



**Department of  
Environmental  
Conservation**

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**WAVE**  
WAVE

Water Assessments  
by Volunteer  
Evaluators

# Sampling Guide

**DEC WAVE PROGRAM, DIVISION OF WATER**

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## **Modifications for Water Assessments by Volunteer Evaluators (WAVE) Sampling**

In response to the COVID-19 Pandemic, New York State Department of Environmental Conservation (DEC) recommends the following modifications to the WAVE sampling protocol to reduce exposure during WAVE activities in 2020.

**In general, please continue to follow the Centers for Disease Control and Prevention (CDC)/State Department of Health (DOH) guidelines for preventing the spread of colds, flu, and COVID-19:**

- Stay home if you are sick, or showing or feeling any COVID-19 symptoms, such as fever, coughing, and/or troubled breathing;
- Practice social distancing by keeping at least six (6) feet of distance between yourself and others, even when outdoors;
- Wear a cloth mask in public;
- Avoid close contact, such as shaking hands, hugging, or high-fives;
- Wash hands often or use an alcohol-based hand sanitizer with at least 60% alcohol when soap and water are not available; and
- Avoid unnecessary contact with surfaces that are often touched, such as doorknobs and handrails.

**New Yorkers over 70 years old or with a compromised immune system should not visit public spaces, including those outdoors.** This may include spaces such as parks, boat launches, parking lots, or trail heads. These New Yorkers should remain indoors or spend time in the backyard or other personal outdoor space, pre-screen visitors by taking their temperature, and require visitors to wear masks.

**New Yorkers who are sick or have had contact with someone who is sick in the last 14 days** should stay home and spend time in the backyard or other personal outdoor space. Do not visit public outdoor spaces.

### **Specific Modifications to WAVE Activities**

- 1) While conducting WAVE activities, use additional personal protective gear necessary to reduce COVID-19 spread as identified by Centers for Disease Control and Prevention (CDC) recommendations, including gloves, safety glasses and face masks.
  - a. Note: Wear gloves throughout the entire sampling event, including for sample collection and processing procedures or whenever touching equipment.
- 2) Do not share a car with people outside your household while traveling to conduct WAVE related activities e.g. travel to the stream, travel to shipping centers.
- 3) Maintain 6 feet of distance at all times with people outside of your immediate household.

- 4) Preparation for WAVE sampling activities, such as bottle and paperwork preparation, should only be done alone or with people in your immediate household.
- 5) Where practicable, limit the number of people participating in WAVE activities.
- 6) Where practicable, conduct WAVE activities with people in your immediate household for whom a waiver form has been completed.
- 7) If sampling with another individual outside of your household, dedicate one sampler to a particular role and the required piece of equipment for the entire season. For example, if sampling with multiple people:
  - a. One individual is responsible for conducting field observations and completing paperwork.
  - b. One individual is responsible for the macroinvertebrate sampling with the kick net.
  - c. The individual who collected the water sample should conduct the sample processing and shipping to reduce proximity and potential exposure.
  - d. Each individual should prepare, store and transport the equipment for his/her assigned sampling roles, and travel in separate vehicles.
  - e. Maintain social distancing at all times during the sampling event.
- 8) When preparing the voucher sample for delivery:
  - a. Since the voucher sample is preserved, vouchers samples may be held at room temperature until it is convenient for volunteers to ship them.
  - b. When preparing the sample for shipping, follow any posted instructions at the facility to maintain social distancing rules.
    - i. WAVE samples can be mailed through the US Postal Service. Since the voucher samples contain rubbing alcohol, please follow the instructions below:  
[https://pe.usps.com/text/Pub52/pub52apxc\\_010.htm](https://pe.usps.com/text/Pub52/pub52apxc_010.htm)
- 9) Sharing equipment is not recommended, however if equipment must be shared, gloves should be worn at all times, and all areas of equipment which may have been touched while wearing gloves should be disinfected. This includes but is not limited to:
  - a. Kick Net;
  - b. Sampling vial;
  - c. Pens, pencils and clipboards.
  - d. Disinfectants should be used according to EPA guidance:  
<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

# Purpose

To outline the steps to collect Water Assessments by Volunteer Evaluators (WAVE). WAVE provides a way for volunteer monitoring groups to submit valuable surface water quality information to the New York State Department of Environmental Conservation (DEC).

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# How to Join WAVE

Anyone who can kick over a rock can participate in WAVE! To participate, follow these simple steps:

## 1) Get Trained

WAVE training is now online! Get trained in the WAVE method today from the comfort of your own home by going to: <https://www.youtube.com/watch?v=rUYcyXeQkg0&list=PLnBbYubhbH1Xm88bAcosUMIHx58H4s6eK>

## 2) Find a WAVE Team (Optional)

Two minds are better than one and two bodies are safer for stream sampling! To join an existing WAVE team, view this map and send an email to [wave@dec.ny.gov](mailto:wave@dec.ny.gov) with the names of at least three groups you're interested in working with. We will introduce you to the team coordinator via email. If you already have a team and want to recruit new members, email [wave@dec.ny.gov](mailto:wave@dec.ny.gov) to get your team added to the map (<http://www.dec.ny.gov/ekmz/index.html?url=http://www.dec.ny.gov/maps/wavemap.kmz>).

