

## Aquatic Invertebrates of May

Video Transcript

Coastal Action



Hi everyone, my name is Molly LeBlanc and I'm a Species at Risk and Biodiversity Team Lead at Coastal Action; an environmental non-for-profit that's based on the South Shore for over 25 years. Today I'm going to give you a look into the lives of freshwater aquatic invertebrates in this tiny stream near my home. Often times when we think about biodiversity, we think about the larger creatures like bears and wolves and lions and tigers, but we forget about our tiniest creatures like insects. And the insects that are underwater are often the most forgotten because we rarely ever see them. So today I'm going to show you a closeup look of some of these odd looking and amazing creatures and give you a couple tools so that you can also collect them and take a closer look at a wetland or stream near your home.

Alright, I'm going to start by showing you a couple kitchen items that I've taken out today to use to collect my freshwater invertebrates. So, the first is a ladle that I'm going to use to catch my insects or scoop up mud from the bottom of the river. The second is the lid of a large Tupperware container and I've chosen that because it's a nice white backdrop, so I'll be able to see any insects I collect more clearly. And I just have an ice cube tray which I'm going to use to sort my invertebrates into categories. So, I'm going to put similar invertebrates together so I can get a closer look and I'm going to put them in these little cells. And then finally, tweezers that I'm going to use to pick up the invertebrates and gently put them into the ice cube tray. And I also have a spray bottle with water. You can also use a water bottle and that's going to help to spread out the mud and sort through to find insects on my tray. And finally, I also put everything on this garbage bag and that is able to help me keep my space clean and not lose any of my tools. And I also like to bring along a notebook with me and a pencil and just jot down any interesting observations I see or different species that I see.

I always like to start by lifting up rocks to see if there's anything crawling around. You have to look closely because oftentimes the insects are very well camouflaged. If I find a rock I want to look more closely at, I'll bring it back and put it on my white tray. And then anything I see that's moving I'll pick it up really gently with my tweezers and I'll put it into my ice cube tray where I've already put a bit of water.

Now that they're in my ice cube tray they're a lot easier to see and these are stoneflies. So they are a type of insect, they have six legs if you look closely. They also have a tail with two long spines or prongs and their back is almost a triangle like shape and those are their wing pads. So eventually when they grow to their adult form, and they emerge out of the water those will become full wings and they'll be able to fly. Stoneflies are usually found in permanent streams, so places that are wet all year long. Here's a picture of what the stonefly looks like up close. You can see those triangle wing pads and the long tails and antenna. Stoneflies especially love

habitats that have large rocks, woody debris and leaf jams; places where they can easily hide from predators like fish, which love to eat them. You can see how these larvae are really well camouflaged into the colours of the rock. If you have a lot of stoneflies in your stream it's likely a pretty clean habitat because they are one of the species that are most sensitive to pollution. Actually, here you can see an adult stonefly, so this is what it looks like after it's emerged out of the water and become its adult form. Here's another adult stonefly, this one looks like it's a different species it's lighter in colour and a bit smaller. And there are lots of species of all of these invertebrates we're seeing today. In order to tell the species apart you need to get a much closer look under a microscope.

Here are a couple planaria that I was able to find on this rock here. They can be especially hard to find because they're so camouflaged. They look like little leeches but they're actually flatworms and they don't drink blood like leeches do. There are planaria that are found in saltwater and freshwater and ponds and rivers, they're very common. There some species that even live on land and really damp areas. These are a special species because they have the ability to regenerate. If a predator were to eat half of them, the other half could grow back and that's because the planaria has a ton of stem cells throughout its body. Here's a close-up picture what a planaria looks like under a microscope. You can see its long body and then at its head you can see those two little eyespots. Those are called ocelli. They can see light and the direction is coming from, but they can't see full shapes or a full image. I just really love watching these guys swim because they have such an interesting way of moving through the water.

So I just pulled these off of another rock. And these are larvae of one of peoples least favorite insects; the blackfly! An adult blackfly will lay their eggs in running water like this stream and then the larvae will use tiny hooks at the end of their abdomen to attach themselves to rocks. You could almost see how they've attached themselves to the side of my ice cube tray here. And then to feed, the larvae have a little fan like structure around their mouth that they spread out in order to catch pieces of algae and bacteria that are floating nearby in the water. Here's a picture that I took under a microscope of a blackfly larvae. You can see that fan like structure that helps them feed, it almost looks like a crazy hairstyle.

