



# WAVE



**Water Assessments by Volunteer Evaluators**

## **Final Report for the 2013 Sampling Season**



WAVE participants sampling in the Willowemoc Creek near the Catskill Flyfishing Center.

## Table of Contents

Background.....	3
2013 WAVE Results.....	6
WAVE in 2013 .....	9
Figure 1: WAVE Sampling Locations in 2013.....	10
Table 1: 2013 WAVE Data Summary.....	11



**WAVE training at the Brandwein Nature Learning Preserve near Port Jervis, NY**

# Background



**WAVE participant Jen Curry holds casings made by caddisfly larvae.**

Water Assessments by Volunteer Evaluators (WAVE) is a NYS Department of Environmental Conservation (NYSDEC) project which trains and equips citizen scientists to collect valuable water quality data from New York streams and rivers. The WAVE method defines water quality using stream macroinvertebrates and was developed by the NYSDEC Stream Biomonitoring Unit in collaboration with the NYSDEC Hudson River Estuary Program. It is based, in large part, on Connecticut's Rapid Bioassessment in Wadeable Streams and Rivers by Volunteer Monitors.

WAVE was piloted in the Hudson River basin in 2012 and expanded to the Genesee River and Delaware River basins in 2013. Here we share the results of the 2013 sampling season.

Support materials, including the project plan, guidance documents, and data sheets are available online (<http://www.dec.ny.gov/chemical/92229.html>) or by contacting WAVE Coordinator Alene Onion by phone at 518-402-8166 or email: [wave@gw.dec.state.ny.us](mailto:wave@gw.dec.state.ny.us).

**WAVE participant sampling Wolf Creek at Letchworth State Park**



---

*The WAVE Method*

---



The main responsibility of WAVE participants is to select stream sites and collect macroinvertebrate samples from each selected location. While the WAVE Coordinator provides some guidance for site selection to avoid duplicate sampling and to target unassessed stream segments, citizen scientists select the final sampling locations because they are most familiar with local conditions and concerns. WAVE training sessions offered each spring/summer provide hands-on experience with sampling methods. Participants are required to attend a training session at least once every five years. Sampling takes place anytime from July to September. During these samplings participants collect riffle-dwelling benthic macroinvertebrates and preserve one or two example specimens of each type in a voucher collection.

Once the voucher collections have been submitted, the WAVE coordinator identifies all the macroinvertebrates to family level and uses these data to calculate an assessment of water quality condition.

- If a sample contains six or more organisms from the Most Wanted list (see next page), then the stream segment is defined as having “No Known Impact.” This is the highest quality category assigned to stream segments in the NY State Waterbody Inventory.
- If a sample contains four or more organisms from the Least Wanted list (see next page), then the stream segment is defined as “Possibly Impaired.” Although this assessment has a 52% error rate, it is valuable as a red flag for sites that might require further investigation by DEC biologists.
- If a sample does not meet either of the above criteria, no conclusion can be drawn.



WAVE participant Jarrett Kuehner

## *Most and Least-Wanted Organisms*

The WAVE method uses the presence of the following organisms to determine the health of sampled streams. “Least” -wanted organisms are not good indicators of water quality condition because they can be found in a wide range of habitats and water quality (polluted and clean water). They are included to help identify locations for more detailed assessments. To see examples of these organisms, visit:

<http://www.dec.ny.gov/animals/35772.html>

### Most-Wanted Macroinvertebrates

Scientific Name	Common Name
Athericidae	watersnipe fly larva
Brachycentridae	humpless case-maker caddisfly larva
Caenidae	small squaregill mayfly nymph
Chloroperlidae	green stonefly nymph
Corydalidae	dobsonfly, fishfly and hellgrammite
Ephemereillidae	spiny crawler mayfly nymph
Ephemeridae	common burrowing mayfly nymph
Glossosomatidae	saddle case-maker caddisfly larva
Gomphidae	clubtail dragonfly nymph
Helicopsychidae	snail-case caddisfly larva
Heptageniidae	flat head mayfly nymph
Hydroptilidae	micro caddisfly larva
Isonychiidae	brushlegged mayfly nymph
Lepidostomatidae	lepidostomatid case-maker caddisfly larva
Leptohiphidae	little stout crawler mayfly nymph
Leptophlebiidae	prong-gilled mayfly nymph
Leuctridae	rolled-winged stonefly nymph
Odontoceridae	strong case-maker caddisfly larva
Peltoperlidae	roachlike stonefly nymph
Perlidae	common stonefly nymph
Perlodidae	patterned stonefly nymph
Philopotamidae	finger net caddisfly larva
Polycentropodidae	tube making and trumpet net caddisfly larva
Polymitarcyidae	pale burrowing mayfly nymph
Potamanthidae	hacklegill mayfly nymph
Psephenidae	water penny
Pteronarcidae	giant stonefly nymph
Rhyacophilidae	free living caddisfly larva
Uenoidae	unoid case-maker caddisfly larva



Glossosomatidae (left) and Pteronarcidae (right) are two examples of Most-Wanted Macroinvertebrates.

### Least-Wanted Macroinvertebrates

Scientific Name	Common Name
Amphipoda	scud
Asellidae	sowbug
Calopterygidae	broad-winged damselfly nymph
Chironomus	red midge larva
Coenagrionidae	narrow-winged damselfly nymph
Cordulegastridae	spiketail dragonfly nymph
Corixidae	water boatman
Haliplidae	crawling water beetle
Hirudinea	leech
Lymnaeidae	air-breathing snail
Pelecypoda	clams and mussels
Physidae	bladder snails
Sialidae	alderfly larva
Simuliidae	black fly larva
Tabanidae	horsefly and deerfly larva
Turbellaria	flatworm and planarian



Asellidae (left), Amphipoda (middle) and Calopterygidae (right) are three examples of Least-Wanted Macroinvertebrates.

# 2013 WAVE Results

A total of 114 sites were assessed in the 2013 WAVE pilot. Of these sites, 40 were defined as having “No Known Impact” and 13 were defined as “Possibly Impaired.” Roughly half of these assessments (55) had never been assessed by NYSDEC and are particularly valuable for NYSDEC purposes.

<b>Results of the 2013 WAVE Pilot Project</b>	Number of citizen monitors trained in 2013	88
	Number of sites assessed	114
	Number of sites defined “No Known Impact”	40
	Number of sites defined “Possibly Impaired”	13

The map in Figure 1 (pg. 10) gives the distribution of the WAVE sites across the state. Table 1 (pg.11) gives the assessment results for each site. Data are also available as a Google map or Google earth file on the WAVE website: <http://www.dec.ny.gov/chemical/92229.html>



WAVE participant Mike Parker examining his voucher collection from the Conesus Lake South Inlet. Photo by Gene Bolster.

---

*Data Quality Assessment*

---

“A sample that yields ‘no conclusion’ is not necessarily a bad sample!”

A sample that yields “no conclusion” is not necessarily a bad sample! The most and least-wanted organisms simply aren’t present in all streams; 47% of NY streams would give “no conclusion” even if participants used perfect technique.