## 3) Sign the WAVE Waiver

Everyone who participates in WAVE must sign and mail in the WAVE waiver ([https://www.dec.ny.gov/docs/water\\_pdf/wavewaiver2018.pdf](https://www.dec.ny.gov/docs/water_pdf/wavewaiver2018.pdf)). We cannot review sites, applications, or process samples without a waiver in hand. Mail your signed waivers to: Keleigh Reynolds, NYSDEC, 625 Broadway, Albany, NY 12233-3508.

## 4) Get Equipment

You will need a kick net and a sample vial to collect a WAVE sample. A limited number of these are available through the Equipment Loan Program. Equipment applications are due June 1 of each year. Email [wave@dec.ny.gov](mailto:wave@dec.ny.gov) for an application.

## 5) Stay in the Loop

All WAVE announcements are sent to our email list serve. To sign up, enter your email address in the blue "DEC Delivers" box on <http://www.dec.ny.gov/chemical/92229.html>.

# Annual Schedule

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**May & June**

- Watch the WAVE training videos to learn how to collect samples.
  - **Sign and mail in the WAVE waiver form.**
  - **Apply through the Equipment Loan Program to borrow a kick net and sample vials.**
  - **Submit potential sampling sites for review using the online tool: <https://arcg.is/zfG49>**
- 

**July 1**

- Sampling season begins: collect one sample per site before the end of the sampling season.
- 

**September 30**

- Sampling season ends.
- 

**October – November**

- Drop off or mail in your samples and data sheets.
- 

**February 1**

- All samples processed by DEC (when your sample is processed you will receive an automatic email with the results).
- 

**May**

- Kick Off Meetings – The DEC professional sampling team holds annual kick off meetings before the season begins. This is your opportunity to advocate for sites to be sampled professionally. An announcement for kick off meetings will go out to the WAVE list serve each year.
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# Equipment

## Equipment Loan Program

A limited number of kick nets and sample vials are available through the Equipment Loan Program. To apply to borrow a kick net and/or sample vials email [wave@dec.ny.gov](mailto:wave@dec.ny.gov) by June 1.

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### Required Equipment

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<i>Equipment</i>	<i>Purpose/Notes</i>
<b>Kick net</b>	These are available through our equipment loan program. Alternatively, you could purchase your own or build your own ( <a href="https://goo.gl/THCbKl">https://goo.gl/THCbKl</a> )
<b>Sample container</b>	To store the preserved macroinvertebrates.
<b>Isopropyl alcohol (at least 90%)</b>	To preserve the macroinvertebrates.
<b>Pencil</b>	Sample labels must be written in pencil, not pen.
<b>WAVE Datasheets</b>	Available at <a href="http://www.dec.ny.gov/chemical/92237.html">http://www.dec.ny.gov/chemical/92237.html</a>
<b>WAVE License</b>	Attached to the end of this manual (Appendix D, please bring a copy with you into the field.)

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### Optional Equipment

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<b>5 gallon bucket</b>	To hold and transport sample material.
<b>White dish pan and/or large white cutting board</b>	To view and sort the contents collected in the net. The white color is important to provide contrast for the darker organisms.
<b>2 plastic ice cube trays</b>	Provides a convenient tool to sort the organisms by type.
<b>Plastic spoons and small paint brushes</b>	To remove the organisms from the tray and place into the ice cube trays / to handle the organisms for identification.
<b>Hand lenses</b>	To magnify the organisms and assist in seeing features for identification.
<b>Waders &amp; gloves</b>	To keep the participant dry in the water.
<b>Seltzer water</b>	To anesthetize the macroinvertebrates.
<b>Digital camera</b>	To photo document the site and the process.

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# Safety Precautions

Collecting macroinvertebrate samples requires certain precautions and safety measures. Here are some recommended safety procedures:

- Collect samples with a partner. Let someone know where you are going and when you expect to return. Bring a cell phone with you if possible.
- *If you are in doubt as to your ability to safely collect a sample, don't do it!* Be aware of your own physical limitations and the difficulty of collecting samples at certain locations under certain conditions.
- Don't collect under difficult conditions or severe weather.
- Be careful when pulling off the side of the road and exiting your car so as not to endanger yourself or create a traffic hazard. If you are sampling, working or walking alongside a roadway or on a bridge, wear orange vests or other bright, reflective clothing.
- Consider leaving your wallet and keys in or around your car so you won't lose them in the river.
- Bring a stick or pole along for balance when climbing down steep banks or wading.
- Watch out for poison ivy and ticks!
- High flows can turn even the most placid water into a raging torrent. Don't attempt to collect a sample if you feel the least bit of risk. *Avoid dangerous situations.*
- If there is an upstream dam that periodically releases water, the water level may rise swiftly. Be aware of the timing of such releases and avoid getting caught in the middle of the stream during a release. Inform the dam operators of your collection. If there is a conflict, ask if the release can be changed to accommodate you.
- Collecting samples requires wading. *Wear waders or at least sturdy soled shoes!* Bring a towel and a dry, warm change of clothes.
- If any of the people wading in the stream are not strong swimmers, the use of a personal floatation device is strongly recommended.
- If sampling below a wastewater treatment plant, or in waters known to be polluted, wear chest waders and rubber gloves and wash your hands after exposure.
- **Don't trespass** on private property. Obtain prior permission from the landowner.

