.7037

Deep Brook	6019	at	Baldwin Road	Newtown	Trout Unlimited-Candlewood Valley Chapter	1992	41.4029	-73.3079
Deep Brook	6019	upstream	Pootatuck River	Newtown	Trout Unlimited-Candlewood Valley Chapter	47	41.4131	-73.2823
Deep Brook	6019	at	Baldwin Road	Newtown	Trout Unlimited-Candlewood Valley Chapter	1992	41.4029	-73.3079
Deep Brook	6019	DS	old bridge crossing DS Wassermann way	Newtown	Trout Unlimited-Candlewood Valley Chapter	1993	41.4023	-73.2947
Deep Brook	6019-00-2-R3	upstream	Wasserman way (mile hill Road)	Newtown	Trout Unlimited-Candlewood Valley Chapter	2472	41.4019	-73.2934
Deep Brook	6019-00-2-R3	upstream	Bushy Hill Road in Dickenson park	Newtown	Trout Unlimited-Candlewood Valley Chapter	2473	41.3976	-73.3006
Farmington River	4300	100 meters upstream	Steele bridge on Old Town Bridge Road	Canton	Farmington River Watershed Association	741	41.8257	-72.9295
Fawn Brook	4706	Downstream	Route 66	Hebron	The Nature Conservancy- Salmon River Coalition	2781	41.6483	-72.3993
Fawn Brook	4706-00-2-R2	upstream	South Main Street at Kellogg Road	Marlborough	The Nature Conservancy- Salmon River Coalition	2780	41.6051	-72.4188
Fenton River	3207-00-1*	200 feet downstream	Bissonnette Pond Dam	Willington	Bob Anderson	2789	41.9225	-72.2213
Fenton River	3207-00-1-L1	200 feet upstream	Balazs Road	Willington	Bob Anderson	2788	41.9321	-72.2234
Fivemile River	3400	south of	Spicer Road	Thompson	Five Mile River Watershed Association	2466	41.9865	-71.8154
Fivemile River	3400	at	Route 12 and Huntley Road on town property	Killingly	Five Mile River Watershed Association	2462	41.8638	-71.8834
French Brook	4707	at	French Road	Bolton	Bolton Conservation Commission	1534	41.7442	-72.4485

Gages Brook	4503	at	footbridge on Tolland Agricultural Center Property	Tolland	Friends of Hockanum River Linear Park	1240	41.8571	-72.4248
Gunn Brook	6000	upstream	Mouth	Cornwall	RBV Workshop Prep	1444	41.8060	-73.3903
Halfway River	6022-00-3-R3	at	Jordan Hill Road	Newtown	Trout Unlimited-Candlewood Valley Chapter	2762	41.3811	-73.2010
Harris Brook	4801	at	Mouth	Salem	Three Rivers Community Technical College	1237	41.4733	-72.2851
Higland Lake Outflow	4302-16-1*	at	mouth	Winchester	Craig Bobrowiecki	2775	41.9249	-73.0769
Higland Lake Outflow	4302-16-1*	at	Meadow Street	Winchester	Craig Bobrowiecki	2774	41.9254	-73.0778
Higland Lake Outflow	4302-16-1*	125 yards downstream	Higland lake spillway	Winchester	Craig Bobrowiecki	2773	41.9230	-73.0822
Hockanum River	4500	upstream	Adams Street	Manchester	Pete Burke	119	41.7883	-72.5503
Hockanum River	4500	downstream	New State Street	Manchester	Pete Burke	112	41.7859	-72.5569
Hockanum River	4500	upstream	New State Street	Manchester	Pete Burke	2777	41.7849	-72.5549
Hop Brook	4318		Below old mill pond adj. Waterfall Way	Simsbury	Farmington River Watershed Association	1015	41.8701	-72.8106
Hop River	3108	Downstream	South Rd. crossing	Coventry	Bonnie Potacki and Darby Polanski	1122	41.7685	-72.4060
Judd Brook	4702	at	Mouth	Colchester	The Nature Conservancy- Salmon River Coalition	954	41.6005	-72.3729
Little River	3708		50 m us of dam in town swimming area	Putnam	CT Audubon Society-Pomfret	1063	41.9208	-71.9228
Little River	7201	at	Cross Highway	Redding	The Nature Conservancy-Devils Den	2769	41.3090	-73.3658
Little River	7201	at	Newtown Turnpike	Redding	The Nature Conservancy-Devils Den	2346	41.2931	-73.3678

