

2015
Volunteer Biological Assessment Program
Stream Data Collection Report
For the Ossipee Watershed and Saco Watershed



Sandwich Central School

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The Other Store, Tamworth

Participating School Groups:

Effingham Elementary School
Freedom Elementary School
Ossipee Central School
Sandwich Central School
Madison Elementary School
Moultonborough Central School
The Community School
The Carroll County 4H Voyagers
The Maine Environmental Science Academy



Freedom Elementary students taking observations on Cold Brook.

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Ossipee students collecting macroinvertebrates from the Swift River.

1. INTRODUCTION

The New Hampshire Department of Environmental Services (DES) has conducted stream surveys to determine the health of aquatic ecosystems since 1997. As part of these efforts, DES has developed a preliminary screening protocol for 1st through 4th order streams that is appropriate for volunteers and untrained professionals to evaluate the biological condition of aquatic macroinvertebrate communities. The goals are to supplement biological data collected by DES, educate the public about water quality issues as interpreted through biological assessments, build a constituency of individuals to practice sound water quality management at the local level, and build public support for water quality protection.

Since 2004, the NHDES has coordinated efforts with several local organizations to develop the Volunteer Biological Assessment Program (VBAP). In 2006, the DES began working with the Green Mountain Conservation Group (GMCG), a non-profit charitable organization concerned with natural resource conservation in the Ossipee Watershed, to: (1) determine the level of volunteer interest and ability to collect biological data; (2) evaluate the effectiveness of the VBAP protocol and associated biotic index; and, (3) initiate and complete biological sampling of macroinvertebrates in several streams within the Ossipee Watershed.

During the fall of 2015, GMCG continued this work with students and teachers from nine local schools. With the additional help of VBAP volunteers, they sampled ten sites in and around the Ossipee Watershed.

2. METHODS

2.1 Sampling sites and data collection

All sites were accessible, wadeable, approximately 200 feet in length, and contained appropriate sampling habitat (at least one riffle with mixed cobble substrate). Due to high water levels, some sites were sampled farther upstream or downstream. Sampling was scheduled throughout September and October and required three to four hours per site. Not all sites were equally accessible by students because of varying stream levels, but students were included in sampling and taking measurements as much as possible.

Prior to any sampling, a training session was held during a scheduled classroom period and consisted of three major components: (1) macroinvertebrate sampling techniques; (2) basic macroinvertebrate identification skills; and, (3) biotic index computation. Student volunteers were also trained to collect and record supplementary data which consisted of basic physical and chemical parameters.

After site information was recorded and sampling locations were identified, macroinvertebrates were collected by placing a 500 micron mesh kicknet perpendicular to stream flow and firmly against the streambed with the opening of the net faced upstream to promote macroinvertebrate collection. A collector would disturb the sample area (1/5 m²) upstream of the net for a total of 60 seconds (30 second hand-scrub followed by a 30 second kick). Subsequently, the kicknet was carefully lifted out of the water and the same process was repeated four additional times with each sample collected further upstream. Collectively, active sampling time approximated five minutes within one square meter area at each sampling station.

Once the collection process was complete, the contents of the net were transferred into a container fitted with 500 micron wire mesh and all organisms remaining on the net were carefully removed and added to the sample. This year, the entire sample was sorted by the students. In the past, following protocol, one quarter portion of the sample was randomly selected for sorting and transferred to a separate tray(s).

2.2 Macroinvertebrate sorting and identification

For approximately 30 minutes, volunteers removed macroinvertebrates from the selected portion of the sample with spoons or pipettes and placed them into separate containers. Student groups sometimes rotated among the sample portions to examine more completely each sample portion. After sorting, specimens were identified to various coarse taxonomic groups (Table 1). This year, the time that volunteers spent sorting was not recorded in every case. According to protocol, the number of people sorting, cumulative sorting effort (0.5 hour x # people sorting), and approximate fraction of the total sample sorted should be recorded.

This year, at one site in particular, an abnormally high number of watermites was found (Moose Pond Brook in Denmark, Maine). After research on the pollution tolerance of watermites, GMCG added watermites to the biotic score sheet from the NHDES in order to evaluate accurately the water quality of this particular site.

Table 1. The taxonomic order and common name of aquatic macroinvertebrates identified in the Volunteer Biological Assessment Program.

Order	Common Name	Tolerance value
Ephemeroptera	Mayfly nymph	3
Plecoptera	Stonefly nymph	1
Trichoptera	Caddisfly larvae	4
Odonata	Dragonfly nymph	3
	Damselfly nymph	7
Diptera	Black fly larvae	7
	Midge larvae	6
	Most true flies	4
Megaloptera	Alderfly	4
	Fishfly or hellgrammite	0
Coleoptera	Riffle beetle	4
	Water penny	4
	Beetle and beetle-like	7
Others	Crayfish	6
	Snails	7
	Aquatic worms	8
	Scuds	8
	Sowbugs	7
	Clams and mussels	7
	Watermites	4

The number of macroinvertebrates within each taxonomic group and the total number of individuals sorted was calculated and recorded. Students were assisted by GMCG staff and/or trained volunteers in the process of identifying the macroinvertebrates in the sample. According to protocol, a sample should be preserved and sent to DES or a trained biologist for further evaluation.

2.3 Biotic index computation

Biotic scores were computed for each sample station using a standardized computational worksheet. Biotic scores are based on pollution tolerance values ranging from 0 to 8 that are assigned to individual taxonomic groups. More tolerant groups have higher tolerance values and less tolerant groups have lower values. Taxonomic-specific biotic scores for individual samples were computed by multiplying the number of individuals by their respective tolerance value. Final biotic scores were calculated by summing the taxonomic-specific biotic scores and dividing the sum by the total number of individuals identified in the respective sample. Final biotic scores correspond to three interim narrative categories: Excellent (0 to 3.5), Good (3.5 to 4.8), or Fairly Poor (greater than 4.8).

2.4 Supplementary data

The water chemistry and physical parameters of the stream were also recorded. Physical parameters recorded included width/depth of the stream, canopy cover, and observations of nearby erosion or human influence. Basic water chemistry data was collected using a multi-parameter submersible water quality probe and included dissolved oxygen, conductivity, and water temperature. Turbidity samples and pH samples were also taken at each site.



MESA students using probes to test for dissolved oxygen content.

3. RESULTS

3.1 Water Quality

Basic water quality measures were collected at each of the sampling locations (Appendix A). All measures were within the range of expectation for streams in this area of New Hampshire. For more detailed water quality data on the water bodies in the Ossipee watershed, refer to the annual reports published by GMCG available online at <http://www.gmcg.org/research/water-quality-program-data/>.

