# Comparing Macroinvertebrates from Dothan Brook and Bloody Brook in 2016 G. Farnsworth & A. Valley Hartford High School Science Department



#### BACKGROUND

My partner and I chose to study the macroinvertebrates in our two streams, Bloody Brook in Norwich, VT and Dothan Brook in Wilder, VT. We were interested in finding out what kind of macroinvertebrates were in our stream's. Macroinvertebrates are an essential part of the streams because they are important food sources for the creatures in the stream.

The chironomid group of macroinvertebrates is normally found in the streams with sewage and pollution. Chironomid larvae can eat everything. This group belongs to the Diptera, which are found everywhere in the world. Diptera are extremely resilient. They can live in complete absence of oxygen for several hours.

## **MATERIALS AND METHODS**

Macroinvertebrate sampling: On July 7, 2016 we headed out to the streams to collect macroinvertebrates. We used the field method in the Reference Manual. The one rule that we had

trouble with, is when scrubbing the rocks for the macroinvertebrates you are only supposed to scrub for 30 seconds, we scrubbed for 2 minutes. After we took the replicate samples they were stored in Mrs.Wilson's room. In January, one of our teammates, Brianna, counted and identified the macroinvertebrates.

# ACKNOWLEDGMENTS

Funding provided by NSF EPS Grant #1101317



#### RESULTS

In the two streams we looked at we found many different types of macroinvertebrates. There were some species that were more common in our streams. Diptera Chironomidae was 44% of the macroinvertebrates that we found in in Bloody Brook. The next highest amount was 11% for Trichoptera Glossosomatidae and 11% of Coleoptera Elmidae. All of the other macroinvertebrates we found in Bloody Brook were 3% or less. There were over 15 other species that were found in Bloody Brook. For Dothan Brook, Diptera Chironomidae was the species that was also most common, but only accounting for 21%. Odonata Gomphidae accounted for 18% as the next highest and Diptera Sciomyzidae at 17%.



## CONCLUSIONS

We looked at our health of our brooks by studying the macroinvertebrates that lived in them. In Dothan Brook there were 17 species found and in Bloody Brook there were 22 species. This suggests biodiversty. However we found that there were three species in Dothan Brook that represented half of what we caught. In Bloody Brook again there were about three species that represented the most. In our two streams that we looked at Diptera Chironomidae was the highest amount of macroinvertebrates we found in both. In Bloody Brook it was 44% and in Dothan Brook 21%. From this we can conclude that our streams are pretty unhealthy because macroinvertebrates of the Diptera family are extremely resilient and are normally found in the streams with sewage and pollution. This would explain why we had such low numbers for other species of macroinvertebrates in our streams.

This year is our first year of successfully collecting macroinvertebrates and we experienced drought in our streams. For further research we would like to compare our data of this year to another year that didn't have drought. Due to our inexperience we might have had some errors of our identification of the macroinvertebrates. When collecting the macroinvertebrates we chose diverse areas in the stream, which may or may not have made our replicas false or correct in the species.

# REFERENCES

Bouchard, R. William Jr., Guide to Aquatic Invertebrates of the Upper Midwest University of Minnesota, Department of Entomology. Machado, Nadja Gomes, et al., Chironomus larvae (Chironomidae: Diptera) as waterquality indicators along an environmental gradient in a neotropical urban stream. Instituto Federal de Mato Grosso, Cuiaba, MT, Brasil. Reference Manual for High School Teams 2016-2017, RACC Research on Adaptations to Climate Change