Mashamoquet Brook	3710	end	paved section of road in state park	Pomfret	CT Audubon Society-Pomfret	1541	41.8561	-71.9758
Mashamoquet Brook	3710	500 meters DS	Route 44 in State Park	Pomfret	CT Audubon Society-Pomfret	1164	41.8579	-71.9812
Meadow Brook	4703	immediatel y upstream	confluence with Jeremy River	Colchester	The Nature Conservancy- Salmon River Coalition	1917	41.5871	-72.3868
Mill Brook	3707-00-2-R1	at	Route 171 near Sprucedale Gardens	Woodstock	Quinebaug and Shetucket Heritage Corridor	2793	41.9375	-71.9595
Moodus River	4710	at	North Moodus Road	East Haddam	The Nature Conservancy- Salmon River Coalition	1634	41.4959	-72.4599
Morgan Brook	4305	at	mouth	Barkhamsted	Farmington River Watershed Association	408	41.9018	-72.9889
Mount Hope River	3206-00-3-R4	250 feet downstrea m	Route 44	Ashford	Quinebaug and Shetucket Heritage Corridor	2791	41.8633	-72.1612
Natchaug River	3200	at	Route 198 entrance to Natchaug SF	Eastford	CT Audubon Society-Pomfret	1319	41.8458	-72.0976
Natchaug River	3200	adjacent	to Route 198 at Pepper Tree Campground	Eastford	Craig Bobrowiecki	2776	41.8557	-72.0941
Nod Brook	4317	DS	Route 10	Avon	Farmington River Watershed Association	1243	41.8158	-72.8294
Nonewaug River	6802	upstream	Minortown road adjacent to Mill Road	Woodbury	Pomperaug River Watershed Coalition	770	41.5728	-73.1844
Nonewaug River	6802	downstrea m	Route 47 (Washington Road)	Woodbury	Pomperaug River Watershed Coalition	230	41.5575	-73.2122
North Branch Park River	4404	at	Farmington Avenue (Route 4) behind # 19 Woodland street	Hartford	Park River Assessment Program	2274	41.7672	-72.7033
North Branch	4404	behind	Watkinson School	Hartford	Park River Assessment Program	2783	41.7937	-72.7108

Park River								
Pine Brook	4705-00-3-R4	at mouth	Colchester Fish and Game club property	Colchester	The Nature Conservancy- Salmon River Coalition	2779	41.5802	-72.4005
Pomperaug River	6800	at	town park (the Hollow) off Rte 317	Woodbury	Pomperaug River Watershed Coalition	1990	41.5365	-73.2136
Pomperaug River	6800	adjacent Bent-Of-River Audubon Center	off Flagg Swamp Road	Southbury	Pomperaug River Watershed Coalition	1313	41.4672	-73.2580
Pomperaug River	6800	upstream	Poverty Road	Southbury	Pomperaug River Watershed Coalition	934	41.4812	-73.2252
Pond Brook	6018	at	Bridge at State Boat Launch	Newtown	Trout Unlimited-Candlewood Valley Chapter	1523	41.4597	-73.3275
Pootatuck River	6020	at	Sandy Hook Center	Newtown	Trout Unlimited-Candlewood Valley Chapter	2278	41.4222	-73.2820
Pootatuck River	6020	adjacent	Tom's Brook Confluence (DS STP outfall)	Newtown	Trout Unlimited-Candlewood Valley Chapter	1198	41.4149	-73.2827
Pootatuck River	6020	downstream	Wasserman Way on Game Club Property (Mile Hill Rd)	Newtown	Trout Unlimited-Candlewood Valley Chapter	281	41.4064	-73.2720
Railroad Brook	4503	at footbridge	In Valley Falls St. Park, Northern end of Freja Park	Vernon	Bolton Conservation Commission	1176	41.8242	-72.4454
Roaring Brook	4312	upstream footbridge	Lions pool 300 meters US Cottage St.	Farmington	Farmington River Watershed Association	1081	41.7594	-72.8808
Sages Ravine Brook	6001-00-1	downstream intersection of	Mt. Frissell Trail and Northwest Road	Salisbury	Bolton Conservation Commission	2768	42.0494	-73.4660