We chose this method for the WAVE project despite this low capture rate because it never gives false positives; by using this method, we never identify a stream as high quality when it is actually impaired. This is very important because we will be using the data for Clean Water Act purposes; we must be extremely confident in the results.

However, poor sampling technique could result in more “no conclusion” results. As part of the 2013 WAVE project, we conducted a study to assess how effectively WAVE participants were collecting samples. To do so, we sampled 10 WAVE sites within two weeks of the citizen monitors and compared our results with theirs. These sites are starred in Table 1. Only two of our samples differed from the WAVE participant results; this is an excellent outcome. It demonstrates what we already knew: WAVE participants are performing high-quality work!



A WAVE participant collects a sample from Rutgers Creek.

“It demonstrates what we already knew:  
WAVE participants are performing high-quality work!”

---

*The PEERS Project*

---

Professional level assessments are more precise than the WAVE method for defining water quality conditions. They can define severely, moderately, slightly and non-impacted streams and can often identify the source of the impact (see Standard Operating Procedure: Biological Monitoring of Surface Waters in NY State - [http://www.dec.ny.gov/docs/water\\_pdf/sbusop12.pdf](http://www.dec.ny.gov/docs/water_pdf/sbusop12.pdf)).

In addition to WAVE, NYSDEC is working with some professional groups outside DEC to accept water quality data collected according to NYS methods. “PEERS”—Professional External Evaluations of Rivers and Streams—offers quality assurance procedures for monitoring groups with the required credentials to conduct professional level sampling. Data collected according to these criteria may be used by NYSDEC in a manner equivalent to NYSDEC Stream Biomonitoring Unit-collected data.

For more information, please contact WAVE Coordinator Alene Onion by phone at 518-402-8166 or e-mail: [wave@gw.dec.state.ny.us](mailto:wave@gw.dec.state.ny.us)

---

## *Use of WAVE Data*

---

WAVE data are valuable to NYSDEC for the purpose of tracking baseline water quality conditions in streams across NY State. The NYS Waterbody Inventory is available online and summarizes known water quality data for all of New York's streams, rivers, and lakes (<http://www.dec.ny.gov/chemical/36730.html>). This report is also submitted to USEPA to satisfy 305b reporting requirements. We are in the process of updating the Waterbody Inventory to include the WAVE data from 2012 as well as 2013. The updated files will be available by April 2014.

These data are available to all staff at NYSDEC. The Stream Biomonitoring Unit uses WAVE data to target locations for professional sampling. In particular, sites that are “possibly impaired” are considered for further investigation. A “possibly impaired” WAVE site from 2012 was selected for a professional level investigation in 2013. The results of this assessment will be published in the next version of the Lower Hudson Watershed Waterbody Inventory Report.

NYSDEC will also use WAVE data in a water quality trends report. This assessment of 40 years of biological data will use macroinvertebrate data collected by NYSDEC to identify long-term trends in stream water quality. This is an important analysis because it helps the department highlight regional and statewide changes in water quality. The completed report will be published in 2015 and will be similar to the 30-year trends report (<http://www.dec.ny.gov/chemical/78979.html>).

WAVE data are also valuable to organizations outside NYSDEC. County, municipal, and not-for-profit organizations have requested WAVE data for the purpose of local monitoring and preservation/conservation efforts. These include 10 watershed monitoring programs, four independent monitoring programs, and five education programs. These local applications are valuable but difficult to record. If you are involved or are aware of an additional use of the WAVE data, please contact WAVE Coordinator Alene Onion via e-mail: [wave@gw.dec.state.ny.us](mailto:wave@gw.dec.state.ny.us), or phone: 518-402-8166.



WAVE participant Kali Bird collects a WAVE sample.

# WAVE in 2014

We are continuing to expand WAVE in 2014. We are following the rotation of the NYSDEC Division of Water Statewide Water Quality Monitoring Program through the 17 major river basins in New York (<http://www.dec.ny.gov/chemical/29576.html>). The 2014 training sessions will be held in the Mohawk and Niagara River/Lake Erie river basins, and we will accept samples collected by trained samplers from anywhere in the Delaware River, Genesee River, lower Hudson River, Mohawk River and Niagara River/Lake Erie basins.

We are also adding “Train the Trainer” sessions in 2014. This year, individuals completing a session will be able to train and lead their own crew of WAVers. Training sessions will still be available to individuals, but we are hoping to make it easier for groups to participate.

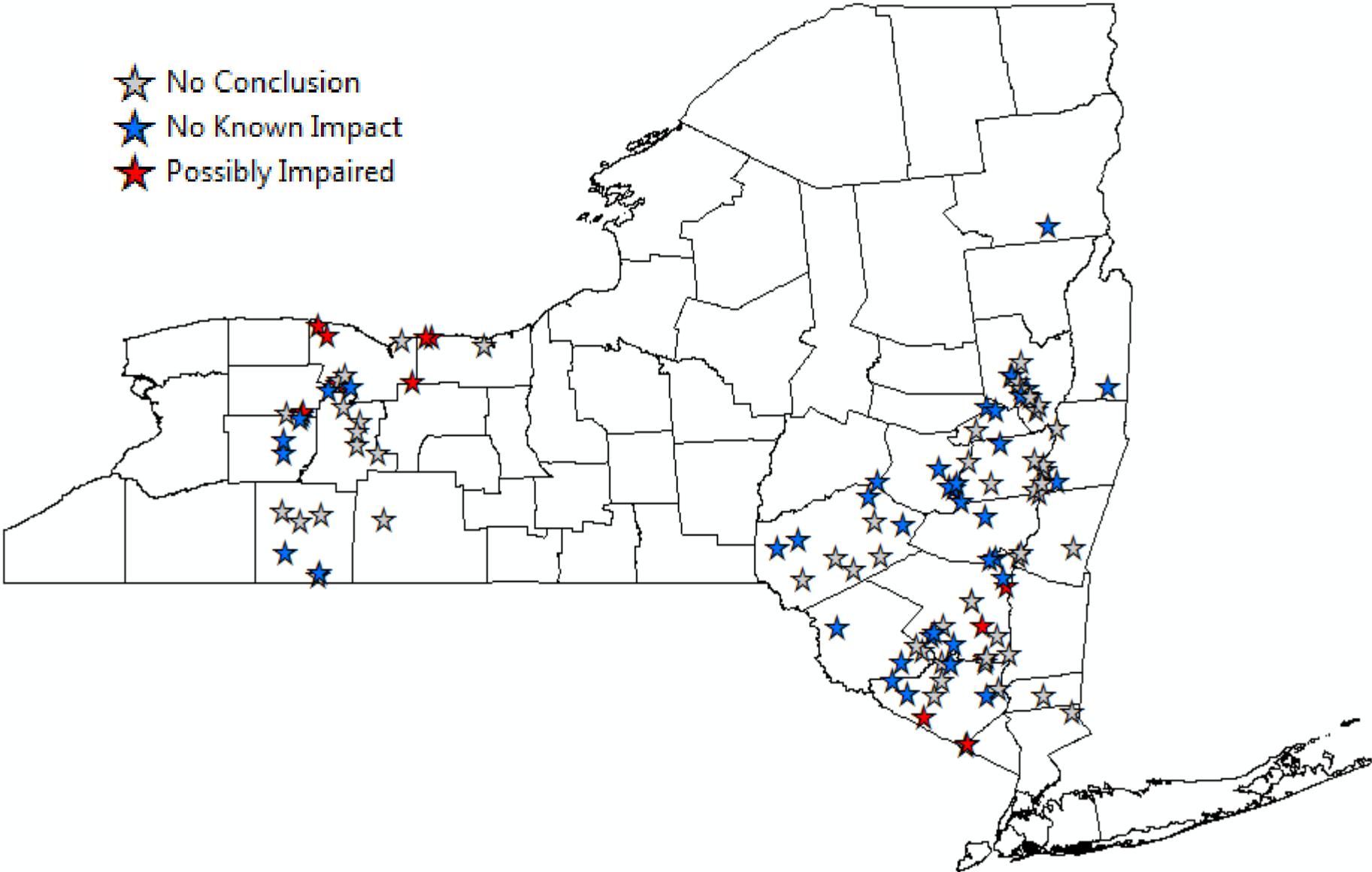
“We are adding ‘Train the Trainer’ sessions in 2014.”

