



2010

MASSACHUSETTS CLEAN TECHNOLOGY AWARDS

A Program from The Foresight Project Inc; www.theforesightproject.org



Region V: Southeastern
Massachusetts

Elizabeth W. Faus: Falmouth
Academy, Falmouth

Clean Tech: *"Can Algae
Efficiently Use Sewage Water
to Provide Bio Diesel?"*

About Me:

I am seventeen years old and a junior at Falmouth Academy. I moved to Falmouth from Virginia in 2004. I spend my summers on Long Beach Island in New Jersey; it is my favorite place.

I live with my dad, my mom, and my 12 year old brother. We have a dog named Mopsa. My interests include soccer, lacrosse, swimming, photography, traveling, listening to music and spending time with my close friends.

I became interested in this project primarily because of my deep interest in marine biology particularly the environmental aspects. The past two years I have learned so much with my projects involving ways to improve the environment. This year, I was able to work in a lab rather than at school or at home. Working in a lab environment provided me with the opportunity to use advanced scientific tools and have access to supreme knowledge on my topics.

My Project:

The purpose of this experiment was to see if algae were capable of using sewage to produce bio fuel.

This experiment was performed using a total of 4 different types of algae; sewage water, and different additives to see which would help the algae produce the most lipids to be converted into bio fuel. It was found that the Tween 80 (a commercial non-ionic surfactant used to release oils) and seafood waste additives did not have the most abundant growths compared to the sewage waste alone or with some added ethyl alcohol, but did result in the most lipid production with all of the algae types. The production of bio fuel with good quality requires more lipids, not more algae growth, so although the additives did not rapidly increase the growth rates of the algae, the amount of lipids produced made this the most successful.

Overall, algae can produce helpful lipids to produce bio fuel with the help of a stimulant such as Tween 80 and seafood waste, which are both available and inexpensive sources.