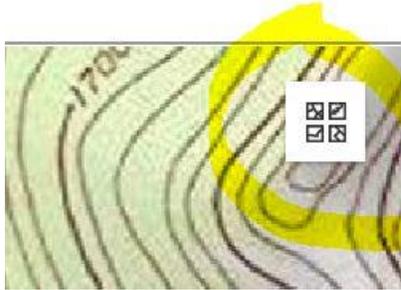
# Step 1. Select a Sampling Location

## Overview

1. Submit a sampling location using the online tool.
2. The WAVE Coordinator may request that you move this location if the habitat is inappropriate.
3. Contact private landowners to gain permission to access the site.

## Detailed steps

1. Visit the online site submission tool: <https://arcg.is/zfG49>
2. In the first question, using the basemap changer in the upper-right hand



corner,

change the basemap to the “WAVE unassessed streams” map. Detailed streams (red) that are currently unassessed will appear on the map.

3. Use the +/- buttons to zoom in on the general area where you plan to sample. The highlighted segments are streams that have never been assessed by DEC and are therefore priority WAVE sampling locations. However, you are welcome to select a location on a stream that is not highlighted if you are investigating a local water quality issue.
4. Follow the instructions below the map to submit your proposed site selection.
5. Since you can never be certain that a location is appropriate from the computer, **you are strongly encouraged to submit more than one sampling site** to increase your chances of having at least one appropriate sampling site when you go out to sample.
6. The WAVE Coordinator will review your site selection and may suggest selecting a different sampling location if the one you have chosen is in an inappropriate habitat such as:
  - In a headwater stream (meaning no other stream feeds into it)
  - Next to a pond discharge
  - In a wetland

- In a slow and sandy stream which would not have a riffle to sample
7. If the WAVE Coordinator does not contact you within 2 weeks of the sample site submission, you are ready to continue with the next steps.
  8. **Make sure to contact any private landowners before stepping into a stream.** Try knocking on doors or sending a letter (see Attachment C for a sample letter).

## Step 2. Arrive on site and locate the riffle

### Overview

1. Travel to the sampling site **anytime between July 1 and September 30.**
2. Locate a *riffle* within 1000 feet of your sampling site.
3. Select the *transect* that you will sample.

A *riffle* is an area in the stream where water bubbles over the rocks.

The *transect* is a five-meter straight line parallel, perpendicular or diagonal to the stream bank along which you will collect your sample.

### Detailed steps

1. Go to your site anytime between July 1 and September 30
2. Locate the best riffle at the sample site. A good riffle for sampling has water across the entire streambed during a dry season and has a balanced mix of loosely embedded boulders, cobbles (melon size rocks) and gravel.
3. You may have to move upstream or downstream to find a good riffle. If you move more than 1000 feet from your proposed coordinates, please put the new location (latitude/longitude) on your data sheet.
4. Choose a five meter (15 foot) transect where you will collect your sample. You want your transect to be in the best possible macroinvertebrate habitat, so spend some time scouting above and below your site to find the best riffle. Five meters is about the length of an average car.

## Step 3. Collect the sample

### Overview

1. Collect a kick sample spanning your 5 meter transect.
2. Dump the contents of your net into your bucket or sorting tray.

### Detailed Steps

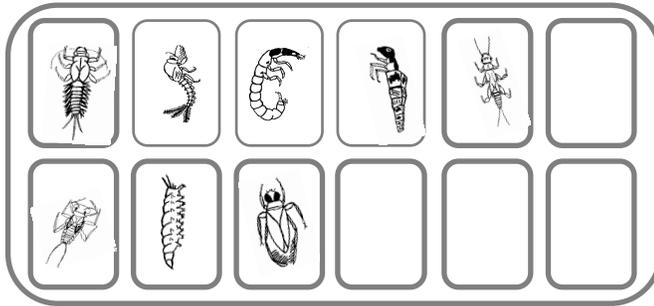
1. Walk to one end of your transect.
2. Stand facing downstream and place the net firmly on the stream bottom with the net opening facing upstream.
3. Start your stop watch.
4. Disturb the stream bottom by sliding your feet side to side and kicking rocks and sediments in front of the net opening. Dislodged macroinvertebrates will be washed into the net by the current.
5. Gradually move along your transect, kicking the stream bottom as you go.
6. Spend *at least* five minutes collecting a sample across your five meter transect. It's fine to spend additional time kicking if you are able.
7. Dump contents of the net into a bucket.



## Step 4. Sort the Sample

### Overview

1. Observe your sample.
2. Pull out at least one example of each unique organism and sort them in an ice cube tray filled with water.



You may want to take the sample inside, where there is proper lighting and comfortable seating.