To participate in the 2014 sampling season, please contact WAVE Coordinator Alene Onion via e-mail: [wave@gw.dec.state.ny.us](mailto:wave@gw.dec.state.ny.us), or phone: 518-402-8166. For information on other citizen science opportunities in the Hudson River basin, please see appendix 1.



A snapping turtle found at a WAVE sampling site in Rutgers Creek

**Figure 1: WAVE Sampling Locations in 2013**



**Table 1: 2013 WAVE Data Summary**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
Alder Creek and tribs	07/05/13	43.8534, -73.7158	Wendy Kuehner, Judy Mead, Roger Mead, Jarrett Kuehner, Tarrin Kuehner, Melissa Mead, Dairia Baas, Jaime Baas, Danielle Baas	No Known Impact	Aeshnidae, Baetidae, Cambaridae, Corydalidae, Elmidae, Heptageniidae, Hydropsychidae, Leuctridae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Angelica Creek and minor tribs	09/01/13	42.3124, -78.0376	Scott Wood	No Conclusion	Athericidae, Cordulegastridae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Isonychiidae, Psephenidae, Sialidae
Ballston Creek and tribs	09/09/13	42.9666, -73.8239	Wendy Kuehner	No Conclusion	Aeshnidae, Baetidae, Calopterygidae, Cambaridae, Corydalidae, Elmidae, Elmidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Basic Creek, upper, and tribs	09/25/13	42.5145, -74.0475	Angela (Angie) Martin, Nancy O'Donnell	No Conclusion	Heptageniidae, Hydropsychidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Bear Creek and tribs	09/29/13	43.2756, -77.2749	Corky Kelsey, Brooke Kelsey, Clint Kelsey	Possibly Impaired	Amphipoda, Asellidae, Asellidae, Baetidae, Baetidae, Elmidae, Elmidae, Heptageniidae, Heptageniidae, Hydropsychidae, Hydropsychidae, Simuliidae, Simuliidae, Tipulidae, Tipulidae, Turbellaria, Turbellaria
Beer Kill and minor tribs	07/27/13	41.72, -74.3917	Rocco Conklin, Nina Sullivan	No Known Impact	Athericidae, Ephemerellidae, Heptageniidae, Hydropsychidae, Isonychiidae, Limnephilidae, Oligochaeta, Perlidae, Philopotamidae, Polycentropodidae
Black Creek and tribs	09/01/13	42.355, -77.9198	Colleen Gyr, Nathan Roberts	No Conclusion	Cambaridae, PELECYPODA, Perlidae
Black Creek, lower, and minor tribs	08/13/13	43.093, -77.8648	Alene Onion, Mollie Putzig	Possibly Impaired	Amphipoda, Baetidae, Coenagrionidae, Elmidae, Heptageniidae, Hirudinea, Hydropsychidae, Oligochaeta, PELECYPODA, Psephenidae, Simuliidae, Turbellaria, Valvatidae
Black Creek, middle, and tribs	08/23/13	41.7172, -74.0124	Kathleen Nord, Stuart Greenfield	No Conclusion	Baetidae, Corydalidae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Isonychiidae, Psephenidae
Black Creek, upper, and minor tribs (*)	08/13/13	42.8796, -78.1189	Alene Onion, Mollie Putzig	No Known Impact	Aeshnidae, Athericidae, Baetidae, Calopterygidae, Cambaridae, Chironomidae, Corydalidae, Elmidae, Ephemeridae, Helicopsychidae, Heptageniidae, Hirudinea, Hydropsychidae, Limnephilidae, Oligochaeta, PELECYPODA, Perlidae, Physidae, Simuliidae, Tipulidae, Turbellaria

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
Black Creek, upper, and minor tribs (**)	08/07/13	42.8796, -78.1189	Molly Stetz, Jennifer Curry	No Conclusion	Aeshnidae, Athericidae, Calopterygidae, Cambaridae, Cordulegastridae, Corydalidae, Elmidae, Ephemeridae, Hydropsychidae, Leptoceridae, Limnephilidae, Perlidae, Tabanidae
Bozen Kill and minor tribs	09/15/13	42.7227, -73.9924	Simon Litten, Alene Onion	No Known Impact	Athericidae, Baetidae, Caenidae, Chironomidae, Coenagrionidae, Cordulegastridae, Corydalidae, Elmidae, Ephemerellidae, Gomphidae, Heptageniidae, Heptageniidae, Hydropsychidae, Isonychiidae, Limnephilidae, Perlidae, Philopotamidae, Polycentropodidae, Psephenidae, Psephenidae, Sialidae, Simuliidae, Tabanidae, Tipulidae, Tipulidae, Turbellaria
Canisteo River, middle, and minor tribs	08/18/13	42.3249, -77.5513	Shirley Timothy, Joshua Tallman	No Conclusion	Aeshnidae, Athericidae, Baetidae, Calopterygidae, Cambaridae, Chironomidae, Corydalidae, Hydropsychidae, Leuctridae, Rhyacophilidae
Carrs Brook, upper, and tribs	09/14/13	42.2249, -75.1642	John Hakola, Kristin Kakola	No Known Impact	Baetidae, Chironomidae, Corydalidae, Heptageniidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Casper Creek and tribs	07/19/13	41.625, -73.9425	Payton Holland, Mike Mikula	No Conclusion	Corydalidae, Elmidae, Heptageniidae, Hydropsychidae, Oligochaeta
Catskill Creek, upper, and minor tribs	09/26/13	42.3397, -74.0784	Alene Onion, Katie Palm	No Known Impact	Baetidae, Corydalidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Isonychiidae, Leptophlebiidae, Oligochaeta, Perlidae, Philopotamidae, Polycentropodidae, Psephenidae, Rhyacophilidae, Tipulidae
Catskill Creek, upper, and minor tribs	09/20/13	42.4228, -74.2177	Alene Onion, Katie Palm	No Known Impact	Baetidae, Chloroperlidae, Corydalidae, Elmidae, Ephemerellidae, Glossosomatidae, Gomphidae, Heptageniidae, Isonychiidae, Perlidae, Psephenidae, Tipulidae
Catskill Creek, upper, and minor tribs	09/20/13	42.485, -74.2677	Alene Onion, Katie Palm	No Known Impact	Athericidae, Baetidae, Chloroperlidae, Corydalidae, Ephemerellidae, Glossosomatidae, Gomphidae, Heptageniidae, Hydropsychidae, Isonychiidae, Odontoceridae, Perlidae, Philopotamidae, Psephenidae, Pteronarcidae
Catskill Creek, upper, and minor tribs	09/20/13	42.4996, -74.2923	Alene Onion, Katie Palm	No Known Impact	Aeshnidae, Baetidae, Dytiscidae, Ephemerellidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Leptophlebiidae, Oligochaeta, Perlodidae, Philopotamidae, Psephenidae, Simuliidae, Tipulidae
Catskill Creek, upper, and	09/20/13	42.5141, -74.2447	Alene Onion, Katie Palm	No Known Impact	Baetidae, Baetidae, Chloroperlidae, Chloroperlidae, Ephemerellidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Isonychiidae,

