Save

IWLA

Our Streams

With a few simple steps, you can help solve America's water quality problems

Many of us have fond childhood memories of exploring a backyard creek, splashing in a nearby lake, or catching our first trout in a local stream. These experiences not only engaged us in the outdoors, they educated us about the connections between nature and our community — an education that could not be replicated in a brick-and-mortar school.

Today, an entire generation is growing up with little connection to the natural world. The lack of time spent playing outdoors is taking its toll on the healthy development of our children.

Less than 20 percent of America's rivers and streams are being monitored at all.

Yet at the same time, we are learning that some favorite outdoor spaces can also harbor serious health risks. Given the state of America's waters, you might actually be glad the kids are staying home.

State and local agencies charged with protecting our nation's waters face increasing budget deficits and diminishing resources for monitoring waterway health. In fact, less than 20 percent of America's rivers and streams are being monitored at all. Of the few that are checked, less than half have been found safe for fishing, swimming, and other uses — often based on just one water quality test every five years!

Every American deserves to know whether it's safe to swim, fish, boat, and hunt in and around neighborhood streams and large rivers.

That's where you come in.

Just a few hours of your time is all it takes to make sure your neighborhood streams are safe — or find out that they're not. Share your findings with the League and appropriate state agencies and we can get a clear picture of water quality across the country, which is the first step in crafting water quality solutions that work.

First, it helps to understand the depth of the problem.

Troubled Waters

Streams and wetlands provide habitat for fish and wildlife. They also provide important benefits for people — from flood protection and erosion control to drinking water and opportunities for recreation and education. When we turn on the tap, dip our fishing line in a stream, or take our children and grandchildren to the local swimming hole, we often take for granted that the water is clean and safe. After all, our waters are protected by federal and state laws, right?

U.S. ENVIRONMENTAL PROTECTION AGENCY; UNITED STATES GEOLOGICAL SURVEY; ISTOCK (2)

The short answer is: Sort of.

Although the Clean Water Act and other federal and state laws dramatically curbed some types of water pollution, that hasn't solved all our water quality problems. One reason is that the Clean Water Act focuses primarily on **point-source pollution** — pollution that comes from a distinct, identifiable source (or "point"). The U.S. Environmental Protection Agency (EPA) and state agencies have had great success in controlling pollution from factories, sewage treatment plants, and other point sources.

The threats to water quality today are less obvious than a factory pipe or sewage outflow — but no less harmful.

Today's threats are the often unseen pollutants carried into waterways by rain, snowmelt, and other runoff, including

- Fertilizers and pesticides from farm lands and suburban lawns
- Motor oil and ice-melting chemicals from parking lots and community streets
- Bacteria from livestock and pet waste

This is called **nonpoint-source pollution** because it does not come from a single identifiable "point" — which also makes it much harder to eliminate.

The Clean Water Act does not provide effective tools to curb nonpoint-source pollution. Federal programs that address nonpoint-source pollution — including the Nonpoint Source Management Program and the Coastal Nonpoint Pollution Program — have made little progress in stemming the flow of pollutants from nonpoint sources because these programs are voluntary. In addition, the responsibility for regulating nonpoint-source pollution has largely rested on the shoulders of state and local authorities that, as stated earlier, often lack the funding and personnel needed to curb this growing threat.

The Government Accountability Office reported in 2014 that, "More than 40 years after Congress passed the Clean Water Act . . . many of the nation's waters are still impaired, and the goals of the Act are not being met. Without changes to the Act's approach to nonpoint-source pollution, the Act's goals are likely to remain unfulfilled."

The solution, then, won't be found in federal laws or state agencies. In fact, the solution rests with you.

You Can Save America's Streams

The League was founded by sportsmen concerned about water pollution and its impact on the outdoor pursuits they loved. Since that day in 1922, clean water has been a priority for our organization.

The League was one of the first groups to recognize that with the right tools and training, anyone can collect scientifically valid information about water quality. For more than 45 years, the League's **Save Our Streams (SOS)** program has helped volunteers measure and report water quality conditions in their local creeks and streams, making it one of the most successful water-based education and outreach tools in the country.