3.2 Biological Assessment

Macroinvertebrate samples from each site were evaluated using the VBAP biotic score index utilizing taxa-specific tolerance values. A cumulative biotic score for all sites and individual site-specific biotic scores were computed. The cumulative biotic score for all sites was 3.26 and corresponds to the “excellent” narrative category (Table 2). Overall, caddisfly nymphs were the most dominant taxon (35%), followed by mayfly nymph (31%) and stonefly nymphs (15%) (Figure 1). Together, these three taxa comprised 81% of all individuals. In completing the sampling effort, volunteers collected and identified 1117 macroinvertebrates.

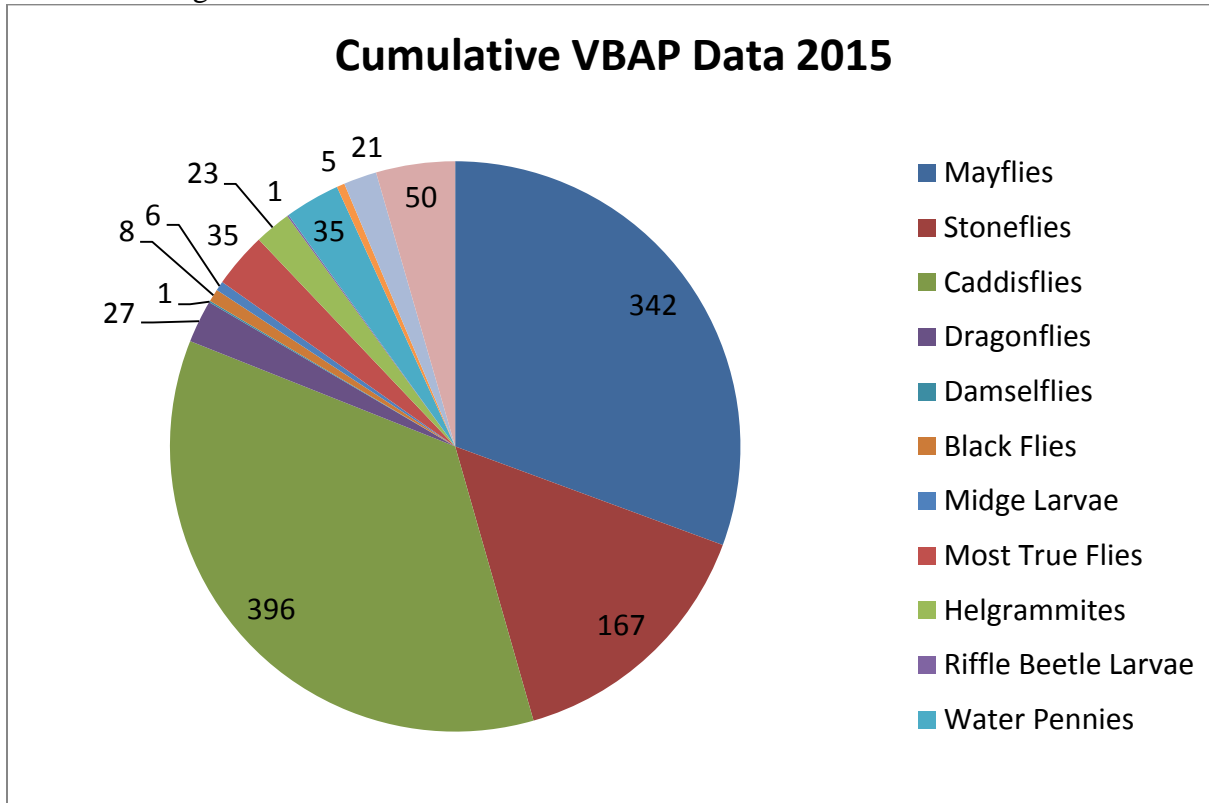
Table 2. Cumulative results of macroinvertebrate samples collected at 10 sites in the Ossipee Watershed and greater Saco Watershed during fall 2015.

Order	Common Name	Tolerance Value	Individuals Found	Group Biotic Score	Biotic Score	VBAP Category
Ephemeroptera	Mayfly Nymph	3	342	1026	3.26	Excellent!
Plecoptera	Stonefly Nymph	1	167	167		
Trichoptera	Caddisfly Larvae	4	396	1584		
Odonata	Dragonfly Nymph	3	27	81		
	Damselfly Nymph	7	1	7		
Diptera	Black fly larvae	7	8	56		
	Midge larvae	6	6	36		
	Most True flies	4	35	140		
Megaloptera	Alderfly	4	0	0		
	Fishfly or Hellgrammite	0	23	0		
Coleoptera	Riffle beetle	4	1	4		
	Water Penny	4	35	140		
	Beetle & Beetle-like	7	5	35		
Others	Crayfish	6	0	0		
	Snails	7	0	0		
	Aquatic Worms	8	21	168		
	Scuds	8	0	0		
	Sowbugs	7	0	0		
	Clams and Mussels	7	0	0		
	Watermites	4	50	200		
Totals			1117	3644		



Community School students learn about NH’s water resources.

Figure 1. Cumulative taxonomic composition of macroinvertebrate samples collected at 10 sites in the Ossipee and greater Saco Watershed in fall 2015.



Biotic scores from individual sites ranged from 2.88 to 4.0 in 2015 (Table 3). Of the 10 sites sampled, nine were placed in the “Excellent” category and one was placed in the “Good” category.