### Detailed Steps

1. Fill the ice cube tray wells and a white sorting tray with stream water.
2. Pull one handful of material from your bucket and put it in the white sorting tray.
3. Observe the tray for two to five minutes while carefully inspecting and removing large debris (leaves, gravel and sticks).
4. Use a paint brush, spoon or eye dropper to pick up an organism.
5. Place the organism into an ice cube tray well with others that are identical.
6. Continue until all organisms are sorted. You want to collect at least one example of each unique macroinvertebrate you can find.

## Step 5. Identify the organisms (OPTIONAL)

### Overview

1. Identify organisms using a recommended guide.
2. Record each organism you identify on the WAVE Data Sheet (see <http://www.dec.ny.gov/chemical/92237.html>).

Identifying the organisms is *optional* – If you choose to skip this step, only fill out the site information on the WAVE Data Sheet and leave the rest blank.

### Detailed Steps

1. Begin the identification process by selecting an organism from one ice cube well.
2. Use the Stroud Institute's "Identification Guide to Freshwater Macroinvertebrates" to identify which macroinvertebrate category (*order*) the organism belongs to. The Stroud Institute's guide is free and online at: [https://stroudcenter.org/wp-content/uploads/MacroKey\\_Complete.pdf](https://stroudcenter.org/wp-content/uploads/MacroKey_Complete.pdf)
3. Next, use your preferred guide to further identify the organism to the level of *family*. A complete list of recommended identification guides and resources is listed in Appendix A.
4. If you have a match, check that organism off on the WAVE Data Sheet (see <http://www.dec.ny.gov/chemical/92237.html>).
5. Sometimes, you may find an organism that's not on the Data Sheet. Feel free to check the group (mayfly, stonefly, worm-like, etc.) and write in the name under the "other" box. Or, if nothing matches, simply place the organism into the voucher collection and leave the Data Sheet blank. The WAVE Coordinator will identify everything in your sample and send you the results.
6. Continue identifying all the organisms in your ice cube tray.

The Stroud Guide categorizes organisms to the taxonomic level of *order*.

*Family* is the next taxonomic level below order.

You'll find out what that critter was, we promise!

## Step 6. Prepare the sample container for submission

### Overview

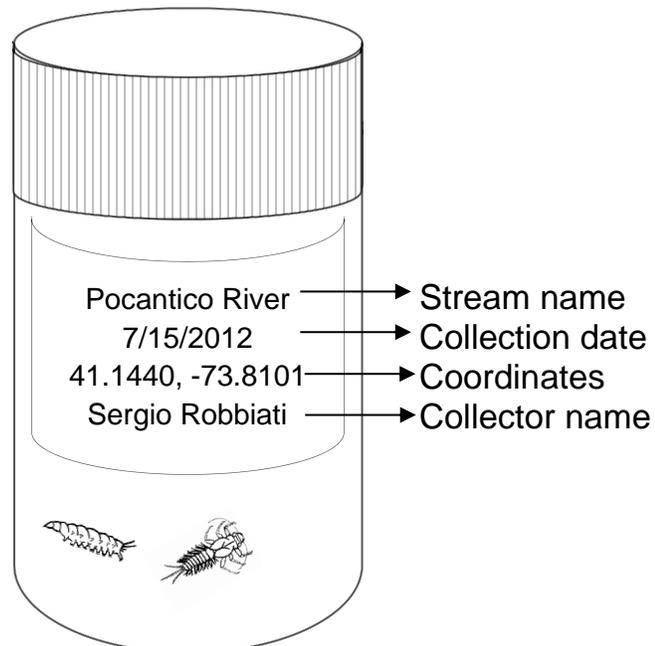
1. Fill a sample container with isopropyl alcohol.
2. Place one to two of each type of organism into the container.
3. Place a label written in pencil into the container.

This is the most important step!

### Detailed Steps

1. Fill a sample container with isopropyl alcohol, at least 90% strength.
2. Gather all the ice cube trays together.
3. Pick up a macroinvertebrate, shake off the excess water, and put it in the sample container. The alcohol will kill and preserve the macroinvertebrate.
4. Repeat step 3 until you have preserved one or two macroinvertebrates from each ice cube tray cell. In other words, you are preserving one or two of each macroinvertebrate type discovered in your sample.
5. Include any macroinvertebrate types that you were not able to identify and those you may *think* are different but are not sure. The final list of organisms from the site will be based on those present in your sample container– if it is not sent in, it doesn't count.
6. Place a label into the sample container. The label should be written in pencil (ink will dissolve in alcohol) and include: the stream name, collection date, sampling location coordinates, and collector name. An example is below.

When in doubt, include it!



## **Step 7. User Perception Survey / Habitat Assessment**

Complete the Habitat Assessment and the User Perception Survey for the site (see <http://www.dec.ny.gov/chemical/92237.html>). Instructions for completing this goal are on the Habitat Assessment and User Perception Survey sheets.

# Step 8. Submit Your Data

## Overview

1. Gather together your voucher collection, WAVE datasheet, Habitat Survey, and User Perception Survey.
2. Mail these items to the WAVE Coordinator.