Using Save Our Streams to record the range of critters that live in local waters, volunteers can provide important information about the health of waterways across the country to the state and local agencies charged with protecting these waters. Volunteer groups can also use this information to plan restoration projects, evaluate their successes, and advocate locally for water quality.

The problem: There are not nearly enough volunteers today to cover the stream miles that crisscross our country.

League members can change this.

You don't have to do it alone. League staff can walk you through how to get started as a stream monitor and even provide training for you. Plus, this is a perfect way to get your community involved in a League project, with the added benefit of encouraging people to examine how their everyday actions affect waters in their communities.

Insects and Crayfish and Snails . . . Oh My!

The smallest of streams can harbor an astounding variety of beetles, insect larvae, snails, and other aquatic life. These creatures, called **macroinvertebrates**, can tell us a lot about the health of a body of water.

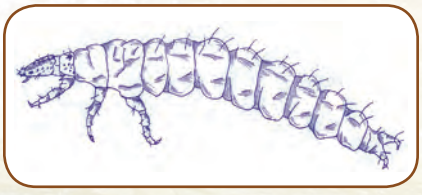
What is a "macroinvertebrate"? An invertebrate is an animal that doesn't have a backbone, and "macro" means that you don't need a microscope to see one (although some are still very tiny). Aquatic macroinvertebrates live on, under, and around rocks and sediment on the bottoms of rivers and streams. Unlike fish, frogs, and other stream dwellers that move around, macroinvertebrates tend to stay in one small area all their lives. However, they vary widely in their tolerance for pollution. So the presence — or absence — of certain macroinvertebrates can tell us whether a stream is healthy.

TRACY ALBRECHT, BLM; DARYL RATAJCZAK (5); IWLA (2); ISTOCK

MOST WANTED

These critters are sensitive to pollution. Find them and you'll find clean water.

CADDISFLY LARVA



Size: ½ to 1½ inches

Color: Tan/yellow to greenish

Legs: Three pairs on upper body

Tail: Two fleshy extensions w/ hooks

Shape: Soft, grub-like body

AKA: Rock Star (builds cocoon with rocks, sand, leaves, and spun silk)

GILLED SNAIL

Size: 1/16 to ¾ inch

Color: Tan to brown

Shape: Opens right when pointy end is up

AKA: Water Breather (has gills to capture oxygen from water)

NOTE: No one home? Empty shells do not count for water quality.

TURN KIDS INTO CREEK FREAKS

Stream monitoring is a great way to engage children in hands-on learning while providing them an opportunity for much needed time outdoors. It also gives you time to practice your macroinvertebrate ID skills in a low-pressure setting. When kids ask you what they found, work through the identification guide with them and ask key questions like "How many legs does it have?" and "How many tails does it have?"

The League's Creek Freaks Web site (*www.creekfreaks.net*) provides additional activities that can be done indoors or outdoors to introduce children to the concepts of stream ecology, water quality, and pollution prevention.

Stream monitors sometimes use the term "bugs" as shorthand for macroinvertebrates, but this group also includes shellfish, crustaceans, and more. Check the mugshots across the bottom of this article for a lineup.

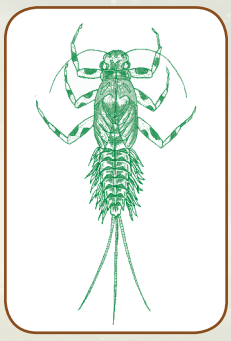
Save Our Streams measures water quality using the macroinvertebrates found in a stream. These critters are divided into three categories based on their sensitivity to pollution: sensitive, somewhat tolerant, and tolerant. A stream with excellent water quality will be home to an array of macroinvertebrates from all three groups. Streams with poor water quality would contain just a few types and numbers of macroinvertebrates — and mostly the ones that are tolerant of pollution. There are no "bad" bugs. A healthy stream will host a diverse group of stream dwellers.