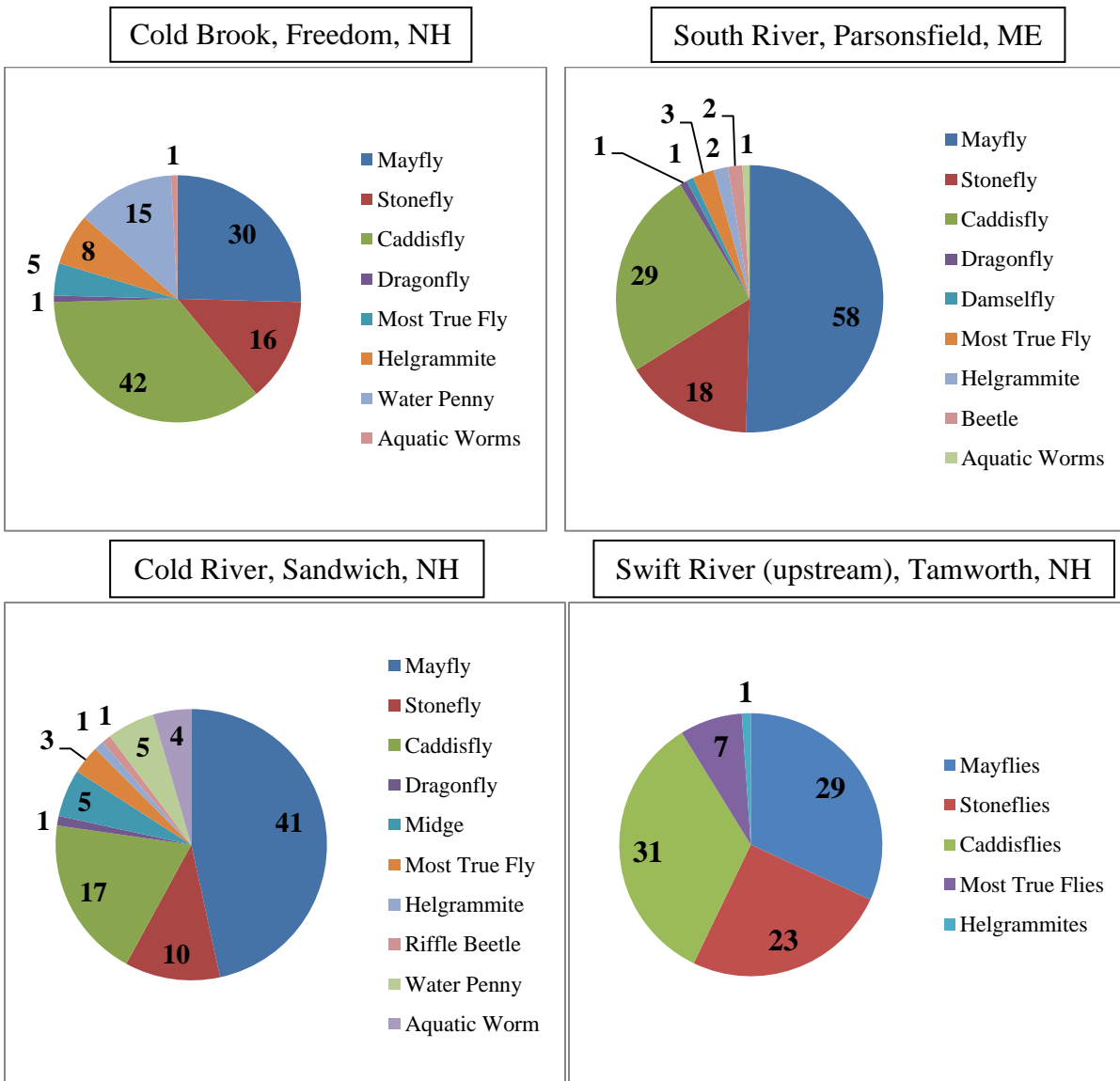
Table 3. Biotic scores and VBAP narrative categories of macroinvertebrate samples collected at 10 sites in the Ossipee Watershed and greater Saco Watershed during fall 2015.

Site Number	Stream Name	Town	Biotic Score	VBAP Narrative Category
1	Cold Brook	Freedom, NH	3.09	Excellent
2	South River	Parsonsfield, ME	3.06	Excellent
3	Cold River	Sandwich, NH	3.43	Excellent
4	Swift River (upstream)	Tamworth, NH	2.88	Excellent
5	Swift River (downstream)	Tamworth, NH	3.33	Excellent
6	Forrest Brook	Madison, NH	3.26	Excellent
7	Lovell River	Ossipee, NH	3.44	Excellent
8	Moose Pond Brook	Denmark, ME	4.0	Good
9	Bearcamp River	Tamworth, NH	3.04	Excellent
10	Beech River	Ossipee, NH	3.07	Excellent

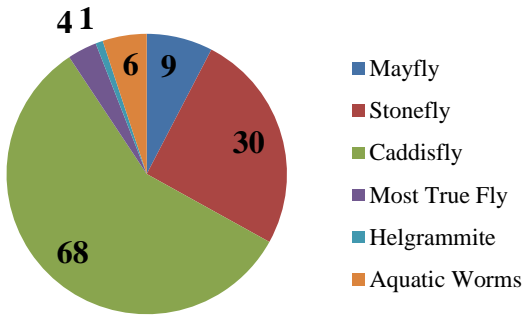


Moultonborough students sorting and counting macroinvertebrates from the Swift River.

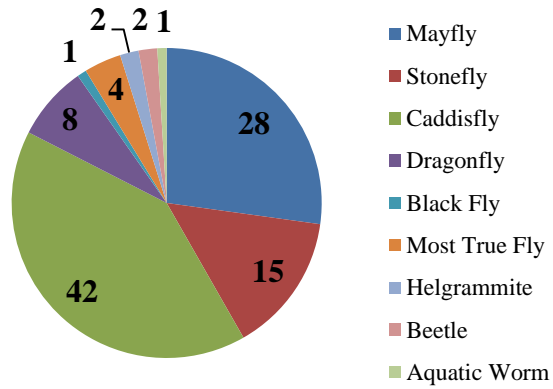
Figure 4: Taxonomic composition of macroinvertebrate samples collected at 10 sites in the Ossipee Watershed in fall 2015.