Saugatuck River	7200	at Saugatuck Falls Natural area	off Route 53 across from John Reed Middle School	Redding	The Nature Conservancy-Devils Den	2483	41.3041	-73.4041
Saugatuck River	7200	at	Lyons Plain Road at Fire Station	Weston	The Nature Conservancy-Devils Den	1296	41.2199	-73.3499
Saugatuck River	7200	at	DS end of Fly Fishing Only Area (1 Ford Rd)	Westport	The Nature Conservancy-Devils Den	320	41.1693	-73.3670
Saugatuck River	7200	downstrea m	Davis Hill Road	Weston	The Nature Conservancy-Devils Den	318	41.2245	-73.3469
Saugatuck River	7200-00-3-R2	behind Mark Twain Library	downstream Diamond Hill Road and Rte 53	Redding	The Nature Conservancy-Devils Den	2771	41.2994	-73.4016
Scantic River	4200	downstrea m 100 meters	South Maple Street	Enfield	Enfield Conservation Commission	1136	41.9820	-72.5407
Scantic River	4200	end of Quality Ave	downstream Maple Street	Somers	Enfield Conservation Commission	2778	41.9815	-72.4928
Shepaug River	6700	500 meters Downstrea m	Rte 202 adjacent to dirt road	Washington	Washington Montessori School	1839	41.7019	-73.2904
Shepaug River	6700	in	Steep Rock park at river road bridge	Washington	Washington Montessori School	1037	41.6220	-73.3255
Sprain Brook	6803-00-2-R4	downstrea m	Route 47 adjacent to Papermill Road	Woodbury	Pomperaug River Watershed Coalition	2772	41.5696	-73.2259

Still River	3202	behind	Post Office at Eastford center	Eastford	CT Audubon Society-Pomfret	1542	41.9026	-72.0787
Tankerhoosen River	4503	upstream 100 m	mouth at golf land	Vernon	Friends of Hockanum River Linear Park	344	41.8201	-72.5033
Tankerhoosen River	4503	DS	Bolton Road	Vernon	Friends of Hockanum River Linear Park	1120	41.8294	-72.4482
Tankerhoosen River	4503	upstream	Tunnel Road	Vernon	Friends of Hockanum River Linear Park	345	41.8272	-72.4640
Tankerhoosen River	4503	US	Small pond (below dobsonville pond)	Vernon	Friends of Hockanum River Linear Park	1121	41.8232	-72.4934
Tinkerville Brook	3207-01-1	300 feet upstream	Bissonnett Pond at mouth	Willington	Bob Anderson	2790	41.9255	-72.2175
Transylvania Brook	6806	25 meters downstream	Whale Road	Southbury	Pomperaug River Watershed Coalition	597	41.4826	-73.2595
Tributary to Eight Mile River (PV brook)	4800	at	trail crossing off MacIntosh Road	Lyme	Three Rivers Community Technical College	1238	41.4155	-72.3396
Tributary to Tributary to Trout Brook	4403-06-1	DS	Mountain Road adjacent to Rte 44	West Hartford	Park River Assessment Program	2785	41.7870	-72.7661
Tributary to Trout Brook	4403-06-1	DS	Harvest Street adjacent to Asylum	West Hartford	Park River Assessment Program	2784	41.7788	-72.7519
Trout Brook	4403		Under Boulevard at Northfeldt Park	West Hartford	Park River Assessment Program	1049	41.7586	-72.7375
Weekepeemee River	6804	downstream	Jacks Bridge Road at USGS gage	Bethlehem	Pomperaug River Watershed Coalition	1468	41.5575	-73.2155
Wepawaug River	5307	downstream	Route 121	Orange	Boy Scout Troop 925, Turkey Hill School PTA	1714	41.2835	-73.0409