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
minor tribs					Leptophlebiidae, Perlidae, Psephenidae, Pteronarcidae, Rhyacophilidae, Tipulidae
Charlotte Creek, upper, and tribs (*)	09/26/13	42.5220, -74.7032	Alene Onion, Katie Palm	No Known Impact	Athericidae, Baetidae, Corydalidae, Ephemerellidae, Glossosomatidae, Gomphidae, Heptageniidae, Hydropsychidae, Isonychiidae, Odontoceridae, Perlidae, Philopotamidae, Psephenidae, Rhyacophilidae, Sialidae, Tipulidae, Turbellaria
Charlotte Creek, upper, and tribs (**)	09/26/13	42.5221, -74.7032	David Kingsland, Stacey Scudder	No Known Impact	Athericidae, Cambaridae, Corydalidae, Ephemeridae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Pteronarcidae, Tabanidae, Tipulidae
Christie Creek and tribs	09/15/13	42.9108, -77.787	Allan Baker, Janet Baker, Peter Lent	No Conclusion	Aeshnidae, Amphipoda, Athericidae, Baetidae, Calopterygidae, Chironomidae, Corydalidae, Elmidae, Heptageniidae, Hydropsychidae, Oligochaeta, Simuliidae, Tipulidae
Coeymans Creek and minor tribs	09/25/13	42.4779, -73.794	Angela (Angie) Martin, Nancy O'Donnell	No Conclusion	Amphipoda, Corydalidae, Elmidae, Hydropsychidae, Isonychiidae, PELECYPODA, Perlidae, Tipulidae
Conesus Inlet and minor tribs	09/27/13	42.715, -77.7121	Michael Parker, Gene Bolster	No Conclusion	Hydrophilidae, Tipulidae
Crawford Creek and tribs	09/15/13	42.369, -78.14	Ginger Ursitti	No Conclusion	Athericidae, Corydalidae, Gomphidae, Hydropsychidae, Perlidae
Downs/Gregory Hollow Brook and tribs	07/21/13	42.1258, -74.9439	Bonnie Seegmiller	No Conclusion	Elmidae, Ephemerellidae, Gomphidae, Heptageniidae, Hydropsychidae, Tipulidae
Dwaar Kill, middle, and tribs	09/09/13	41.5697, -74.2846	Vincent Arciero, Heather Wohltmann	No Known Impact	Athericidae, Baetidae, Chironomidae, Coenagrionidae, Corydalidae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae
Dwaas Kill and tribs	08/06/13	42.894, -73.7911	Blue Neils, Daniel J. Randonis	No Conclusion	Aeshnidae, Amphipoda, Baetidae, Chironomus, Dryopidae, Simuliidae
Dwaas Kill and tribs	08/06/13	42.9183, -73.7694	Blue Neils, Daniel J. Randonis	No Conclusion	Amphipoda, Baetidae, Chironomus, Gomphidae, Gyrinidae, Hydropsychidae, Simuliidae
East Br Callicoon, lower and minor tribs	08/20/13	41.7646, -74.9414	Logan Grishaber	No Known Impact	Athericidae, Brachycentridae, Chironomidae, Corydalidae, Heptageniidae, Hydropsychidae, Isonychiidae, Oligochaeta, Perlidae, Philopotamidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
East Branch Delaware, upper, and tribs	08/08/13	42.3023, -74.561	Alene Onion, David Heidinger	No Known Impact	Elmidae, Heptageniidae, Isonychiidae, Leuctridae, Peltoperlidae, Perlidae, Philopotamidae, Psephenidae, Simuliidae
East Kill and tribs	08/20/13	42.2373, -74.1142	Nick Hopkin	No Conclusion	Corydalidae, Perlidae, Heptageniidae, Hydropsychidae, Tipulidae, Baetidae, Chironomidae
Esopus Creek, middle, and minor tribs	07/23/13	41.9034, -74.1628	Stuart Greenfield, Kathleen Nord	No Conclusion	Baetidae, Corydalidae, Gyrinidae, Heptageniidae, Hydropsychidae, Isonychiidae, Philopotamidae, Uenoidae
Esopus Creek, middle, and minor tribs	07/30/13	41.9035, -74.1635	Stuart Greenfield, Kathleen Nord	No Known Impact	Baetidae, Cambaridae, Corydalidae, Heptageniidae, Hydropsychidae, Leuctridae, Peltoperlidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Fox Creek, middle, and minor tribs	08/28/13	42.6281, -74.175	Ralph Miller, Jeannette Miller	No Conclusion	Athericidae, Corydalidae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae
Gardner Hollow Brook, upper, and tribs	07/25/13	41.6206, -73.6538	Brian Herbst	No Conclusion	Philopotamidae, Psephenidae, Lepidostomatidae, Tipulidae, Baetidae, Leuctridae, Hydropsychidae, Perlidae
Homowack Kill and tribs	07/20/13	41.6444, -74.4425	Rocco Conklin, Nina Sullivan	No Conclusion	Cambaridae, Corydalidae, Heptageniidae, Hydropsychidae, Isonychiidae, Leptoceridae, Limnephilidae, Oligochaeta, Perlidae, Rhyacophilidae, Tipulidae
Indigot Creek, upper, and tribs	08/16/13	41.4148, -74.5329	Alene Onion, Pat Decker	No Known Impact	Aeshnidae, Amphipoda, Baetidae, Calopterygidae, Corydalidae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Leuctridae, Perlidae, Philopotamidae, Psephenidae, Simuliidae, Tipulidae, Uenoidae
Kayaderoseras Cr, lower, and minor tribs	08/05/13	43.007, -73.8454	Blue Neils, Daniel J. Randonis	No Conclusion	Baetidae, Chironomidae, Heptageniidae, Perlidae, Philopotamidae, Psephenidae
Kayaderoseras Cr, lower, and minor tribs	08/05/13	43.0086, -73.8796	Nancy Robertson, Daniel J. Randonis, Blue Niels	No Known Impact	Athericidae, Corydalidae, Heptageniidae, Hydropsychidae, Odontoceridae, Perlidae, Psephenidae, Tipulidae
Kayaderoseras Cr, lower, and	07/30/13	43.0094, -73.8443	Blue Neils, Daniel J. Randonis	No Known Impact	Chironomidae, Corydalidae, Gomphidae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Psephenidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
minor tribs					
Kayaderosseras Cr, lower, and minor tribs	07/31/13	43.0422, -73.8892	Blue Neils, Daniel J. Randonis	No Conclusion	Elmidae, Gyrinidae, Heptageniidae, Hydropsychidae, Isonychiidae, Psephenidae, Tipulidae
Kayaderosseras Cr, upper, and tribs	07/30/13	43.074, -73.9378	Blue Neils, Daniel J. Randonis	No Conclusion	Asellidae, Cordulegastridae, Corydalidae, Elmidae, Heptageniidae, Hydropsychidae, Perlidae, Philopotamidae, Rhyacophilidae
Kayaderosseras Cr, upper, and tribs	07/31/13	43.0753, -73.9286	Blue Neils, Daniel J. Randonis	No Known Impact	Athericidae, Brachycentridae, Corydalidae, Gomphidae, Hydropsychidae, Isonychiidae, Perlidae, Pteronarcidae, Sialidae
Kayaderosseras Cr, upper, and tribs	07/31/13	43.1429, -73.8772	Blue Neils, Daniel J. Randonis	No Conclusion	Aeshnidae, Baetidae, Corydalidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Line Creek and tribs (*)	09/20/13	42.5924, -74.3481	Alene Onion, Dave Kingsland, Katie Palm	No Known Impact	Baetidae, Corydalidae, Ephemerellidae, Heptageniidae, Hydropsychidae, Isonychiidae, Leptophlebiidae, Oligochaeta, Perlidae, Philopotamidae, Physidae, Polycentropodidae, Psephenidae, Rhyacophilidae, Tipulidae
Line Creek and tribs (**)	09/18/13	42.5924, -74.3481	David Kingsland	No Known Impact	Athericidae, Chironomidae, Corydalidae, Elmidae, Ephemerellidae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Pteronarcidae, Tipulidae
Little Delaware, upper, and tribs	08/31/13	42.3131, -74.7208	Andrew Messinger	No Conclusion	Baetidae, Heptageniidae, Leuctridae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Marsh Creek and tribs	08/17/13	42.0292, -77.933	Bill Wheeler	No Conclusion	Aeshnidae, Athericidae, Baetidae, Calopterygidae, Chironomidae, Hydropsychidae, Leuctridae, Odontoceridae, PELECYPODA, Philopotamidae, Psephenidae, Tipulidae
Marsh Creek and tribs	08/14/13	42.0493, -77.9299	Ross Robarts	No Known Impact	Athericidae, Calopterygidae, Corixidae, Corydalidae, Ephemerellidae, Ephemeridae, Gomphidae, Heptageniidae, Isonychiidae, Odontoceridae, Oligochaeta, PELECYPODA, Perlidae, Psephenidae
Middle Brook and minor tribs	09/25/13	42.447, -74.7586	David Kingsland, Stacey Scudder	No Known Impact	Athericidae, Baetidae, Corydalidae, Ephemerellidae, Ephemeridae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Sialidae, Tipulidae
Milburn Creek, upper	08/19/13	41.486, -74.332	Patricia Decker, Wayne Decker	No Conclusion	Cordulegastridae, Heptageniidae, Hydropsychidae, Oligochaeta, Perlidae, Tipulidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
and tribs					
Mill Creek and minor tribs	09/30/13	43.2734, -77.3143	Corky Kelsey, Clint Kelsey, Brooke Kelsey	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Chironomidae, Elmidae, Simuliidae, Tipulidae, Turbellaria
Mill Creek and tribs	09/17/13	43.2596, -77.4509	Kyle Miller, Lori Tatum, Jessica Miller	No Conclusion	Amphipoda, Heptageniidae
Mill Creek/Blue Pond Outlet and tribs	09/15/13	43.0292, -77.8221	Al Borrelli	Possibly Impaired	Amphipoda, Hydropsychidae, Oligochaeta, PELECYPODA, Simuliidae, Turbellaria
Mill Creek/Blue Pond Outlet and tribs	09/17/13	43.0473, -77.8148	Al Borrelli	No Conclusion	Amphipoda, Elmidae, Heptageniidae, Hydropsychidae, PELECYPODA
Mill Creek/Blue Pond Outlet and tribs	09/10/13	43.0752, -77.782	Al Borrelli, Peter Lent	No Conclusion	Amphipoda, Baetidae, Caenidae, Calopterygidae, Chironomidae, Dolichopodidae, Elmidae, Heptageniidae, Hydropsychidae, Philopotamidae, Simuliidae, Tipulidae
Minor Tribs to Conesus Lake	09/27/13	42.7787, -77.7108	Michael Parker, Gene Bolster	No Conclusion	Aeshnidae, Perlidae
Minor Tribs to Conesus Lake	09/27/13	42.8335, -77.6967	Michael Parker	No Conclusion	Aeshnidae, Lymnaeidae, Planorbidae, Tipulidae
Minor Tribs to East Branch Delaware	09/14/13	42.0162, -75.1329	Kristin Hakola, John Hakola	No Conclusion	Baetidae, Chironomidae, Hydropsychidae, Perlodidae, Pteronarcidae, Tipulidae
Minor Tribs to East of Hudson	09/09/13	42.1352, -73.8912	Alene Onion, Emily Vail	No Conclusion	Baetidae, Elmidae, Hirudinea, Philopotamidae, Polycentropodidae, Psephenidae, Simuliidae, Turbellaria
Minor Tribs to East of Hudson	09/09/13	42.15, -73.8752	Alene Onion, Emily Vail	No Conclusion	Aeshnidae, Asellidae, Baetidae, Caenidae, Calopterygidae, Chironomidae, Elmidae, Heptageniidae, Hydropsychidae, Limnephilidae, Philopotamidae, Polycentropodidae, Psephenidae, Sialidae, Tipulidae
Minor Tribs to East of Hudson	08/23/13	42.4647, -73.7697	Alene Onion, Erik Posner	No Conclusion	Baetidae, Elmidae, Heptageniidae, Hydropsychidae, Hydropsychidae, Leptophlebiidae, Philopotamidae, Polycentropodidae, Sialidae, Tipulidae
Minor Tribs to East of	08/01/13	42.7971, -73.6663	Janice Bell	No Conclusion	Baetidae, Chironomidae, Corydalidae, Hydropsychidae, Leuctridae, Physidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
Upper Hudson					
Minor Tribs to Lower Esopus Creek	08/14/13	42.0185, -73.9777	Alene Onion, Cody Yaekel	No Known Impact	Chironomidae, Corydalidae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Limnephilidae, Oligochaeta, Philopotamidae, Psephenidae, Sialidae, Simuliidae, Uenoidae
Minor Tribs to Middle Neversink	08/16/13	41.5823, -74.5688	Alene Onion, Pat Decker	No Known Impact	Aeshnidae, Baetidae, Calamoceratidae, Chironomidae, Ephemerellidae, Heptageniidae, Hydropsychidae, Lepidostomatidae, Leuctridae, Limnephilidae, Oligochaeta, Philopotamidae, Uenoidae
Minor Tribs to Middle Neversink (*)	07/25/13	41.4919, -74.6217	Alene Onion, Katie Palm	No Known Impact	Baetidae, Chloroperlidae, Corydalidae, Ephemerellidae, Glossosomatidae, Heptageniidae, Perlidae, Philopotamidae, Pteronarcidae, Rhyacophilidae, Tipulidae, Uenoidae
Minor Tribs to Middle Neversink (**)	07/29/13	41.49, -74.622	Patricia Decker, Wayne Decker, Rob Honders, Kate Honders	No Known Impact	Baetidae, Brachycentridae, Corydalidae, Ephemerellidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Limnephilidae, Perlodidae, Philopotamidae, Pteronarcidae, Rhyacophilidae, Tipulidae
Minor Tribs to Middle Rondout Creek	08/22/13	41.7758, -74.3216	Alene Onion	No Conclusion	Aeshnidae, Corydalidae, Heptageniidae, Hydraenidae, Hydropsychidae, Philopotamidae, Simuliidae
Minor Tribs to Middle Wallkill	08/30/13	41.4086, -74.373	Heather Wohltmann, Vincent Arciero	No Conclusion	Amphipoda, Cambaridae, Chironomidae, Elmidae, Hydropsychidae, PELECYPODA, Tabanidae, Tipulidae
Minor tribs to Mohawk River	07/28/13	42.8922, -74.0219	Wendy Kuehner, Jarrett Kuehner, Tarrin Kuehner	No Known Impact	Baetidae, Chloroperlidae, Dytiscidae, Hydrophilidae, Hydropsychidae, Isonychiidae, Leuctridae, Perlidae, Perlidae, Psephenidae, Simuliidae
Minor tribs to Mohawk River (*)	07/19/13	42.9095, -74.0759	Alene Onion, Ryan Powers	No Known Impact	Chloroperlidae, Elmidae, Hydrophilidae, Hydropsychidae, Leptophlebiidae, Leuctridae, Perlidae, Psephenidae, Tipulidae, Uenoidae
Minor tribs to Mohawk River (**)	07/08/13	42.9095, -74.0759	Wendy Kuehner, Jarrett Kuehner, Tarrin Kuehner	No Known Impact	Baetidae, Cambaridae, Chloroperlidae, Elmidae, Heptageniidae, Leptophlebiidae, Leuctridae, Perlidae, Polycentropodidae, Psephenidae, Tipulidae
Minor Tribs to West of Hudson	07/18/13	41.4428, -74.0036	Jacqui Lunchick, Michelle Harris	No Conclusion	Glossosomatidae, Isonychiidae, Psephenidae
Minor Tribs to West of Hudson	08/14/13	41.979, -73.9629	Alene Onion, Cody Yaekel	Possibly Impaired	Aeshnidae, Baetidae, Calopterygidae, Chironomidae, Cordulegastridae, Elmidae, Hydropsychidae, Philopotamidae, Psephenidae, Sialidae, Simuliidae, Tabanidae
Moodna Creek, lower, and	09/22/13	41.4094, -74.0733	Leigh J. Benton	No Known Impact	Amphipoda, Athericidae, Coenagrionidae, Corydalidae, Elmidae, Hirudinea, Hydropsychidae, Isonychiidae, Odontoceridae,