## Detailed Steps

1. For each sampling location, you produced:
  - A sample container of macroinvertebrates
  - A WAVE Datasheet
  - A Habitat Survey
  - A User Perception Survey
2. These items can be mailed or dropped off:
  - **Drop-off:** WAVE samples can be dropped off at most DEC offices. Send an email to [wave@dec.ny.gov](mailto:wave@dec.ny.gov) with your preferred drop off location. The WAVE Coordinator will contact the office to prepare them to receive the sample.
  - **Mail:** WAVE samples can also be mailed through the US Postal Service. Since the samples contain rubbing alcohol, you must follow packaging instructions for "Flashpoint greater than 20°F (-7°C) but not more than 73°F (23°C)" ([http://pe.usps.com/text/Pub52/pub52apxc\\_010.htm](http://pe.usps.com/text/Pub52/pub52apxc_010.htm)). For your convenience, these instructions are in Appendix B of this Sampling Guide.

The U.S. Postal Service is the most reliable way to get your samples to the WAVE Coordinator.

- Please mail samples to:

Keleigh Reynolds  
NYSDEC  
625 Broadway, 4<sup>th</sup> Floor  
Albany, NY 12233-3508

# Follow Up

Samples are identified, verified and interpreted by the WAVE Coordinator. The WAVE coordinator identifies all macroinvertebrates in the WAVE samples to the level of family and uses these data to calculate a water quality assessment (see assessment matrix below). All of the WAVE results are sent to each sampler directly and published each year in a google map (<https://www.dec.ny.gov/chemical/92237.html>).

## WAVE Water Quality Assessment Matrix

Sample Contents	Water Quality Assessment	Assessment Description
More than 6 "MOST wanted" organisms	No Known Impact	The stream is healthy in that there is no observed impact to the aquatic life. This assessment is high quality and may be used for state and federal reporting purposes.
More than 4 "LEAST wanted" organisms	Possibly Impaired	This assessment serves as a red flag for sites that may deserve further investigation at the professional level. So far, we've been able to respond to every site that was flagged as possibly impaired.
Other	No Conclusion	Sometimes a sample does not meet either of these criteria: it doesn't have 6 or more "most wanted" <i>nor</i> 4 or more "least wanted". If the sampling was done properly, then the site is probably slightly impacted but not impaired. This can also happen, however, when sampling is performed incorrectly which is why the NYSDEC records this assessment as "No Conclusion."

## Attend Sampling Kick Off Meetings

Samplers are encouraged to participate in the next step of the process: Kick Off Meetings. DEC staff may hold online kick off meetings to discuss waterbodies that deserve further investigations. These kick off meetings are announced through the WAVE list serve and are open for anyone to attend.

## Examples of How Communities are Using WAVE Locally

WAVE is a valuable tool for identifying healthy streams and flagging possibly impaired streams. For the latter, professional sampling is necessary to confirm impacted conditions and to understand the source of the impact.

Groups across the state have worked with NYSDEC and professional contractors to identify their impacted waterbodies. Some of these efforts are driven entirely by volunteers while others are coordinated by professional staff at local, county, or state government programs. These data are used to take steps to improve water quality in collaboration with state or federal government or sometimes independently, at the local level.

Groups are also using WAVE data directly with their local communities to highlight and preserve valuable local resources. High quality streams are valuable resources to your community. They provide drinking water, recreational fun for anglers and swimmers, habitat for aquatic and terrestrial wildlife, and they offer an aesthetic beauty (a list of all the NYSDEC designated uses for flowing surface waters is provided here: <https://goo.gl/9yXlyu>).

For examples of local communities who have taken steps to preserve high quality streams and address impacted streams, see the WAVE annual reports (<http://www.dec.ny.gov/chemical/92237.html>).

*What can you do to address water quality issues in your own community?*

The best way to start is to find other people in your watershed who share your interest and concerns. Reach out to other members of the WAVE project within your same watershed; here is a map of the WAVE local coordinators: <https://goo.gl/Xrh5Sq>

A second, simple step is to participate in the annual public meeting with NYSDEC professional sampling staff. This is your opportunity to highlight segments that you feel deserve further investigation. These meetings take place in May or June and are announced through the WAVE list serve.

# Appendix A. Identification Resources

## **NYSDEC's Freshwater Macroinvertebrates webpage**

For more photos and to read about the major macroinvertebrate groups that may be found in streams in New York: [www.dec.ny.gov/animals/35772.html](http://www.dec.ny.gov/animals/35772.html)

## **Guide to Aquatic Invertebrates of the Upper Midwest by R.W. Bouchard (2004)**

A family level identification guide that includes most of the WAVE families:

<https://dep.wv.gov/WWE/getinvolved/sos/Pages/UMW.aspx>

### **Printed Texts**

McCafferty, P.W. 1983. Aquatic Entomology: The Fishermen's and Ecologists Illustrated Guide to Insects and Their Relatives. Jones & Bartlett Learning, Boston, MA.