I've turned over another stone and you can see this little pile of pebbles here along the side doesn't look like much at first. But I'm going to give it a little poke with my tweezers because actually this is a casing built by an insect called a caddisfly. These pebbles are almost glued together and they make a protective casing or shell that this grub-like insect uses to hide from predators and to protect itself as it gets ready to emerge. I'm just going to put it in my ice cube tray so I can take a bit of a closer look. Here's a rock I found with a bunch of caddisflies on it. You can tell this must be a different species because the casings they've built are a lot neater and they've obviously used smaller particles of sediment instead of those big rocks in a pile that we saw in the last casing. Here's a closeup of the caddisfly; this is a different species again, it's built its casing out of pond reeds instead of rocks. So there are all types of caddisflies and it's pretty amazing how different the larvae can look from the adult form.

After I'm done picking up larger rocks, I might start to look through the upper layer of mud or sediment at the bottom of the river. I'll just take a small spoonful and then pick through my

tweezers maybe adding a bit of water to see if anything is moving. Another really common species that you'll find in and around the water is snails, aquatic snails. Some have coiled shells and some have rounder shells. Here's a larger one and then here's a really tiny one that I also found, it's almost hard to see. Snails are often found in areas where there is soft, silty bottoms because they have that sensitive foot. They can come in a whole range of sizes. Sometimes they have an operculum, which is like a large foot that also acts as a trap door to their shell and keeps in moisture and keeps out predators, but not always. They're fairly pollution tolerant so if you have a lot of snails it might be a sign that that ecosystem is in poor health. You can see this soft silty bottom, so perfect place for snails. Now, there's another snail species that you might see in your adventures, it's called the Chinese mystery snail. And that's an invasive species you can tell it apart because it's very, very large and that was a fish tank species that unfortunately people have released into freshwater and it's been spreading throughout Nova Scotia. So if you happen to see this snail you can let us know at Coastal Action and we will pass the information along to the researchers at Saint Mary's University who are trying to track this snail species. Sometimes it can be a bit tricky to keep your invertebrates in the ice cube tray.

Here are a couple more insects that I found in the mud. These are another species of stonefly, you can see the tail with two prongs and the triangle like shape of its back and here is a mayfly. You can see the fuzzy-like section near its tail. That is actually its gills which allows it to breathe. And I was also lucky enough to catch a video of an adult mayfly. Fish love to eat them, so this one has to be careful.

Here's another very common one you'll probably find this time of year. These are mosquito larvae, also called wigglers and you can probably tell why. You'll often find them in slow moving or standing water and usually they're just below the surface. So at this stage they just eat algae and plankton and fungi. Just like blackflies, they have a small fan like structure that they use to catch their food with, we will take a closer look here so you can see it. So you can see that fan and right beside it there's also a tube like structure; that's called a siphon and they use that to breathe.

Here are a number of insects that are definitely too fast for me to catch with my ladle. I call them water striders but there are a number of different names for them: pond skaters, water skippers, water bugs. And they have the special ability to walk on the surface of the water. They can do that by using the surface tension and a number of small hairs that are at the bottom of each of their long legs. Actually, their whole body is covered in tiny hairs and that lets them be almost waterproof in case a big splash were to come up, they could stay afloat. Here's a closeup under the microscope where you can really see those tiny hairs at the bottom of its leg. Water striders are actually predators, they're very good hunters. Right now they're probably waiting for something to fall onto the surface of the water so they can grab it and eat it. That might include spiders or other small insects that are unlucky enough to drop into the water.

So at the end of our day, we're going to make sure that we gently release all of the invertebrates and insects we caught back into the water, even those mosquito larvae. So, thank you for watching this video, I hope that you enjoyed it and learned a couple facts about freshwater insects and invertebrates. If you end up collecting any aquatic critters at home, we would love to

see them, so tag us at Coastal Action (@CoastalAction) on Instagram or on Facebook and also on Twitter. We would love to see any pictures or hear any stories of you exploring freshwater habitats near your home. Always remember to do a quick tick check at the end of the day when you come out of the woods, especially when you're on the South Shore. And thank you so much for watching, I hope you have a great day!

*To Ant:* You're not an aquatic insect.