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
minor tribs					Oligochaeta, Perlidae, Philopotamidae, Psephenidae
Mourning Kill and tribs	08/17/13	42.97, -73.8795	Wendy Kuehner, Jarrett Kuehner, Tarrin Kuehner, Nancy Kuehner	No Known Impact	Baetidae, Chironomidae, Elmidae, Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Psephenidae, Tipulidae, Uenoidae
Mourning Kill and tribs	08/05/13	42.9758, -73.8428	Blue Neils, Daniel J. Randonis	No Conclusion	Baetidae, Corydalidae, Hydropsychidae, Isonychiidae, Perlidae, Psephenidae, Tabanidae, Tipulidae
Muddy Brook and tribs	09/17/13	41.4845, -73.626	Jill Eisenstein	No Conclusion	Psephenidae, Heptageniidae, Philopotamidae, Chironomidae, Corydalidae, Elmidae, Baetidae, Hydropsychidae, Aeshnidae
Muddy Brook and tribs	09/17/13	41.5119, -73.6172	Jill Eisenstein	No Known Impact	Perlidae, Hydropsychidae, Elmidae, Rhyacophilidae, Philopotamidae, Isonychiidae, Corydalidae, Gomphidae, Heptageniidae
Normans Kill, lower, and minor tribs(*)	08/19/13	42.6344, -73.7988	Alene Onion, Ryan Powers	No Conclusion	Amphipoda, Baetidae, Chironomidae, Elmidae, Helicopsychidae, Hydropsychidae, Hydroptilidae, Psephenidae, Simuliidae, viviparidae
Normans Kill, lower, and minor tribs(**)	09/23/13	42.6345, -73.8	Angela (Angie) Martin, Nancy O'Donnell	No Conclusion	Amphipoda, Baetidae, Chironomidae, Hydropsychidae, PELECYPODA, Pleuroceridae
Normans Kill, upper, and tribs	07/19/13	42.7647, -74.0008	Alene Onion, Ryan Powers	No Conclusion	Chironomidae, Gyrinidae, Hydropsychidae, Simuliidae, Tipulidae
Normans Kill, upper, and tribs	08/21/13	42.7922, -74.1339	Ralph Miller, Jeannette Miller	No Conclusion	Athericidae, Baetidae, Hydropsychidae, Perlidae, Psephenidae
Oatka Creek, lower, and minor tribs	09/08/13	42.9985, -77.8744	Maureen Leupold	No Known Impact	Amphipoda, Athericidae, Baetidae, Corixidae, Corydalidae, Elmidae, Hydropsychidae, Odontoceridae, Oligochaeta, Perlidae, Philopotamidae, Psephenidae, Tipulidae, Turbellaria
Oatka Creek, lower, and minor tribs	09/23/13	43.0192, -77.7477	Peter Lent	No Known Impact	Amphipoda, Baetidae, Caenidae, Elmidae, Empididae, Ephemerellidae, Helicopsychidae, Heptageniidae, Hydropsychidae, Hydroptilidae, Oligochaeta, PELECYPODA, Perlidae, Rhyacophilidae, Simuliidae, Tipulidae, Turbellaria
Oatka Creek, middle, and minor tribs	09/20/13	42.7409, -78.1364	Peter Lent, Lori Whittington	No Known Impact	Athericidae, Baetidae, Caenidae, Chironomidae, Elmidae, Empididae, Ephemerellidae, Ephemeridae, Gomphidae, Helicopsychidae, Heptageniidae, Hydropsychidae, Leptophlebiidae, Perlidae, Physidae, Psephenidae, Sialidae, Tipulidae, Turbellaria
Oatka Creek, middle, and	09/27/13	42.8728, -78.0296	Peter Lent	No Conclusion	Amphipoda, Ancyliidae, Baetidae, Elmidae, Empididae, Ephemerellidae, Hydropsychidae, PELECYPODA, Philopotamidae,