Merritt, R. W., and K. W. Cummins (Editors). 2008. An introduction to the aquatic insects of North America. Fourth edition. Kendall/Hunt Publishing Co., Dubuque, Iowa

Peckarsky, B. L., P. R. Frassinetti, M. A. Penton, and D. J. Conklin Jr (editors), 1990. Freshwater Macroinvertebrates of Northeastern North America. Cornell University Press, Ithaca, NY

Voshell, J.R 2002. A guide to common freshwater invertebrates of North America. McDonald & Woodward Publications, Granville, OH

# Appendix B. USPS Shipping Instructions

## U.S. Postal Service Packaging Instructions 3A in Appendix C of PUB 52

(Visit [http://pe.usps.com/text/Pub52/pub52apxc\\_010.htm](http://pe.usps.com/text/Pub52/pub52apxc_010.htm) for more details)

- Separate packaging requirements apply depending on the flashpoint of the flammable liquid.

### For flashpoint greater than 20° F (–7° C) but not more than 73° F (23° C)

#### *Primary Receptacle*

- A metal primary receptacle must not exceed 1 quart.
- A nonmetal primary receptacle must not exceed 1 pint.
- The primary receptacle must have a screw cap (with minimum of one–and–one–half turns), soldering clips, or other means of secure closure (friction tops are not acceptable).
- Only one primary receptacle is permitted per mailpiece.

#### *Cushioning Material and Secondary Packaging*

- Enough cushioning material must surround the primary receptacle to prevent breakage and absorb any potential leakage.
- The cushioning and primary receptacle must be packed in securely sealed secondary packaging.

#### *Outer Packaging*

- Strong outer packaging that is capable of firmly and securely holding the primary receptacle, cushioning material, and secondary packaging is required.

#### *Marking*

- Each mailpiece must be clearly marked on the address side with “Surface Only” or “Surface Mail Only” and “Consumer Commodity ORM–D.”
- Optionally, each mailpiece may bear an approved DOT limited quantity square-on-point marking, designating surface transportation, prepared under [343.3b](#), instead of an ORM-D marking.
- A complete return address and delivery address must be used.

## Appendix C. Sample Landowner Permission Letter

Dear Sir/Madam:

I am a volunteer with a New York State Department of Environmental Conservation (DEC) program that is assessing stream health, and am seeking permission to access a section of stream on your property for about one hour to collect a sample of insects from the stream.

The sampling program is called WAVE, which stands for "Water Assessments by Volunteer Evaluators" (<http://www.dec.ny.gov/chemical/92229.html>). If you have any questions, the DEC contact for the project is Alene Onion (518-402-8166, [wave@dec.ny.gov](mailto:wave@dec.ny.gov)).

Thank you very much for your time and consideration. I can be reached at:

\_\_\_\_\_.

Sincerely,

\_\_\_\_\_

# Appendix D. Collection License



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

License to Collect or Possess: Scientific # 2678

## LICENSE

### Under the Environmental Conservation Law (ECL)

#### Licensee Information

License Issued To:  
Keleigh A Reynolds  
NYSDEC - Division of Water  
625 Broadway  
Albany, NY 12238

(518) 402-8236  
COUNTY: ALBANY  
REGION: 4

#### DEC Contact Information

DIVISION of FISH and WILDLIFE  
SPECIAL LICENSES UNIT  
625 BROADWAY, ALBANY, NEW YORK 12233-4752  
PHONE: (518) 402-8985 FAX: (518) 402-8925  
WEBSITE: <http://www.dec.ny.gov>

#### License Authorizations

License to Collect or Possess: Scientific  
License # 2678

New License

Effective Date: 3/12/2020

Expiration Date: 3/11/2021

#### NYSDEC Approval

By acceptance of this license, the licensee agrees that the license is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this license.

#### License Regulations

6 NYCRR Part 175

Issued License

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**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

License to Collect or Possess: Scientific # 2678

ECL 11-0515 (1)  
6 NYCRR Part 189**LICENSE TO COLLECT OR POSSESS: SCIENTIFIC - LICENSE  
CONDITIONS**

- 1. Collection from the Wild: Authorized Species, Specific** The licensee is authorized to collect and possess the following species: Fresh water macro-invertebrates (NY Indigenous)
- 2. Scientific Collection - Authorized Activities** The licensee is authorized to possess the collected species for the following activity(ies): DEC WAVE Program
- 3. Scientific Collection - Location** The licensee is authorized to collect species from the following locations only:  
Statewide.
- 4. Scientific Collection - Authorized Collection Equipment General** The licensee shall only collect authorized species using: Techniques outlined in the Quality Assurance Project Plan Submitted on April 11, 2012.
- 5. Scientific Collection - Freshwater Fisheries - Bio-safety Protocol** The licensee shall conform with all guidelines contained in the NYS DEC Bureau of Fisheries Sampling, Survey, Boat and Equipment Protocol, attached to this license as Appendix I. Any questions regarding the protocols may be directed to the Regional Fisheries Manager at:  
  
