Trout in the Classroom – With a Twist

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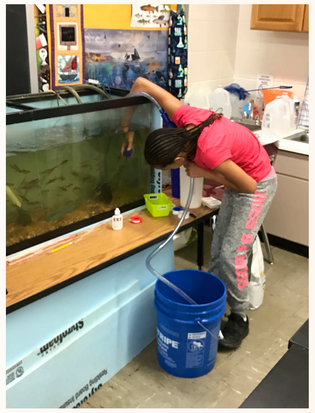


Project Summary

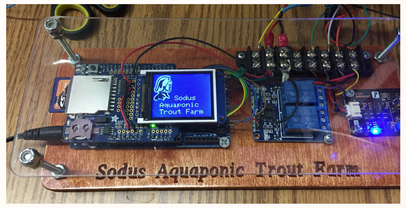
In the spring of 2016 I was chosen as one of ten inaugural National Stem Cell Scholars. This is a program for middle school science teachers. As part of the program we were each given a grant to fund a project of our choosing. Farming and fishing are a large part of the Sodus community and most of my students enjoy fishing. We also have a year end field trip to monitor soil and water conditions so this fit right in with my desire to help students learn to love science and to become stewards of the environment.

Background/Introduction

I began by researching various systems to decide what would work best in our situation. Most aquaponics systems use tilapia or other warm water fish. I wanted to use trout and would need to find plants that worked well in cold water.

Preparations

I purchased a 55 gallon fish tank and a 55 gallon feed bed. The setup is pretty basic with water pumping into the feed bed and a drain with gravity feed returning the clean water back to the tank. There is also a chiller as trout require water to be at 55 degrees Fahrenheit. In addition to the tank and aquarium I also purchased the Trout in the Classroom package which included a filter, testing kits and additional supplies.



Kicking it up a Notch

My brother helped us to automate part of the system with an Arduino that controls the water level. There are temperature and water level probes. If the water level is too high or too low then the pump is turned off . The light is also turned off and on according to the daylight hours in Sodus.

The Year in Review

WHAT WORKED: We successfully hatched over 100 eggs that we received from the DEC.

WHAT DIDN'T WORK: The nitrate and ammonia levels quickly got out of control as we were trying to filter entirely with plants. We had to add the filter. Unfortunately the filter sucked up most all of our fish and pumped out a lot of ammonia that eventually killed the rest of our fish.

WHAT WE DID NEXT: The DEC graciously gave us more fry and we didn't lose a single one from December to June when we released them into Lake Ontario..

Recommendations for Next Year

After releasing the trout we cleaned out the tank and added goldfish to help maintain the plants throughout the summer and early fall. We will also begin the year with a filter system with the hope that the plants provide sufficient filtration so that the external filtration can be discontinued. Students will monitor the water daily so that we can reconnect the filtration if necessary.

Acknowledgements

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References

http://www.troutintheclassroom.org/

Finger Lakes- SUNY Geneseo

GENESEO

THE STATE UNIVERSITY OF NEW YORK