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
minor tribs					Psephenidae, Simuliidae, Tipulidae
Oatka Creek, middle, and minor tribs	09/27/13	42.8878, -78.0261	Peter Lent	Possibly Impaired	Amphipoda, apataniidae, Baetidae, Elmidae, Heptageniidae, Hydropsychidae, PELECYPODA, Philopotamidae, Polycentropodidae, Psephenidae, Simuliidae, Turbellaria
Oatka Creek, upper, and minor tribs	09/29/13	42.6688, -78.1361	Peter Lent	No Known Impact	Aeshnidae, Baetidae, Chironomidae, Chloroperlidae, Corydalidae, Elmidae, Ephemerellidae, Glossosomatidae, Gomphidae, Heptageniidae, Hydropsychidae, Leptophlebiidae, PELECYPODA, Perlidae, Philopotamidae, Polycentropodidae, Psephenidae, Pteronarcidae, Rhyacophilidae, Simuliidae, Tipulidae
Pakanasink Creek, upper, and tribs	08/23/13	41.5815, -74.33	Paul Overton	No Conclusion	Baetidae, Corydalidae, Heptageniidae, Isonychiidae, Perlidae, Psephenidae, Tipulidae
Palmaghatt Kill, Upper, and tribs	08/22/13	41.676, -74.2626	Alene Onion	No Known Impact	Baetidae, Elmidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Lepidostomatidae, Leptophlebiidae, Leuctridae, Philopotamidae, Simuliidae, Tipulidae
Papscanee Creek and minor tribs	08/23/13	42.5843, -73.7403	Alene Onion, Erik Posner	No Conclusion	Aeshnidae, Amphipoda, Ancylidae, Athericidae, Elmidae, Haliplidae, Heptageniidae, Leptophlebiidae, Perlidae, Planorbidae, Psephenidae, Tipulidae
Papscanee Creek and minor tribs	08/23/13	42.5845, -73.7478	Alene Onion, Erik Posner	No Conclusion	Asellidae, Athericidae, Baetidae, Elmidae, Hydropsychidae, Simuliidae, Tipulidae
Papscanee Creek and minor tribs	08/23/13	42.6084, -73.7478	Alene Onion, Erik Posner	No Conclusion	Baetidae, Chironomidae, Hydropsychidae, Leuctridae, Oligochaeta, Simuliidae, Uenoidae
Pearl Creek and tribs	09/18/13	42.8482, -78.043	Peter Lent,	No Known Impact	Aeshnidae, Amphipoda, Asellidae, Baetidae, Chironomidae, Chloroperlidae, Elmidae, Empididae, Glossosomatidae, Heptageniidae, Hydropsychidae, Hydroptilidae, Leptoceridae, Oligochaeta, Philopotamidae, Psephenidae, Simuliidae, Tipulidae, Turbellaria, Turbellaria
Pepacton Reservoir and minor tribs	08/17/13	42.0625, -74.8442	Andrew Messinger	No Conclusion	Capniidae, Ephemerellidae, Hydropsychidae, Philopotamidae, Tipulidae
Platte Kill	08/25/13	42.1369,	Andrew Messinger	No Conclusion	Baetidae, Capniidae, Glossosomatidae, Heptageniidae, Perlodidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
and tribs		-74.6892			
Plattekill Creek, upper, and tribs	09/04/13	42.1148, -74.0548	Raquel Pallak	No Known Impact	Baetidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Peltoperlidae, Perlidae, Perlodidae, Philopotamidae, Rhyacophilidae
Plattekill Creek, upper, and tribs	08/14/13	42.123, -74.0211	Alene Onion, Cody Yaekel	No Known Impact	Baetidae, Chironomidae, Chloroperlidae, Corydalidae, Heptageniidae, Leptophlebiidae, Philopotamidae, Simuliidae, Tipulidae, Uenoidae
Quaker Creek and tribs	09/25/13	41.294, -74.4358	Alene Onion, Nicole McShane	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Elmidae, Heptageniidae, Hydropsychidae, Philopotamidae, Simuliidae, Turbellaria
Quassaic Creek, lower, and minor tribs	08/18/13	41.4881, -74.0131	Alene Onion, David Heidinger	No Conclusion	Amphipoda, Baetidae, Gyrinidae, Hydropsychidae, Philopotamidae, Psephenidae, Simuliidae, Tipulidae
Quassaic Creek, middle, and tribs	08/07/13	41.6033, -74.0795	John Gebhards, Zach Coto, Ted Kohlmann, Peter Smith, Jack Caldwell	Possibly Impaired	Asellidae, Corydalidae, Elmidae, Heptageniidae, Hirudinea, Hydropsychidae, Isonychiidae, Philopotamidae, Sialidae, Simuliidae
Quassaic Creek, middle, and tribs (*)	07/25/13	41.5846, -74.0786	Alene Onion, Katie Palm	No Conclusion	Amphipoda, Asellidae, Baetidae, Chironomidae, Elmidae, Heptageniidae, Hydropsychidae, Isonychiidae, Leptoceridae, Leptoceridae, Philopotamidae, Simuliidae
Quassaic Creek, middle, and tribs (**)	07/24/13	41.5846, -74.0786	Peter Smith, Zach Coto, Nick Tulve	No Conclusion	Asellidae, Corydalidae, Elmidae, Hydropsychidae, Isonychiidae, Leptoceridae, Perlidae, Philopotamidae, Tipulidae
Quassaic Creek, upper, and tribs	08/07/13	41.6066, -74.0744	Zachary Coto, John Gebhards, Ted Kohlmann, Case Wyse, Jack Caldwell, Peter Smith	No Conclusion	Corixidae, Corydalidae, Elmidae, Heptageniidae, Hirudinea, Hydropsychidae, Isonychiidae, Psephenidae, Sialidae, Tipulidae
Ramapo River, lower, and minor tribs	08/08/13	41.151, -74.197	Nicole Laible, Paulina Derkacz	No Conclusion	Elmidae, Heptageniidae, Hydropsychidae, Oligochaeta
Ramapo River, lower, and minor tribs	08/08/13	41.1621, -74.1887	Nicole Laible, Kyle Quinn, Pavlina Derkacz, Jeremy Pardo	Possibly Impaired	Baetidae, Cambaridae, Coenagrionidae, Heptageniidae, Hirudinea, Hydropsychidae, Isonychiidae, PELECYPODA, Philopotamidae, Psephenidae, Turbellaria
Rondout Creek, middle, and	08/11/13	41.738, -74.3767	Rocco Conklin, Nina Sullivan	No Known Impact	Coenagrionidae, Corydalidae, Elmidae, Heptageniidae, Hydropsychidae, Isonychiidae, Oligochaeta, Perlidae, Philopotamidae,