Regional Fisheries Manager  
NYSDEC Region 4 Stamford Sub-Office  
65561 St Rte 10  
Stamford, NY12167 -9503
- 6. Scientific Collection – Gear Marking and Monitoring** The licensee shall mark all gear deployed with the licensee's name, resident address and license type and number. All traps and nets shall be checked no less than once every twenty-four (24) hours.
- 7. Scientific - LCP - Collection or Possession of Endangered or Threatened Species Prohibited**  
The licensee shall not collect or possess any endangered/threatened species pursuant to this license.
- 8. Scientific Collection - Law Enforcement Notification** The licensee shall notify the appropriate Regional Environmental Conservation Officer at least 72 hours prior to conducting activities pursuant to this license and within 24 hours upon the loss or theft of any collecting gear. Please use the following link for a listing of Regional Law Enforcement Phone Numbers: <http://www.dec.ny.gov/about/558.html>
- 9. Collection from the Wild - Authority to Designate Agents** The licensee is authorized to designate agents to assist the licensee with the activities authorized pursuant to this license provided that:
  - a. the licensee submits a written request to the NYSDEC Special Licenses Unit at the address listed on the front of this license containing the:

Issued License

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**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

License to Collect or Possess: Scientific # 2678

- i) name
- ii) address
- iii) age
- iv) phone number of the person he or she is nominating as a designated agent, and;

b. the licensee receives an amended license from the Special Licenses Unit listing the designated agent(s) he or she has nominated before that person can conduct activities authorized by this license.

**10. Authorized Designated Agents** The following Designated Agents are authorized: On file with SLU.

**11. Scientific Collection - Reporting Requirement – Date** The licensee shall file a written annual report prior to December 31. Such annual report shall contain: a) name of the licensee, b) license number, c) common name of the listed animals collected, d) location(s) of collection, e) date(s) of collection, f) biological data collected and g) final disposition of collected animals. The licensee shall send this report to the NYSDEC Special Licenses Unit 625 Broadway, Albany, NY 12233-4752.

<p align="center"><b>GENERAL CONDITIONS - Apply to ALL Authorized Licenses</b></p>
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**1. GC – Licensee Shall Read All Conditions** The licensee shall read all license conditions prior to conducting any activities authorized pursuant to this license.

**2. GC – License is Not Transferrable** This license is not transferrable and is valid only for the person identified as the licensee.

**3. GC – Licensee Responsible for Federal, State or Local Permits/Licenses** The licensee is responsible for obtaining any and all necessary, corresponding Federal, State or local permits or licenses prior to conducting any activity authorized pursuant to this license.

**4. GC – Reasons for Revocation** This license may be revoked for any of the following reasons:

- i. licensee provided materially false or inaccurate statements in his or her application, supporting documentation or on required reports;
- ii. failure by the licensee to comply with any terms or conditions of this license;
- iii. licensee exceeds the scope of the purpose or activities described in his or her application for this license;
- iv. licensee fails to comply with any provisions of the NYS Environmental Conservation Law, any other State or Federal laws or regulations of the department directly related to the licensed activity;
- v. licensee submits a check, money order or voucher for this license or application for this license that is subsequently returned to the department for insufficient funds or nonpayment after the license has been issued.

**5. GC – Licensee Shall Carry Copy of License** The licensee shall carry a copy of this license or a document provided by the department, if relevant, when conducting activities pursuant to this license.

**6. GC – Licensee Shall Notify of Change of Address** The licensee shall notify the Special Licenses Unit in writing, by mail or email, within five (5) days of the official change of residence.

**7. GC – Licensee is Liable for Designated Agents** If designated agents are authorized pursuant to this license, the licensee shall be liable and responsible for any activities conducted by designated agents pursuant to this license or any actions by designated agents resulting from activities authorized by this license.



**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**License to Collect or Possess: Scientific # 2678**

**8. GC – Licensee Renewal** The licensee shall submit a written request for the renewal of this license prior to the expiration date listed on the license. The licensee shall include accurate and complete copies of any required reports with their renewal request. This renewal paperwork shall be sent to:

NYSDEC  
Special Licenses Unit  
625 Broadway  
Albany, NY 12233-4752.

This license is deemed expired on the date of expiration listed on the license.

<p><b>NOTIFICATION OF OTHER LICENSEE OBLIGATIONS</b></p>
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**MN– Licensee is Liable**

The licensee shall be liable and responsible for any activities conducted under the authority of this license or any actions resulting from activities authorized by the license.

**MN – Access by Department Representatives**

The licensee shall allow representatives of the department to enter upon the licensed premises to inspect their operations and records for compliance with license conditions.

**Trespassing Prohibited**

This license is not a license to trespass. The licensee shall obtain permission from the appropriate landowner/land manager prior to conducting activities authorized pursuant to this license

# NYS DEC Division of Fish, Wildlife and Marine Resources, Special Licenses Unit

This document is an official addendum to the attached license, and shall be kept with the license at all times.

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## Appendix I. NYS DEC Bureau of Fisheries Sampling, Survey, Boat and Equipment Protocol

Sampling and Survey work should be conducted with clean, dry and/or completely disinfected equipment.

For all survey work in streams and rivers where the status of ANS is unknown, sampling should start at the upper most reach, and then work downstream. This will help ensure that non motile ANS will not be transported on boots and gear to uninfected upstream reaches. In streams where the infestation is systemwide, survey order is less important. If the stream or river is already known to be infested with ANS but the extent of infestation is not clear, particular care should be taken to replace or completely disinfect boots and gear before consecutive surveys are conducted.