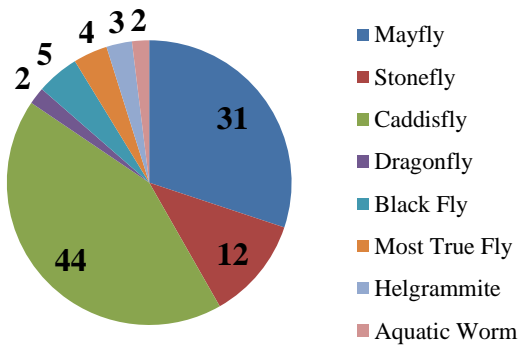
Swift River (downstream), Tamworth, NH



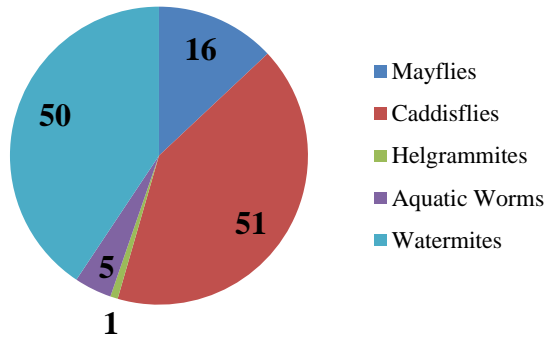
Forrest Brook, Madison, NH



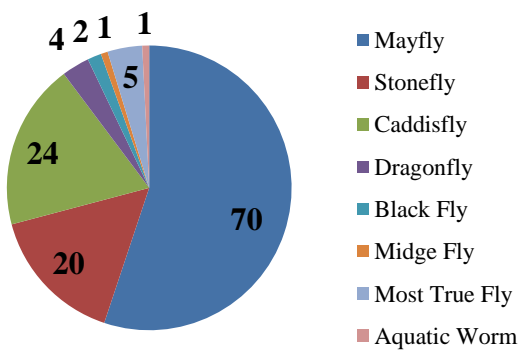
Lovell River, Ossipee, NH



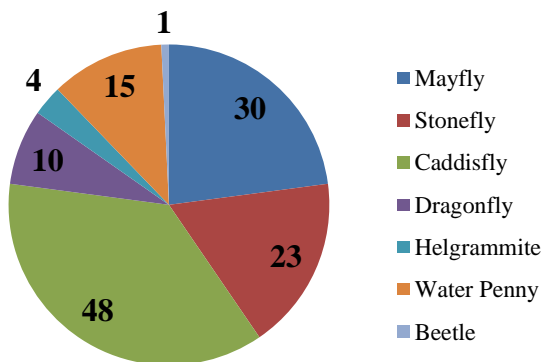
Moose Pond Brook, Denmark, ME



Bearcamp River, Tamworth, NH



Beech River, Ossipee, NH





Effingham students learn about macroinvertebrate identification.

4. SUMMARY AND FUTURE RECOMMENDATIONS

The documentation by volunteers of the macroinvertebrate communities using the VBAP protocol during fall 2015 in the Ossipee watershed represented the tenth consecutive year of ‘screening’ efforts to evaluate the status of aquatic communities. The sampling efforts included eight sites in the Ossipee Watershed and one site in the greater Saco River Watershed. The VBAP protocol was designed by NHDES to provide volunteers and water quality professionals without formal training in biological sampling an avenue to complete “coarse” level investigations of the types and quantities of macroinvertebrates living in streams and rivers. Macroinvertebrates are widely used as indicators of water quality that can show the effects of multiple pollutants over time. It is important to recognize that the results obtained from the VBAP protocol are not intended to represent formal water quality assessments, but rather, a basic indicator of aquatic community condition.

The VBAP protocol also provided volunteers with an opportunity to become familiar with aquatic fauna in the streams and rivers in the Ossipee watershed and beyond. The collection of macroinvertebrates using the VBAP protocol, in addition to the usual chemical parameters collected by GMCG, proved to be a fairly simple and informative way to assess the health of a river or stream. With adequate training, volunteers became familiar with the most common macroinvertebrate types and their respective tolerance to pollution.

The results obtained by student volunteers using the VBAP protocol indicated that the majority of sites sampled appeared to be in excellent condition. Nine of the streams fell into the “excellent” narrative category and one was in the “good” category. Most of the communities were dominated by less tolerant macroinvertebrates, such as the mayflies, stoneflies, and caddisflies. Due to higher than average water levels, the full protocol regarding sample size and percentage of sample sorted was not followed at each site. In those cases, the activity was a successful educational opportunity for volunteers.

While the biotic index provided a method for relative comparisons of the sites sampled, the tolerance values and narrative categories are still under development and must be calibrated to a set of reference sites before statewide application is possible. The data collected builds upon a baseline against which to compare future

VBAP sampling efforts and highlights the general lack of major impacts to the macroinvertebrate communities at the points where samples were collected.

While the sampling efforts were effective at documenting the status of the macroinvertebrate communities at a coarse level, it is important to recognize that the project represented the effort by GMCG to refine and build upon the VBAP protocol. The DES Biomonitoring program developed the VBAP protocol and is continually refining the training provided to volunteers, field sampling techniques, and biotic index applicability. Therefore, more detailed investigations will need to be made in order to make a formal determination of biological community condition.

Ultimately, the results from the Volunteer Biological Assessment Program for 2015 build upon the efforts conducted by GMCG and NH DES from the past several years. The results of the program serve as a basis for further monitoring and management practices to be put into use throughout the watershed. The Ossipee watershed has a reputation for having great water quality overall and the VBAP results further that reputation. The VBAP results provide objective information to the public so that informed citizens have the ability to make good decisions regarding the Ossipee watershed's unique water resources.



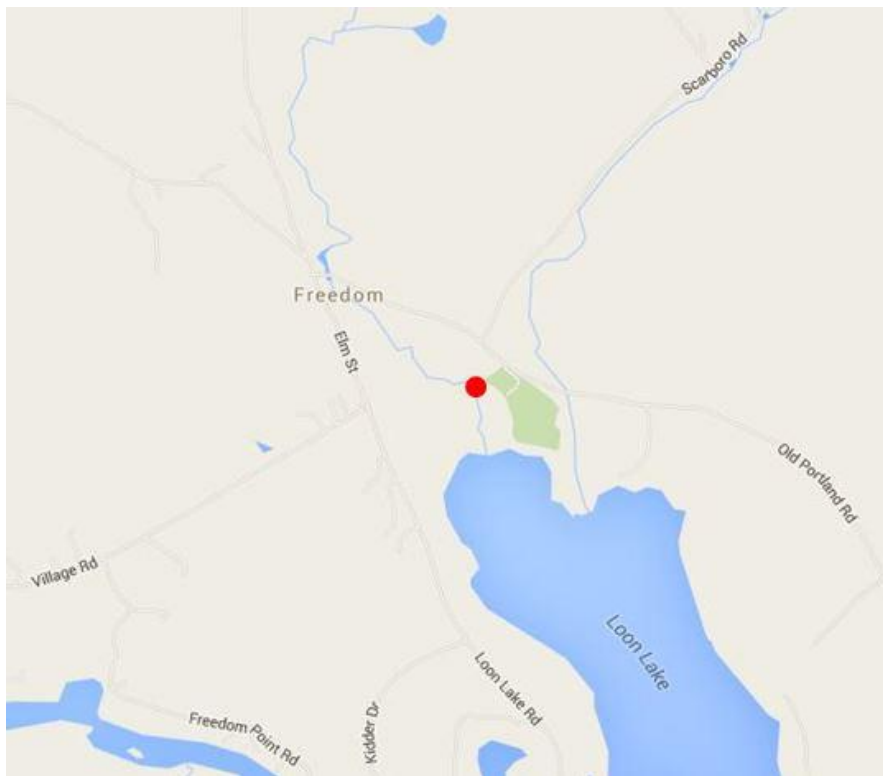
Madison Elementary students sorting their macroinvertebrate sample.