Getting Your Feet Wet

You don't need a background in science or a trunk full of complicated equipment to become a volunteer stream monitor. Save Our Streams is easy and inexpensive for volunteers to do.

The League's *Guide to Aquatic Insects and Crustaceans* offers step-by-step stream monitoring instructions, from finding the best monitoring

MAYFLY LARVA



Size: ¼ to 1 inch

Color: Brown

Legs: Three pairs

Tail: Usually three long tails (some have only two)

Shape: Plate-like or feathery gills on sides

AKA: Short Timer (adult mayflies only live one day!)

RIFFLE BEETLE LARVA

Size: ⅛ to ½ inch

Color: Tan to dark brown

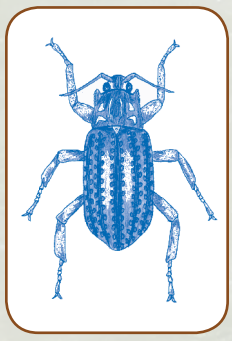
Legs: Three pairs

Tail: Tiny tuft of hair

Shape: Curved like a comma

AKA: Armor All (segmented body is covered in hard plates)

RIFFLE BEETLE



Size: 1/16 to ⅛ inch

Color: Reddish brown to dark brown or black

Legs: Three pairs w/ claws on each

Tail: None

Shape: Oval body

AKA: Pacer (when captured, will pace across the bottom of a water-filled tray)

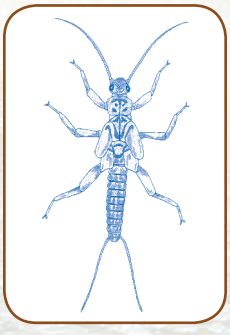
spot to tips on positioning your net and collecting critters. Check our equipment list on page 37 to ensure you hit the water with the tools you need — we've listed the basics and the uses for each item. We also encourage you to review the safety rules outlined in "Safety and Fun in Your Watershed," found on the League's Web site at *www.iwla.org/sos*, to ensure the safety of your monitoring team.

Once you collect a sample of macroinvertebrates, you will sort and identify them, then record the results on a Stream Quality Survey data form. After your count is complete, you should return all critters to the stream to ensure their survival. Other data to collect includes water temperature, physical appearance of the stream, and fish populations — it's all spelled out on the data form. You can download the form at *www.iwla.org/SOSequipment*. (The League periodically updates the sensitivity rankings for macroinvertebrates based on the most recent scientific research, so check the Web site for the most recent form before you head out.)

That's all there is to it! It may take a little practice to hone your bug ID skills, but in no time you'll be able to tell dobsonfly larva from dragonfly larva.

IWLA (2); SHANNON CARNEGIE; ISTOCK; DARYL RATAJCZAK (5)

STONEFLY LARVA



Size: ½ to 1½ inches

Color: Tan/yellow to brown

Legs: Three pairs w/ hooks on ends

Tail: Two hair-like tails

Shape: Smooth abdomen; fluffy, hair-like gills under legs

AKA: Body Builder (wiggles or does "pushups" to pump water across gills)

WATER PENNY LARVA

Size: Up to ½ inch

Color: Tan to bronze

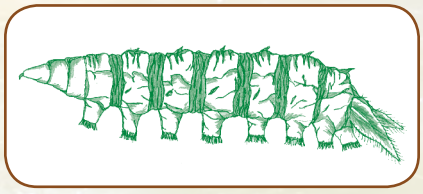
Legs: None

Tail: None

Shape: Oval

AKA: Money (looks like a U.S. penny)

