

## What lives in a stream and why? Using biological monitoring to find problems in a watershed.

This station is brought to you by the Minnesota Pollution Control Agency—or the MPCA, for short. This state government agency has a mission to protect and improve the environment and human health.

All around the state, the MPCA checks on the water to make sure it's healthy. It's like going to a doctor for a check-up, but for the water!

Water temperature and chemistry are one way to check on the water's health. Finding and tallying what lives in a stream is another way. This is called biological monitoring.

Biological monitoring is like being a detective. If the living things don't match what we'd expect to find in a stream, river, or lake there could be a problem. It's a clue that we need to collect more data and information about a watershed to determine where pollution is coming from and what to do about it.

With your class, watch this 3-minute video that shows biologists doing this work--collecting insects from streams in Minnesota. After the video you are going to investigate two streams using the worksheet below, just like these biologists would do at their job.

- VIDEO: <https://www.youtube.com/watch?v=28j4D5o2RqQ>

We'll see you at the live Q&A session to talk more about your results!

# Investigating two streams – activity sheets

Imagine you collected samples of aquatic insects from two different streams, just like the people in the video.

In each stream, you swept through the water with a net and you overturned rocks to see what was there. You found the organisms pictured on the next two pages. They were sent to a lab to be identified. Now, you get to tally them.

Some of these organisms die if there is pollution in the water—they are *sensitive*! Others are *somewhat tolerant* of pollution. A few are *tolerant*—they can survive just about anywhere. Use this information to fill out your bar graphs.

<b><i>Sensitive</i></b>	<b><i>Somewhat tolerant</i></b>	<b><i>Tolerant</i></b>
Golden stonefly Mayfly Northern case maker caddisfly Wood frog	Scuds Crayfish Dragonfly (larvae)	Leeches Midge (larvae)

After making your bar graphs, write two or more sentences using each prompt.

I notice....

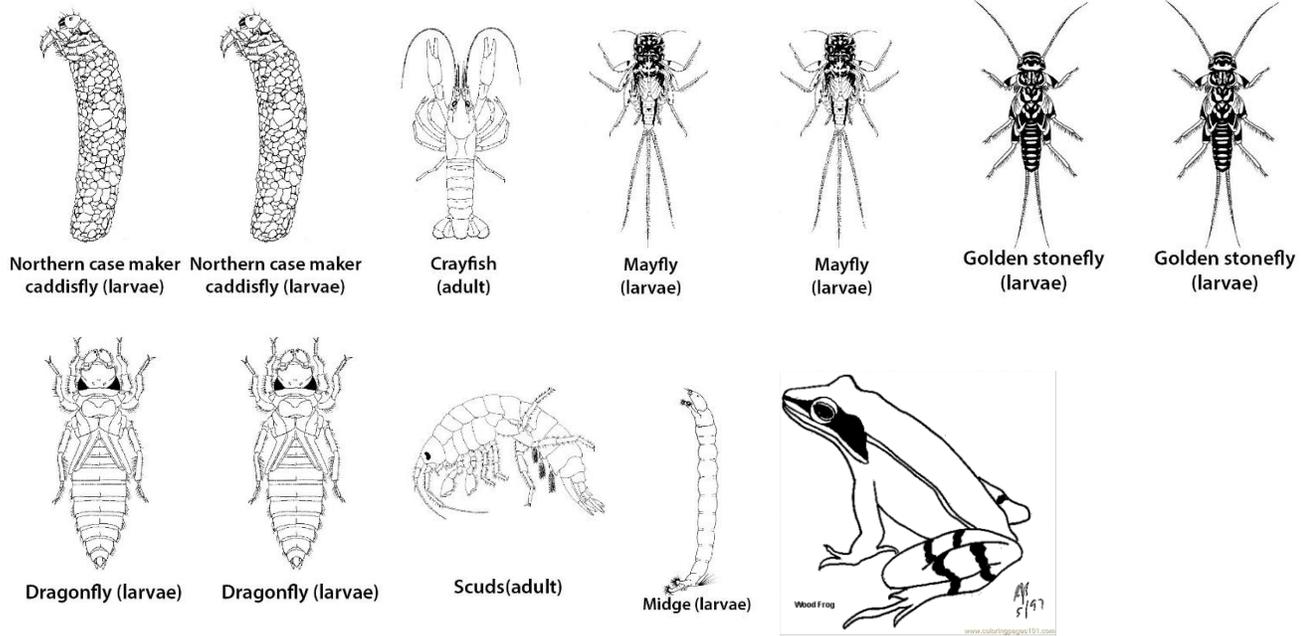
I wonder....

I think maybe....

# Stream A: Very few roads nearby

Most of this watershed is forested.

You found:



Make a bar graph of the number of intolerant, somewhat tolerant, and tolerant organisms in Stream A.

8			
7			
6			
5			
4			
3			
2			
1			
	Sensitive species	Somewhat tolerant species	Tolerant species

## Stream B: Lots of roads nearby

More than 18% of the watershed is covered in paved roads.

You found:



Northern case maker caddisfly (larvae)



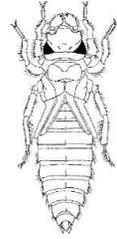
Leeches (adult)



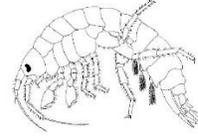
Leeches (adult)



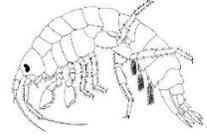
Dragonfly (larvae)



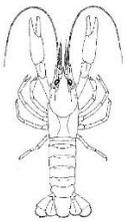
Dragonfly (larvae)



Scuds(adult)



Scuds(adult)



Crayfish (adult)



Midge (larvae)



Midge (larvae)



Golden stonefly (larvae)

Make a bar graph of the number of intolerant, somewhat tolerant, and tolerant organisms in Stream B.

8			
7			
6			
5			
4			
3			
2			
1			
	Sensitive species	Somewhat tolerant species	Tolerant species