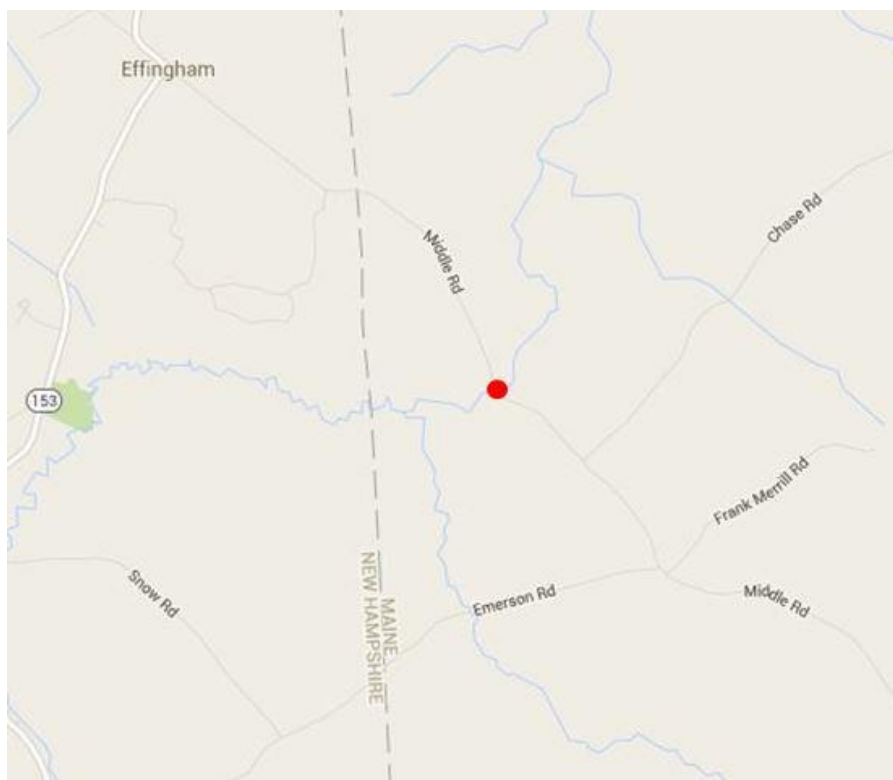
The Ossipee 4H Voyagers hard at work on the Lovell River.

5. APPENDIX

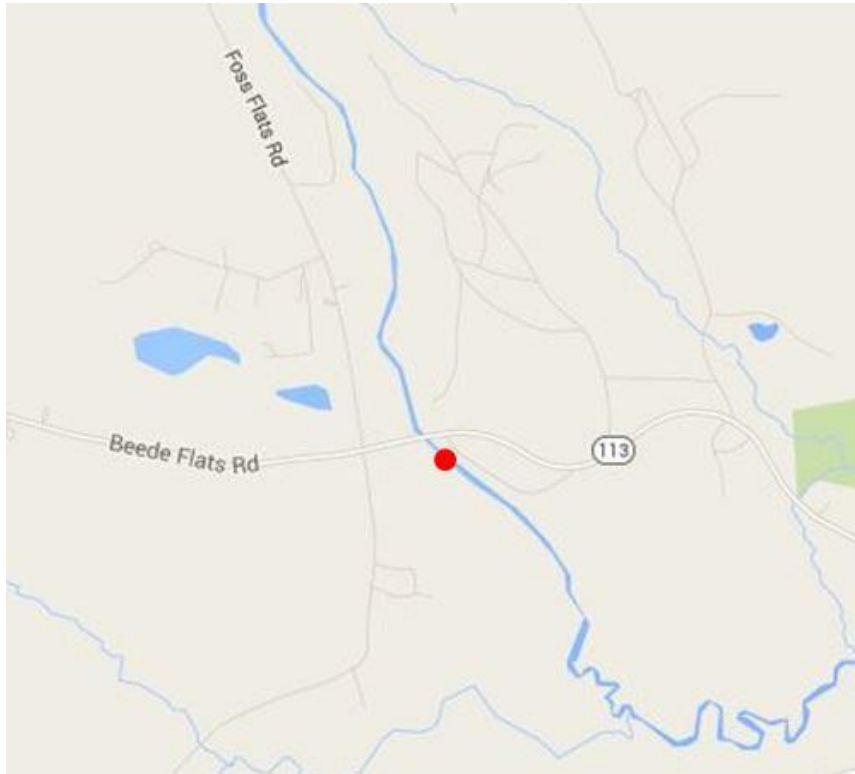
Maps of 2015 macroinvertebrate sampling locations:



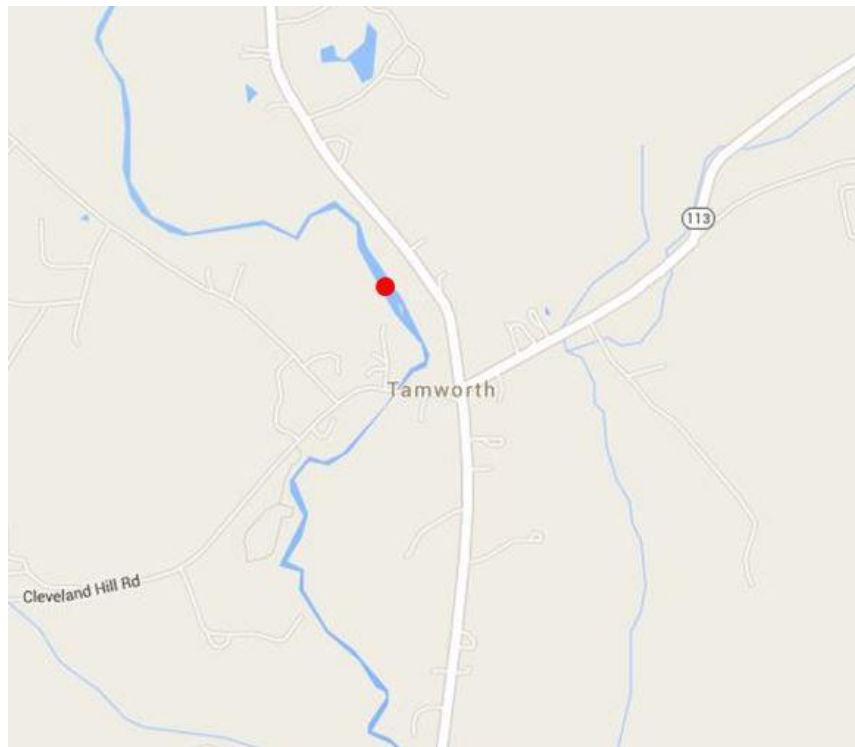
Cold Brook, Freedom, NH. Sampled by Freedom Elementary School