WATER SNIPE FLY LARVA



Size: ¼ to 1 inch

Color: White/tan to green

Legs: A lot of stubby legs

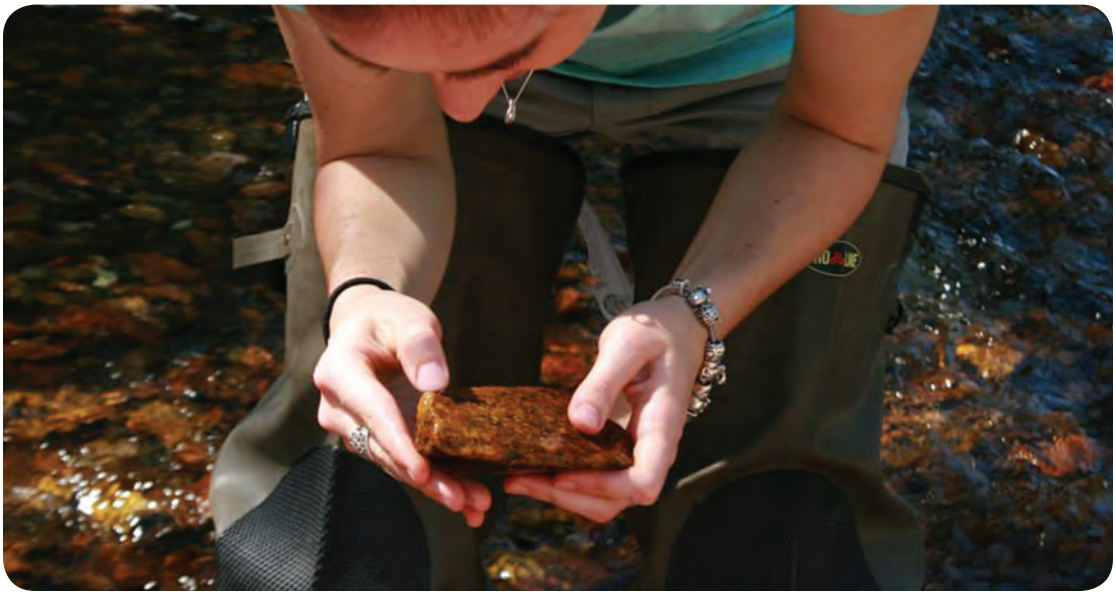
Tail: Two small, pointed tails with feathery hairs

Shape: Pointed head; fleshy body

AKA: Cone Head (due to unique shape)

A few other steps will help ensure your success:

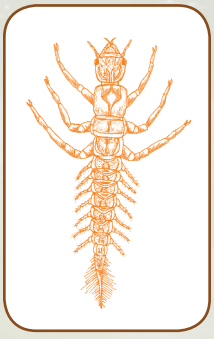
- **Scope the Site:** If you are concerned about the impact of a specific land use, such as a construction area, choose monitoring sites just upstream and downstream of that location. If you want to check water quality along an entire stream or pinpoint possible pollution sources, monitor upstream and downstream of each tributary flowing into the stream. If the waterway you want to monitor runs through private land, ask permission to monitor that site.
- **Mark Your Station:** Monitoring should always be conducted at the same location, also called a **station**, each time. Record the location by permanent landmarks such as roads and bridges. Better yet, record the longitude and latitude using a GPS unit. This will also help government officials



WANTED

These water dwellers can handle a little pollution.

ALDERFLY LARVA



Size: Up to 1½ inches

Color: Brown

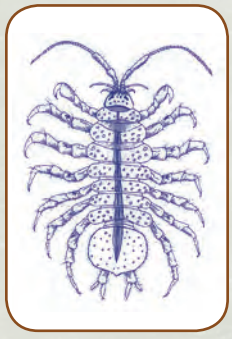
Legs: Three pairs on upper body

Tail: Tapered feathery tail

Shape: Seven pairs of pointed appendages on lower body that are actually gills

AKA: Pincher (pinching mouthpart helps it eat other aquatic insects)

AQUATIC SOW BUG



Size: ¼ to ¾ inches

Color: Brown, gray, or dark green

Legs: Seven pairs

Tail: Rounded tail-end with two small appendages

Shape: Flat, wide body; hard shell

AKA: Piggy (females produce 20-250 eggs and hold hatched young in body pouch — looks like a sow feeding piglets!)

pinpoint the monitoring site — both for record keeping and if you find a problem. If you are monitoring more than one site, space them at least one-quarter mile apart to ensure your monitoring activities at one station do not affect the results at another station.