West Branch Farmington River	4300	upstream 500 meters	Rte 318 Bridge	Barkhamsted	Craig Bobrowiecki	1777	41.9168	-72.9890
West Branch Saugatuck River	7203	at Biscegli Park	upstream Route 57 and 53	Weston	The Nature Conservancy-Devils Den	2484	41.2140	-73.3889
West Branch Saugatuck River	7203	at	Cavalry Road	Weston	The Nature Conservancy-Devils Den	1287	41.1780	-73.3742
West Branch Saugatuck River	7203	at	Stonebridge Road in Open Space Property	Weston	The Nature Conservancy-Devils Den	1999	41.1947	-73.3875
West Branch Saugatuck River	7203-00-2-R5	at	Newtown Turnpike (between Broad and Crooked Mile Rds)	Westport	The Nature Conservancy-Devils Den	2770	41.1782	-73.3801

RAPID BIOASSESSMENT IN WADEABLE STREAMS AND RIVERS BY VOLUNTEER MONITORS
FIELD DATA SHEET

SUBMIT DATA TO: MIKE BEAUCHENE (mike.Beauchene@po.state.ct.us)
PHONE (860) 424-4185

WATERBODY NAME:		COLLECTION DATE:	COLLECTION TIME:
LOCATION DESCRIPTION:		COLLECTORS NAMES:	
TOWN:	NOTES/COMMENTS:		

	1	2	3	4	5A	5 B	5 C
MOST	Body builder mayfly	Minnow mayfly	2-tailed flat head mayfly	Roach-like stonefly	Common stonefly	Giant stonefly	Misc
	Drunella	Isonychia	Epeorus	Peltoperlidae	Perlidae	Pteronarcys	Stonefly
							
Locs 1&2							
Locs 3&4							
Locs 5&6							

	6A	6 B	7	8A	8 B
MOST	Saddle-Case caddis	Cornucopia Case caddis	Michelin Man caddis	Mid-size plant case caddis	
	Glossosoma	Apatania	Rhyacophila	Brachycentrus	Lepidostoma
					
Locs 1&2					
Locs 3&4					
Locs 5&6					

DATA INTERPRETATION	
# OF TYPES OF THE "MOST"	WATER QUALITY
5 OR MORE	EXCEPTIONAL
3 TO 4	EXCELLENT
1 TO 3	VERY GOOD
0	MORE INFO NEEDED TO ASSESS

	9	10	11	12	13 A	13 B	14
MODERATE	Common net-spinner	Fingernet Caddis	Flat Head mayfly	Water Penny	Dobsonfly	Fishfly	Dragonfly & Damselfly
	Hydropsychidae	Chimarra	Stenonema	Psephenus	Corydalus	Nigronia	Odonata
							
Locs 1&2							
Locs 3&4							
Locs 5&6							

	15 A	15 B	15 C	15 D	15 E	15 F	15 G
LEAST	Amphipod	Isopod	Leech	Midge	Black fly	Snail	Worm
							
Locs 1&2							
Locs 3&4							
Locs 5&6							

	OTHER COMMONLY COLLECTED RIFFLE-DWELLING MACROINVERTEBRATES						
OTHERS	Crayfish	Crane fly larvae	Riffle Beetle adult/larva	Small minnow mayfly	Water snipe fly	Planaria	Fingernail clam/ mussel
							
Present							

ALL RBV MATERIALS ARE AVAILABLE AT: http://dep.state.ct.us/wtr/volunmon/volopp.htm

PLEASE NOTE: BE SURE TO INCLUDE AT LEAST 1 OR 2 OF EACH ORGANISM IN YOUR VOUCHER COLLECTION!! INCLUDE A SPECIMEN FROM EVERY TYPE YOU THINK IS A DIFFERENT, EVEN IF IT IS NOT PICTURED ON THIS DATASHEET. **IF AN ORGANISM IS NOT INCLUDED IN THE VOUCHER COLLECTION IT WILL NOT BE INCLUDED IN THE FINAL DATA ASSESSMENT!!**