In general, lakes and ponds which are connected by channels or streams with or without barriers, should be surveyed starting at the uppermost location in the system. Dry or disinfected gear should always be used for lake or pond surveys.

When traveling from a lake or pond to another water body, or from a stream/river site to one that is not downstream in the same system, the following procedures must be followed for boats, trailers and all other gear that comes in contact with the water. *(Note: additional REQUIRED procedures are listed in this protocol for use when moving from whirling disease or zebra mussel positive waters to waters not known to have these organisms.)*

### " **Upon launching boat:**

- **Trailers with carpeted bunks** should be disinfected after the boat is launched and the trailer removed from the water - use a spray bottle with Lysol solution or full- strength vinegar for carpeted trailer bunks.
- Keep the disinfectant bottle in the truck so the driver can treat the trailer bunks after deploying the boat.

### " **Prior to leaving launch site:**

- Inspect and remove visible aquatic plants, animals and mud from the boat, trailer and equipment at the sampling location.
- Drain all water from the live well, bilge, etc.
- Do not transfer any aquatic animals, plants or water from one water body to another.
- Do not store dissolved oxygen probes or other water chemistry gear in lake water - bring distilled or chlorinated tap water for this purpose (follow manufacturers directions).

" **Upon returning to equipment storage area OR before launching in any other water body that is not immediately downstream of prior location (whichever comes first):**

- Nets, anchors, lines, boots and waders can be dried for 5 days . *When felt soled waders are used special care needs to be taken to ensure that they are totally dry or they must be disinfected as outlined below* **OR**
- **All** equipment can be disinfected using one of the following techniques (*Note: for boats this includes surface, motor, bilge, pumps and live wells. All equipment must subsequently be rinsed with clean water. Disinfection must take place away from water bodies*):
  - **In zebra mussel/whirling disease waters - use 10% bleach solution\***
  - In all other waters - 1% Virkon Aquatic\*\* is acceptable **OR**
  - Boats, trailers and **all** other equipment can be disinfected using a high temperature pressure washer (steam power washer)- (*Note: this technique is approved for zebra mussel/whirling disease waters; see Appendix 1 for boat disinfection guidelines*).

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\* **Chlorine bleach:** When handling 10% chlorine bleach solution, be sure to wear protective gear (masks, gloves, goggles, etc.) and use in a well ventilated area (follow precautions on Material Safety Data Sheets (MSDS)). Remove all visible debris from equipment and gear. Spray equipment and gear with the solution so that it is saturated or immerse gear in solution.

If equipment or gear is porous (i.e., felt bottomed or neoprene waders) let soak in solution for

10 minutes. Rinse equipment and gear with tap water or with water from the next water body you will be sampling. Dispose of waste chlorine bleach solution away from bodies of water and drinking water sources (follow protocol in MSDS).

\*\* **Virkon Aquatic:** Wear a dust mask and rubber gloves when handling the powder. Mix a 1% (1:100) solution. Remove all visible debris from equipment and gear. Spray equipment and gear with the solution so that it is saturated or immerse gear in solution. If equipment or gear is porous (i.e., felt bottomed or neoprene waders) let soak in solution for 10 minutes. Rinse equipment and gear with tap water or with water from the next water body you will be sampling. Dispose of waste Virkon solution away from bodies of water and drinking water sources (follow protocol in MSDS).

# NYSDEC Bureau of Fisheries Biosecurity Protocol

Boat hulls, anchors, and trailers:

- Always drain the bilges of the boat by removing the drain plug. Bilge pumps are not capable of removing all water from those areas. Wet wells, live wells, and any other compartments that could hold water from an infested field collection site should be drained of water at the field site, and if possible, flushed with hot water, steam or disinfectant solution and allowed to dry before the next use. If appropriate, the field site water may be drained back into the original body of water, as long as conditions and the decontaminant used are such that this would not cause chemical or biological contamination. Otherwise, such water containing disinfectant solutions must be drained into a suitable container for treatment prior to final disposal. Field crews may elect to not drain the bilge area until they return to the storage lot if they are not going to any other bodies of water until decontamination is completed.
- If the bilge water is drained and collected, it must be disinfected and then disposed of by suitable means to avoid causing environmental damage or contamination.
- After draining contained water, all compartments that held water should be washed with a high temperature pressure washer or disinfectant solution and left open to completely dry prior to use in the next site.
- All boats, anchors, trailers used in field sampling will be cleaned using a high temperature pressure washer working from fore to aft and gunnels to keel in a thorough manner.
- While using the high temperature pressure washer, particular attention should be paid to the cooling water intakes on the lower unit of the motor.
- Particular attention should be paid to the carpeted trailer bunks since they can hold water for extended periods of time. These areas should have already been treated with a disinfectant solution when the boat was unloaded into the lake but should be washed with a high temperature pressure washer anyway.
- Lower the motor to drain all water from the lower unit. Replace the motor into the “transom saver” when this is accomplished.

\*OWRB, Oklahoma Water Resources Board. 2005. Decontamination Protocol for Aquatic Nuisance Species. Technical Report 05-157.