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
minor tribs					Psephenidae
Sandburg Creek, upper, and tribs (*)	07/25/13	41.6653, -74.4779	Alene Onion, Katie Palm	No Known Impact	apataniidae, Athericidae, Baetidae, Brachycentridae, Chironomidae, Corydalidae, Elmidae, Ephemerellidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Limnephilidae, Perlidae, Philopotamidae, Psephenidae, Pteronarcidae, Rhyacophilidae, Tipulidae
Sandburg Creek, upper, and tribs (**)	07/20/13	41.6652, -74.4794	Rocco Conklin, Nina Sullivan	No Conclusion	Aeshnidae, Corydalidae, Gomphidae, Heptageniidae, Hydropsychidae, Odontoceridae, Perlidae, Tipulidae
Sandy Creek and minor tribs	09/06/13	43.3335, -77.9345	Jacob Canale, Stephanie Canale	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Bithyniidae, Calopterygidae, Coenagrionidae, Elmidae, Heptageniidae, Hirudinea, Hydropsychidae, Leptohyphidae, Oligochaeta, PELECYPODA, Psephenidae, Simuliidae
Schodack Creek/Muitzes Kill and tribs	08/03/13	42.5162, -73.7533	Robert Keefe, Meaghan Keefe	No Conclusion	Aeshnidae, Baetidae, Elmidae, Heptageniidae, Hirudinea, Hydropsychidae, Leptohyphidae, Philopotamidae, Polycentropodidae, Psephenidae, Turbellaria
Second Creek and tribs	09/09/13	43.2361, -76.9754	Jay Ross	No Conclusion	Aeshnidae, Baetidae, Cambaridae, Chironomidae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Oligochaeta, Philopotamidae, Psephenidae
South Branch Van Campen Creek and tribs	09/08/13	42.154, -78.1256	Kylie Hint, Suzanne Lewis	No Known Impact	Athericidae, Gomphidae, Helicopsychidae, Hydropsychidae, Isonychiidae, Odontoceridae, Perlidae, Philopotamidae, Psephenidae, Tipulidae
Springwater Creek and minor tribs	09/28/13	42.6689, -77.5918	Robyn Phipps	No Conclusion	Baetidae, Chloroperlidae, Glossosomatidae, Goeridae, Heptageniidae, Hydropsychidae, Perlidae, Philopotamidae, Tipulidae
Sylvan Lake Outlet and tribs	08/04/13	41.6105, -73.7468	Brian Herbst	No Conclusion	Heptageniidae, Aeshnidae, Philopotamidae, Hydropsychidae, Corydalidae, Psephenidae, Turbellaria, Chironomidae
Taghkanic Creek, upper, and tribs (*)	07/19/13	42.1771, -73.5709	Alene Onion, Ryan Powers	No Conclusion	Amphipoda, Asellidae, Baetidae, Cambaridae, Chironomidae, Elmidae, Heptageniidae, Hydropsychidae, Philopotamidae, Planorbidae, Simuliidae, Tipulidae, Uenoidae
Taghkanic Creek, upper, and tribs (**)	08/07/13	42.1777, -73.5705	Fran Martino	No Conclusion	Asellidae, Heptageniidae, Hydropsychidae, Perlidae

