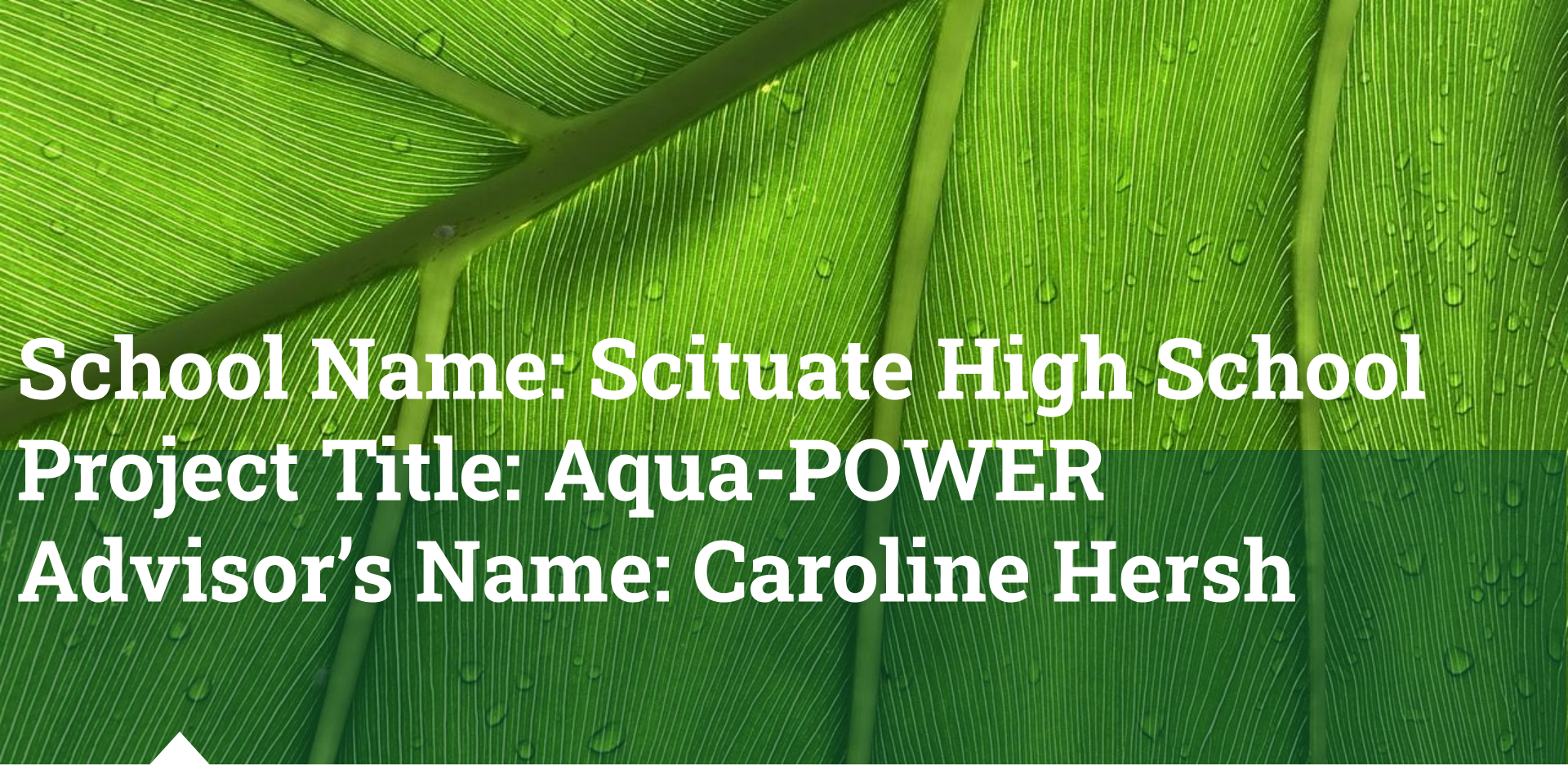


School Name: Scituate High School
Project Title: Aqua-POWER
Advisor's Name: Caroline Hersh

Our Leaders

Patrick Brannigan

President

Evan Williams

Executive Vice President

Samuel Cerullo

Vice President

Summary

This year, we focused on the design and planning for the building and implementation of the aquaponics system at the high school.