- **Follow the Leader:** In addition to the SOS steps you will use, some states have requirements citizens must follow when monitoring water quality. Contact the League's Clean Water Program Director, Leah Miller, at (800) IKE-LINE x219 or *leah@iwla.org*, to find out whether there is a **protocol** — a specific set of instructions for stream monitoring — established by your state environmental agency. This might include the types of data your state agency will accept and quality assurance steps you need to take. We can find out what protocol your state has in place and how it fits with the critter hunting you'll do using Save Our Streams.
- **More Is Better . . . But Don't Overdo It:** Because streams and rivers go through seasonal changes, monitor once each season — spring, summer, fall, and winter — as well as two other times during the year. Ideally, the extra two surveys should be conducted after floods, pollution spills, or other significant events that can affect water quality. However, over-monitoring can disturb the stream bed and macroinvertebrate communities, so allow two months between monitoring events for stream critters to "recover."

IWLA (2); DARYL RATAJCZAK (5); TRACY ALBRECHT, BLM

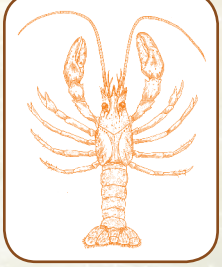
CLAMS AND MUSSELS

Size: ⅛ to 5 inches
Color: Varies
Legs: One tongue-shaped "foot" used to move around
Tail: None
Shape: Two shells attached by a hinge
AKA: Hitch (young mussels attach to fish until they mature)
Note: No one home? Empty shells do not count for water quality.

CRANE FLY LARVA

Size: ⅓ to 2½ inches
Color: Translucent to white, brown, and green
Legs: None
Tail: Small tentacles at the tail end
Shape: Plump, segmented body
AKA: Caterpillar (looks like one)

CRAYFISH



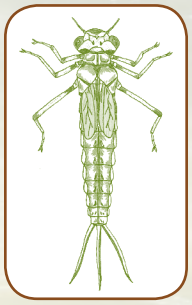
Size: ½ to 5 inches
Color: Varies widely (red, blue, green, brown, tan, with black or orange markings)
Eyes: On stalks; long antennae
Legs: Five pairs of walking legs; one pair w/ large pinchers
Tail: Lobster-like
AKA: Crawfish or crawdad (the only macroinvertebrate you might be tempted to eat)

Other Signs of Stream Health

If your resources are limited in terms of equipment or manpower, you can still contribute valuable information about local waterways by gathering intel on a stream's physical health and chemical composition.

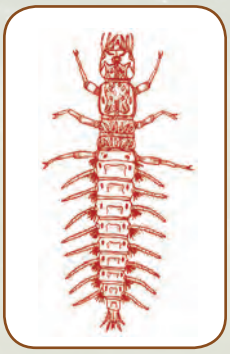
- **Chemical Check:** A store-bought kit allows you to test the chemical components of your stream, including pH, dissolved oxygen, and nutrients. If you test once a month — or even better, once a week — you can get a good sense of the overall water quality. Chemical testing also is valuable if you are looking for something specific, such as tracking fertilizer runoff from suburban lawns or farm fields. You can find chemical testing guidelines and a data form at *www.iwla.org/SOSequipment* as well as links to equipment suppliers. Test kits vary widely in cost, ease of use, and levels of accuracy. If you're not sure what equipment to use, contact Leah Miller at *leah@iwla.org* for assistance.
- **A Full Physical:** Download the physical monitoring data form from *www.iwla.org/SOSequipment* and use it to document information such as erosion, stream bank vegetation, and algae growth. Make note of unusual colors, odors, trash, or other problems and snap a photo to document all the issues. Upload your photos to the League's Creek Freaks Web site (*www.creekfreaks.net*) and send the link to your state or county water quality management department. County agencies appreciate having photos and exact locations so they can prioritize problems and send staff out to solve them.