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

Stream	Date	Lat/Lon	WAVE Participants	Assessment	Macroinvertebrates Identified in the Sample
Tribs of Secor and Kirk Lakes	09/05/13	41.413, -73.7489	Andrew Messinger	No Conclusion	Heptageniidae, Hydropsychidae, Isonychiidae, Perlidae, Philopotamidae, Rhyacophilidae
Tribs to Stump Pond	08/18/13	41.5104, -73.6833	Brian Herbst	No Known Impact	Heptageniidae, Isonychiidae, Perlidae, Philopotamidae, Corydalidae, Aeshnidae, Psephenidae, Tipulidae, Elmidae
Tribs to Titicus Reservoir	07/17/13	41.3272, -73.5818	Emory Nager, C. Nager	No Conclusion	Cambaridae, Heptageniidae, Hydropsychidae, Isonychiidae, Leuctridae, Psephenidae
Trout Creek, upper, and tribs	09/23/13	42.176, -75.2792	Ed Engelman	No Known Impact	Aeshnidae, Baetidae, Corydalidae, Elmidae, Glossosomatidae, Heptageniidae, Hydropsychidae, Isonychiidae, Odontoceridae, Perlidae, Philopotamidae, Psephenidae, Tipulidae, Turbellaria
Unnamed Trib to Walkill and minor tribs	08/14/13	41.7749, -74.0975	Alene Onion, Cody Yaekel	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Cambaridae, Chironomidae, Corixidae, Corydalidae, Elmidae, Ephemeridae, Heptageniidae, Limnephilidae, PELECYPODA, PELECYPODA, Psephenidae, Tipulidae, Uenoidae, Valvatidae
Vlockie Kill, upper, and tribs	08/23/13	42.5201, -73.6719	Alene Onion, Erik Posner	No Known Impact	Baetidae, Cordulegastridae, Elmidae, Gomphidae, Heptageniidae, Hydropsychidae, Perlidae, Philopotamidae, Psephenidae, Sialidae, Uenoidae
Wappingers Cr, middle, and minor tribs	08/24/13	41.6838, -73.8664	Wilfredo Chaluisant	No Known Impact	Heptageniidae, Psephenidae, Perlidae, Isonychiidae, Corydalidae, Elmidae, Brachycentridae
Wappingers Cr, middle, and minor tribs	08/24/13	41.6989, -73.866	Wilfredo Chaluisant	No Conclusion	Psephenidae, Turbellaria, Heptageniidae, Brachycentridae, Elmidae, Macromiidae, Elmidae, Corydalidae
West/Moorman Creek and minor tribs (*)	08/13/13	43.2841, -77.8852	Alene Onion, Mollie Putzig	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Bithyniidae, Calopterygidae, Chironomidae, Corixidae, Corydalidae, Elmidae, Helicopsychidae, Heptageniidae, Hirudinea, Hydropsychidae, Oligochaeta, Physidae, Psephenidae, Simuliidae, Tipulidae, Turbellaria
West/Moorman Creek and minor tribs (**)	08/15/13	43.2841, -77.8852	Katherine Bailey	Possibly Impaired	Amphipoda, Asellidae, Baetidae, Elmidae, Hydropsychidae, Leptohyphidae, PELECYPODA, Psephenidae, Tipulidae, Turbellaria, Viviparidae
White Brook, upper, and tribs	09/29/13	43.0455, -77.387	Robyn Phipps	Possibly Impaired	Aeshnidae, Amphipoda, Athericidae, Calopterygidae, Elmidae, Hydropsychidae, Lymnaeidae, Muscidae, Philopotamidae, Tipulidae, Turbellaria
White Creek,	09/28/13	43.0127,	Todd Rollend	No Known	Baetidae, Corydalidae, Elmidae, Glossosomatidae, Hydropsychidae,

**Table 1: 2013 WAVE Data Summary (continued)**

The (\*) or (\*\*) marks special study sites. These sites were sampled by both the WAVE coordinator (\*) and a citizen monitor (\*\*) in order to assess the accuracy of the method.

<b>Stream</b>	<b>Date</b>	<b>Lat/Lon</b>	<b>WAVE Participants</b>	<b>Assessment</b>	<b>Macroinvertebrates Identified in the Sample</b>
Upper, and tribs		-73.3778		Impact	Perlidae, Philopotamidae, Psephenidae, Pteronarcidae, Tipulidae