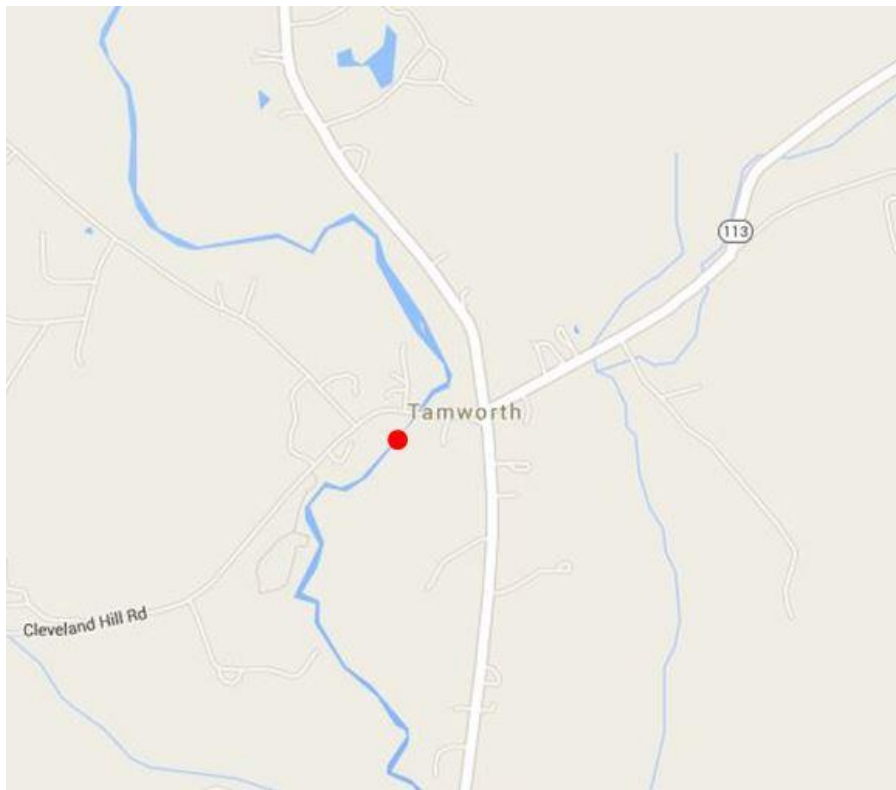
South River, Parsonsfield, ME. Sampled by Effingham Elementary School



South River, Parsonsfield, ME. Sampled by Effingham Elementary School



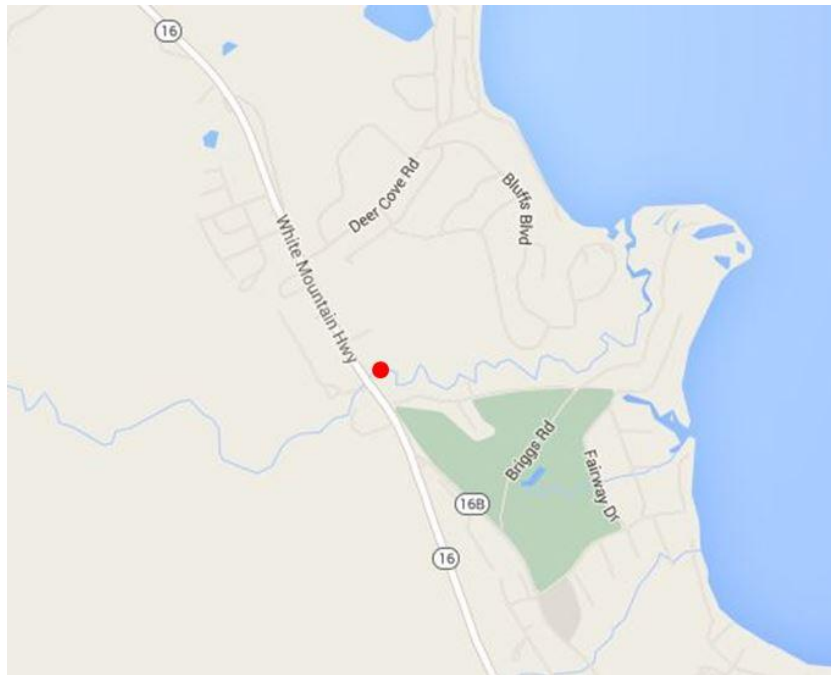
Swift River (upstream), Tamworth, NH. Sampled by Moultonborough Central School



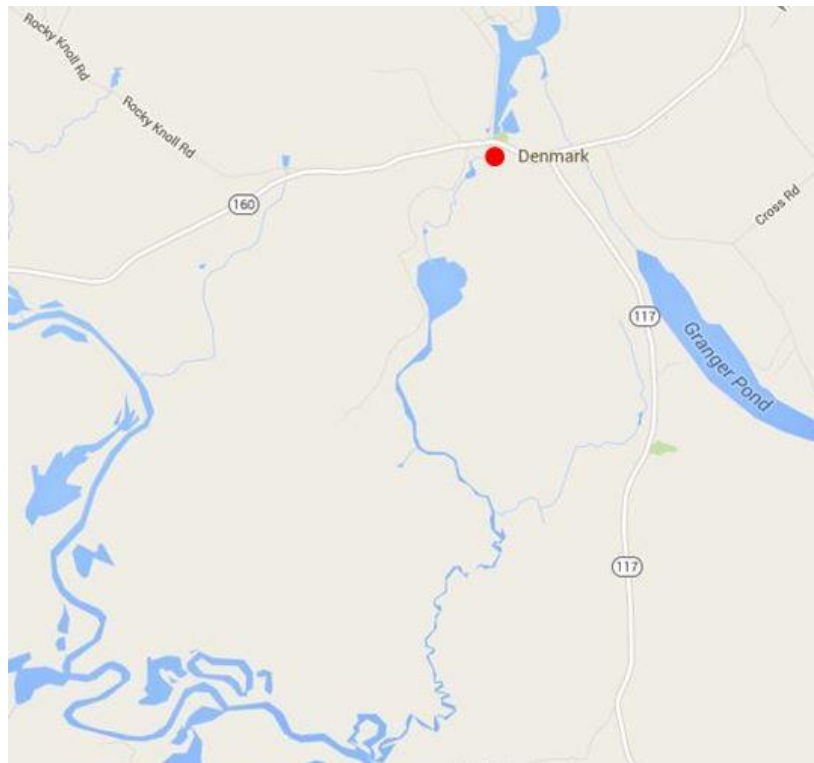
Swift River (downstream), Tamworth, NH. Sampled by Ossipee Central School