DAMSELFLY LARVA



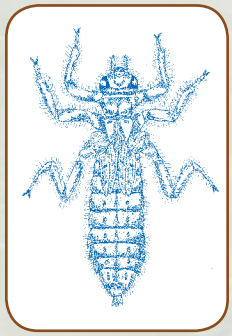
Size: ½ to 2 inches
Color: Tan to dark brown, occasionally green
Eyes: Large
Legs: Three pairs w/ claws at the end of each
Tail: Three leaf-like tails that are actually gills
Shape: Long and narrow
Mouth: Spoon-like lower lip that shoots out to hook prey
AKA: Nymph (most of the damselfly's one-year life span is spent in the larva stage)

DOBSONFLY LARVA (HELLGRAMMITE)



Size: ¾ to 4 inches
Color: Dark brown to black
Legs: Three pairs w/ hooks on upper body
Tail: None
Shape: Eight pairs of pointy appendages on lower body w/ fluffy gills underneath
AKA: Pits (gill tufts resemble armpit hair)

DRAGONFLY LARVA



Size: ½ to 2 inches
Color: Tan to dark brown
Eyes: Large
Legs: Three pairs w/ claws at end of each
Tail: None
Shape: Stocky
Mouth: Spoon-like lower lip that shoots out to hook prey
AKA: Jet (moves by pumping water over it gills and quickly expelling it)

WHAT IS A WATERSHED?

The area of land surrounding a stream or lake — all the lands that drain into that particular waterway — is called a **watershed**. (The land "sheds" its waters into the lake or stream.)

A small stream and its watershed can also be part of the watershed for a larger water body, such as a river or bay. For example, Muddy Branch creek runs through the League's headquarters property. The League's land is part of the Muddy Branch watershed, which in turn is part of the Potomac River watershed, which is part of the watershed for the Chesapeake Bay. It's important to know the boundaries of your watershed so that if you discover a pollution problem during stream monitoring, you can look for possible pollution sources. Ask your county environmental agency for a map of the watershed you are monitoring.

NOTE: Although we want you to understand the concept of a "watershed," research shows that this word can confuse the people we're trying to educate. When talking with others in your community, use the name of your stream ("We're working to protect the Jones Creek") and explain that surrounding lands drain into it.

Restoring Communities

After you have identified a source of water quality problems using the monitoring protocols, the final step is restoration — working to fix whatever is damaging local waterways. It could be as simple as talking with neighbors about using less fertilizer on their lawns and picking up after pets. It could involve repairing an extremely eroded stream bank — and whatever is causing the erosion to occur. Restoration projects big and small can be another great opportunity to bring the community together around a common cause.

The Future Depends on You

It's a simple fact: government agencies do not have the resources to fix all our nation's water quality problems.

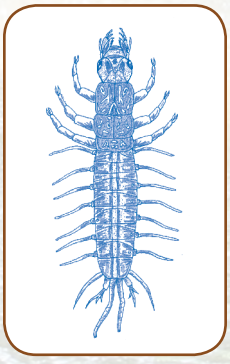
The Izaak Walton League has a proud history of defending our country's waters. We need your help to do it again.

Please consider starting a water quality monitoring group today. Visit the Save Our Streams Web page at *www.iwla.org/sos* for all the resources you'll need. Working together, we can make a real difference in saving outdoor America — and our own communities.

Contributing author Suzanne Teller is a former coordinator of the Izaak Walton League's Protect Our Wetlands Program. She is now the Outreach Coordinator for the Luckiamute Watershed Council in Independence, Oregon. IWLA Communications Director Dawn Merritt and Clean Water Program Director Leah Miller also contributed to this article.