We continued our work on the website to communicate our work and educate the community about environmental issues.

We also planned for an aquaponics system and designed the system from the ground up. We conducted outreach to local farms to procure donated equipment to begin building our aquaponics system, and created 3D models of our system to test capabilities before we begin building next fall.

Activity: Website

The NEED club created a website for anyone interested in learning more about our program and the projects we are conducting.

- Activities and Tasks: It includes tabs on members, projects and events happening that you can participate in that are updated constantly.
- Energy Content and Activities: Our website talks about what NEED Club is and what we do, as well as detailing our current and past projects. The projects detailed on the website are in the following slide of this presentation.
- Student Leadership: Members can edit the website with current events happening as well as inform others of changes. Members are also expected to keep pages for their projects up to date
- Evaluation: We are now able to inform those around us about events and allow for more student participation.

Scituate High School

- Home
- Members
- NEED Youth Awards
- Current Projects

NEED Club

Find Us Elsewhere

Official NEED Site

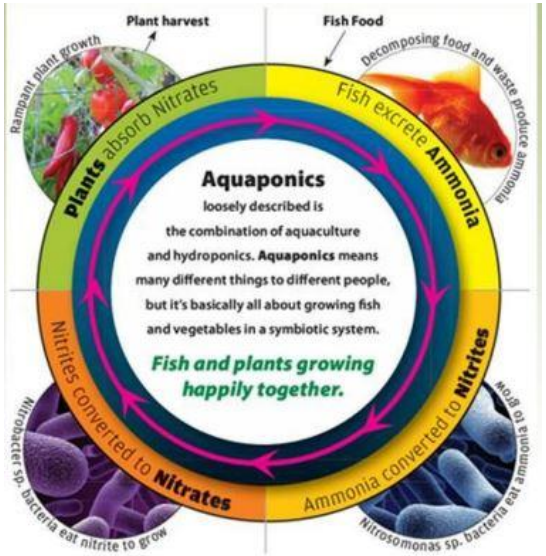
What NEED Club Is

Started in 1980, **The National Energy Education Development (NEED) Project** began as a one-day celebration of energy education when National Energy Education Day was recognized by a Joint Congressional Resolution. In the same year, President Jimmy Carter issued a Presidential Proclamation stressing the need for comprehensive energy education in our schools, a reduction in our dependence of fossil fuels, and increasing energy efficiency and the use of renewable energy technologies. Since its founding 40 years ago, NEED has kept its Kids Teaching Kids philosophy as a fundamental principle of NEED programming – encouraging students to explore, experiment, engage, and encouraging teachers to embrace student leadership in the classroom. **NEED trains and assists teachers in harnessing the energy of the classroom – the energy of students. (NEED.org)**

Activity: Aquaponics

Goal: to create a durable, low maintenance, highly efficient, and adaptable aquaponics system to provide an educational resource and fresh vegetables to the school community