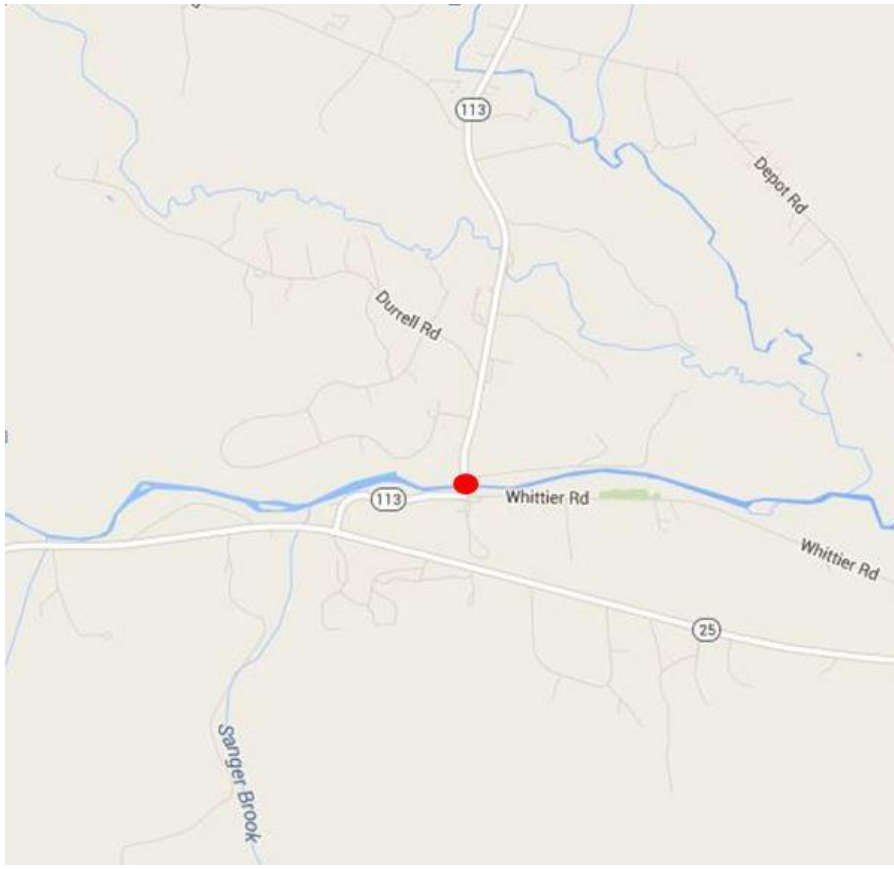
Forrest Brook, Madison, NH. Sampled by Madison Elementary School



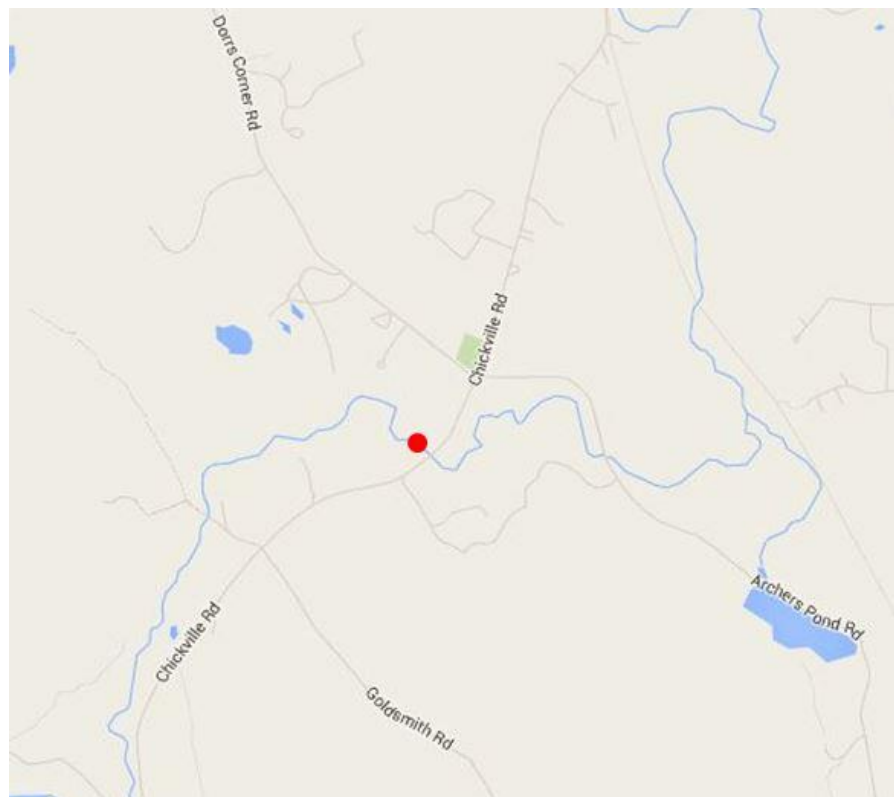
Lovell River, Ossipee, NH. Sampled by the Ossipee 4H Voyagers



Moose Pond Brook, Denmark, ME. Sampled by the Maine Environmental Science Academy



Bearcamp River, Tamworth, NH. Sampled by The Community School



Beech River, Ossipee, NH. Sampled by Ossipee Central School

Appendix A. Basic water quality parameter results collected at VBAP sampling sites during fall 2015.