UNITED STATES GEOLOGICAL SURVEY; ISTOCK; IWLA; DARYL RATAJCZAK (5); U.S. FOREST SERVICE

FISHFLY LARVA



Size: ¾ to 4 inches

Color: Reddish brown

Legs: Three pairs w/ hooks on upper body

Tail: Two short fleshy tails w/ two hooks each

Shape: Eight pairs of pointy appendages but no gills

AKA: Scuba (has retractable breathing tubes)

NET-SPINNING CADDISFLY LARVA

Size: Up to 1 inch

Color: Green to dark brown

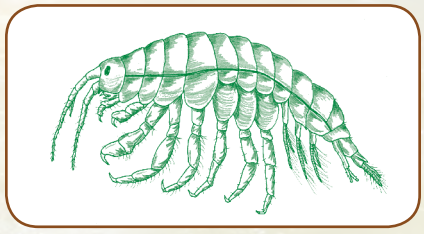
Legs: Three pairs on upper body

Tail: Two hairy extensions with hooks

Shape: Curved; three armored plates on upper body

AKA: Tiny Dancer (wiggles back and forth, then up and down, in the water)

SCUD



Size: ⅛ to ¼ inch

Color: Translucent with silvery-gray or tan

Legs: Seven pairs

Tail: None

Shape: Flattened side-to-side; swims on its side

AKA: Shrimp (looks like one)

WHAT TYPE OF STREAM DO I HAVE?

There are a few variations in how you collect macroinvertebrates based on whether you are monitoring a rocky bottom stream or a muddy bottom stream. What's the difference?

- Muddy bottom streams are generally slow-moving waters in areas of flat land, including coastal areas.
- Rocky bottom streams are faster moving waters in areas with hills and mountains. In these streams, you want to monitor at a spot with a "riffle" – an area where the water is bubbling over small- to medium-size rocks. These are the streams you can hear babbling!

Rocky bottom streams can also have muddy bottom areas. In that case, monitor at the riffle using the rocky bottom method. That's because you'll have a greater concentration of macroinvertebrates in the riffle.

Top photo: Muddy bottom stream
Bottom photo: Rocky bottom stream

LEAST WANTED

These varmints thrive in dirty water. If these are the only ones you find, your water is in trouble.

AQUATIC WORM

Size: ¼ to 2 inches

Color: Red, tan, brown, or black

Legs: None

Tail: Some have short hairs on the tail; others have none

Shape: Can be fat like an earthworm or tiny and slender

AKA: Stretch (moves by stretching and pulling its body)

BLACK FLY LARVA

Size: Up to ¼ inch

Color: Black to gray, yellowish to off-white

Legs: None

Tail: None

Shape: Like a bowling pin (bulbous on one end)

AKA: Filter Feeder (uses fringe around mouth to filter critters and organic material out of the water)

WHAT'S IN YOUR WATER?

By regularly monitoring local streams, you can spot changes in macroinvertebrate communities that indicate an influx of pollutants. Through early identification of a water quality problem, you may be able to head off some of the damage — or at least stop it from recurring.

Here's a quick look at pollutants commonly found in America's creeks and rivers — and how they can affect the health of your community.

- **Microbes:** According to the Centers for Disease Control and Prevention, as many as 12 million cases of waterborne acute gastrointestinal illness occur annually in the United States. These illnesses are caused by bacteria, viruses, and protozoa that make their way into the water supply. How do they get there? Rainfall runoff can carry livestock and pet wastes into local waters. Flooding can also cause sewage and septic overflows. If you are one of the 117 million Americans who rely on streams and rivers to supply some or all of your drinking water, these microbes could end up in your drinking water supply as well.
- **Nutrients:** These contaminants — including nitrogen and phosphorus — can be an important part of agricultural production, but only when used in such a way that the soil can easily absorb them. When large amounts of nitrogen and phosphorus enter a waterway after a rainfall, they can cause excessive algae growth known as an "algal bloom." Increased algae results in more dead and decaying vegetation in the water. This causes bacterial populations to skyrocket and oxygen levels to plummet — a process that, over time, depletes macroinvertebrate and fish populations. When excess nutrients accumulate in large bodies of water, it can create a "dead zone" that decimates commercial and recreational fisheries. Some years, the dead zone in the Gulf of Mexico can cover up to 7,000 square miles!
- **Disinfectants:** If your water comes from a municipal water system, it likely contains chlorine to control microbes. Although chlorine ensures safe drinking water from the tap at minimal cost, it can be deadly to wildlife. A broken pipe leaking treated water into a stream or lake can decimate populations of fish and other aquatic life.