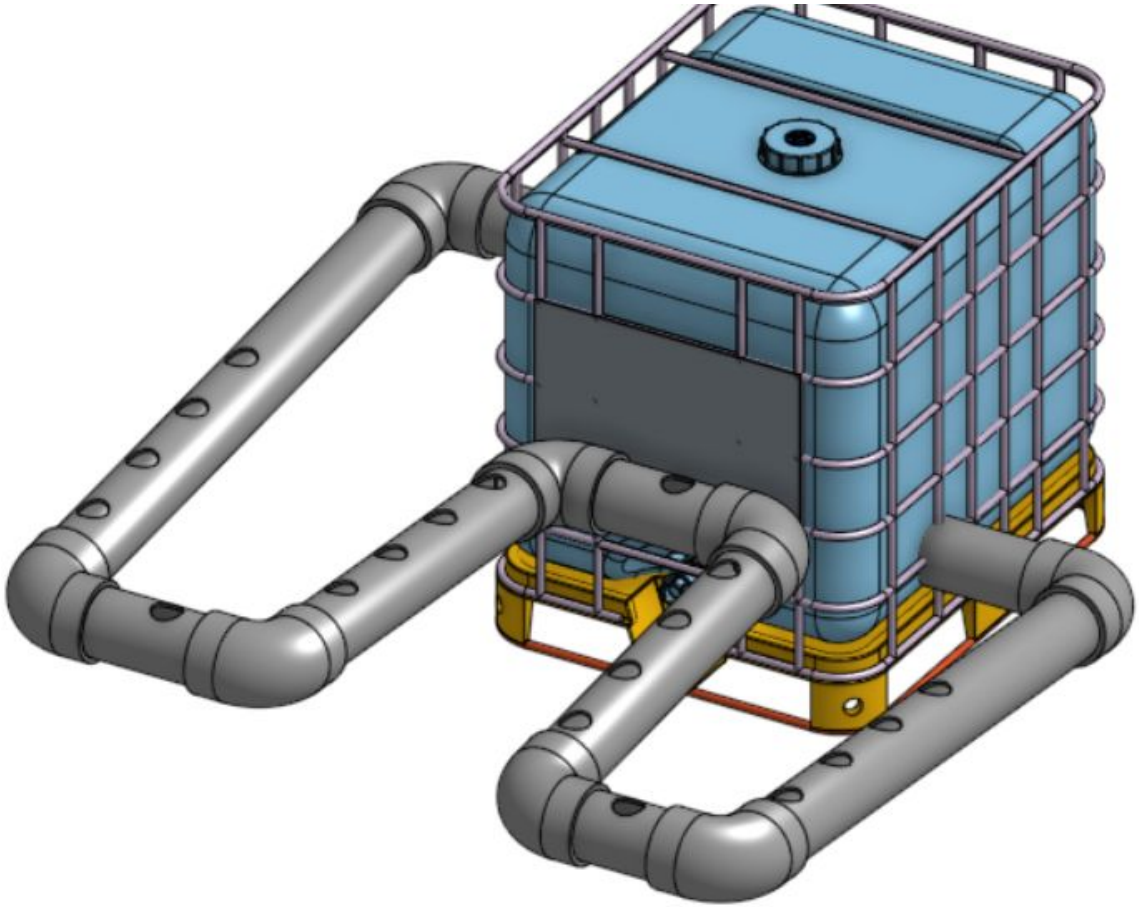
What is Aquaponics?



Aquaponics is the combination of hydroponics, which is the growing of plants in water, and aquaculture, which is the commercial growth of fish and shellfish in farms.

Aquaponics is a better method of producing food than conventional farming because it takes up less space, uses less water, and is more energy efficient.

Image source: www.nado.org



Aquaponics - Energy Content and Activities

- We worked using Onshape™ software to design a 3D model of the system.
- We conducted outreach with farms in the community to procure the equipment to begin building the system next Fall.
- Our goal was to spend as little money as possible and minimize our environmental impact by using recycled farming equipment, such as tanks and pyle lines. We utilized the specifications of the equipment various farms said they could donate when creating our design in the software.

Aquaponics - Student Leadership

Patrick Brannigan led the design in collaboration with others.

Evan Williams and Samuel Cerullo were excellent collaborators and team members in this project.

Aquaponics - Evaluation

- Testing took place using the Onshape software to test physical capabilities within the numbers of plants and animals we can reasonably expect to budget for and support.
- This project is ongoing due to the logistics of receiving the recycled materials from farms and time needed for building.
- Building is slated to begin next Fall, and be the basis of Patrick’s senior project portfolio.