River/Stream	pH (units)	Dissolved Oxygen (mg/L), (%)	Temperature (°C)	Conductivity (µS/cm)	Turbidity (NTU)
Cold Brook	6.67	9.19, (97%)	17	96.8	1.01
South River	6.41	8.55, (81.7%)	13.6	67.4	1.33
Cold River	6.37	10.03, (98.9%)	15.5	23.0	2.34
Swift River (upstream)	6.18	9.01, (99.8%)	9.5	33.2	.39
Swift River (downstream)	6.55	9.84, (99.6%)	15	43.5	.79
Forrest Brook	6.42	9.27, (89.4%)	12.8	103.0	2.53
Lovell River	6.23	10.64, (98.8%)	12.15	26.3	.46
Moose Pond Brook	6.49	9.83, (98.1%)	14.2	50.5	n/a
Bearcamp River	6.52	10.61, (100.3%)	11.8	52.1	.50
Beech River	6.67	9.14, (98.1%)	17.9	52.3	.90

Note: n/a = not available

Appendix B. Macroinvertebrate sampling results from individual stream sites sampled during fall 2015.

Site 1: Cold Brook, Freedom, NH. Tested by Freedom Elementary School.

Order	Common Name	Tolerance Value	*	Totals Found	=	Biotic Score	Final Biotic Score	VBAP Narrative Category
Ephemeroptera	Mayfly Nymph	3	*	30	=	90	3.09	Excellent!
Plecoptera	Stonefly Nymph	1	*	16	=	16		
Trichoptera	Caddisfly Larvae	4	*	42	=	163		
Odonata	Dragonfly Nymph	3	*	1	=	3		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*	5	=	20		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	8	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*	15	=	60		
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	1	=	8		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				118		365	3.09	Excellent!

Site 2. South River, Parsonsfield, ME. Tested by Effingham Elementary School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	58	=	174		
Plecoptera	Stonefly Nymph	1	*	18	=	18		
Trichoptera	Caddisfly Larvae	4	*	29	=	116		
Odonata	Dragonfly Nymph	3	*	1	=	3		
	Damselfly Nymph	7	*	1	=	7		
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*	3	=	12		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	2	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*	2	=	14		
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	1	=	8		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				115		352	3.06	Excellent!

Site 3. Cold River, Sandwich, NH. Tested by Sandwich Central School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	41	=	123		
Plecoptera	Stonefly Nymph	1	*	10	=	10		
Trichoptera	Caddisfly Larvae	4	*	17	=	68		
Odonata	Dragonfly Nymph	3	*	1	=	3		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*	5	=	30		
	Most True flies	4	*	3	=	12		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	1	=	0		
Coleoptera	Riffle beetle	4	*	1	=	4		
	Water Penny	4	*	5	=	20		
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	4	=	32		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				88		302	3.43	Excellent!

Site 4. Swift River (upstream), Tamworth, NH. Tested by Moultonborough Central School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	29	=	87		
Plecoptera	Stonefly Nymph	1	*	23	=	23		
Trichoptera	Caddisfly Larvae	4	*	31	=	124		
Odonata	Dragonfly Nymph	3	*		=			
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*	7	=	28		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	1	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*		=			
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				91		262	2.88	Excellent!

Site 5. Swift River (downstream), Tamworth, NH. Tested by Ossipee Central School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	9	=	27		
Plecoptera	Stonefly Nymph	1	*	30	=	30		
Trichoptera	Caddisfly Larvae	4	*	68	=	272		
Odonata	Dragonfly Nymph	3	*		=			
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*	4	=	16		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	1	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	6	=	48		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				118		393	3.33	Excellent!

Site 6. Forrest Brook, Madison, NH. Tested by Madison Elementary School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	28	=	84		
Plecoptera	Stonefly Nymph	1	*	15	=	15		
Trichoptera	Caddisfly Larvae	4	*	42	=	168		
Odonata	Dragonfly Nymph	3	*	8	=	24		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*	1	=	7		
	Midge larvae	6	*		=			
	Most True flies	4	*	4	=	16		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	2	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*	2	=	14		
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	1	=	8		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				103		336	3.26	Excellent!

Site 7. Lovell River, Ossipee, NH. Tested by the Ossipee 4H Voyagers.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	31	=	93		
Plecoptera	Stonefly Nymph	1	*	12	=	12		
Trichoptera	Caddisfly Larvae	4	*	44	=	176		
Odonata	Dragonfly Nymph	3	*	2	=	6		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*	5	=	35		
	Midge larvae	6	*		=			
	Most True flies	4	*	4	=	16		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	3	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	2	=	16		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				103		354	3.44	Excellent!

Site 8. Moose Pond Brook, Denmark, ME. Tested by the Maine Environmental Science Academy.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	16	=	48		
Plecoptera	Stonefly Nymph	1	*		=			
Trichoptera	Caddisfly Larvae	4	*	51	=	204		
Odonata	Dragonfly Nymph	3	*		=			
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*		=			
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	1	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	5	=	40		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
	Watermites	4	*	50	=	200		
Totals				123		492	4.0	Good

Site 9. Bearcamp River, Tamworth, NH. Tested by The Community School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	70	=	210		
Plecoptera	Stonefly Nymph	1	*	20	=	20		
Trichoptera	Caddisfly Larvae	4	*	24	=	96		
Odonata	Dragonfly Nymph	3	*	4	=	12		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*	2	=	14		
	Midge larvae	6	*	1	=	6		
	Most True flies	4	*	5	=	20		
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*		=			
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*		=			
	Beetle & Beetle-like	7	*		=			
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*	1	=	8		
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				127		386	3.04	Excellent!

Site 10. Beech River, Ossipee, NH. Tested by Ossipee Central School.

Order	Common Name	Value	*	Found	=	Score	Score	Category
Ephemeroptera	Mayfly Nymph	3	*	30	=	90		
Plecoptera	Stonefly Nymph	1	*	23	=	23		
Trichoptera	Caddisfly Larvae	4	*	48	=	192		
Odonata	Dragonfly Nymph	3	*	10	=	30		
	Damselfly Nymph	7	*		=			
Diptera	Black fly larvae	7	*		=			
	Midge larvae	6	*		=			
	Most True flies	4	*		=			
Megaloptera	Alderfly	4	*		=			
	Fishfly or Hellgrammite	0	*	4	=	0		
Coleoptera	Riffle beetle	4	*		=			
	Water Penny	4	*	15	=	60		
	Beetle & Beetle-like	7	*	1	=	7		
Others	Crayfish	6	*		=			
	Snails	7	*		=			
	Aquatic Worms	8	*		=			
	Scuds	8	*		=			
	Sowbugs	7	*		=			
	Clams and Mussels	7	*		=			
Totals				131		402	3.07	Excellent!