Water monitoring volunteers often discover pollution problems first — problems that might otherwise have gone undetected. Volunteers discovered airplane deicer running into a central New York creek and a water main break in Virginia that was sending chlorinated water into a small stream. Both of these problems were identified and solved using Save Our Streams.

CORBIS-FOTOSEARCH; BREANNA CORP, NATIONAL PARK SERVICE; IWLA (2); DARYL RATAJCZAK (3)

LEECH

Size: ¼ to 2 inches

Color: Brown or gray patterned

Legs: None

Tail: None

Shape: Resembles a paisley pattern

AKA: Inch (uses suckers to move like an inchworm)

LUNGED SNAIL

Size: Up to 2 inches

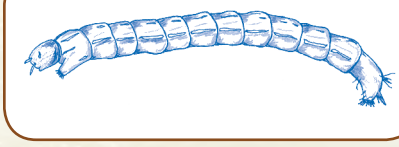
Color: Brown to reddish brown or gray

Shape: Coiled shell OR spiral shell that opens to the left

AKA: Pouch (grabs air from the surface and holds it in a body pouch)

NOTE: No one home? Empty shells do not count for water quality.

MIDGE FLY LARVA



Size: Up to ¼ inch

Color: Whitish olive to clear, but can also be bright red

Legs: None; may have tiny, fleshy appendages at each end

Tail: May have small, hairy tufts

Shape: Worm-like with a visible head and segmented body

AKA: Ninja (often wriggles through the holes in monitoring nets)

SOS EQUIPMENT BASICS

You don't need a mobile lab to be a citizen scientist, but you will need a few equipment basics that you can make or may even have at home.

- **Net:** For rocky bottom streams, use a kick-seine net with at least 1/16-inch mesh or finer. For a muddy bottom stream, a D-frame aquatic dip net with 1/32-inch mesh.
- **White plastic cloth (rocky bottom only):** Lay your net on a white plastic tablecloth or trash bag to more easily separate debris from dobsonflies and other macroinvertebrates.
- **Shallow plastic pan (muddy bottom only):** Along with macroinvertebrates, you can end up with a net full of mud. Emptying the net into a pan first can help you separate out the bugs — and makes cleanup a breeze.
- **Tweezers/forceps:** These will help you pick small critters out of your net and place them in the ice cube tray. We recommend forceps because regular tweezers have sharp edges that could hurt small bugs.
- **Ice cube tray (white):** Makes it easy to sort and count the critters you pull from your nets.

- ***Field Guide to Aquatic Macroinvertebrates* (brochure):** Provides illustrations with descriptions of common critter features. Laminated for stream-side durability.
- ***Guide to Aquatic Insects and Crustaceans:*** Step-by-step stream monitoring instructions plus more details on each macroinvertebrate, including a chart that walks you through making an ID. Also includes a few extra bugs you might find in the stream that are not part of the count but could confuse the ID effort.
- **Aquatic thermometer:** You'll need to take the stream's temperature while you're there. An aquatic thermometer works while wet.
- **Stream Quality Survey data form:** Download this two-page form to record your stream-side findings, including temperature, the physical condition of the stream, and the critters you find there. You can print a new form each time you take samples. Visit *www.iwla.org/SOSequipment*.
- **Magnifying glass or box (optional):** If you're having trouble counting tails and legs, a magnifier might help.
- **Footwear:** You will get wet while uncovering macroinvertebrates. Wear a pair of old sneakers or other closed-toed shoes with good traction that will stay on your feet (no slip-ons). In cold weather, you may prefer waders to keep you warm (or when the water is cloudy and you're not sure about the water quality).

Visit the League Web site at *www.iwla.org/SOSequipment* for links to purchase equipment and publications and download data forms.

Want more help identifying stream critters? Visit *www.iwla.org/SOSpubs* for additional resources, including our exclusive *Field Guide to Aquatic Macroinvertebrates* — a laminated guide you can take to the stream.