**ABSTRACT**

It is well understood that high nitrate levels contribute to hypoxic conditions in water bodies, which is why there are proactive measures in the U.S. to reduce nitrate levels, such as wastewater treatment facilities with caps on nitrate output (1). The problem is, what is being done to reduce nitrate levels from a retrospective standpoint? Kelp forests can help address the world's lack of retroactive nitrate reduction. Kelp forests absorb large amounts of nitrates, and in certain conditions can reduce nitrates in water by more than 10% (2). Why isn't kelp grown in the U.S? The market for kelp in the U.S simply isn't big enough for large-scale kelp farms to be supported. Our group developed a business strategy that markets kelp in an American way, and we created a product that is made for an American palette to broaden the existing kelp market in the US in the hope of reducing hypoxic conditions, and protecting areas threatened by high nitrate levels. Existing kelp products in America come almost solely from Asia, as there are very few kelp farms in the U.S. We have partnered with existing farms in the U.S to come up with a strategy to help bring a new food product to the US-a product that promotes healthy eating, healthy oceans, and tasty food.

Over the summer, this group accomplished two overall goals: creating the building blocks for starting a kelp chip company, and growing our own kelp to understand more about the kelp farming industry. To create this company, many contacts were made through the Baker Institute, cold calling, and our pre-existing contacts in the kelp industry. Market research was done to gather information on people's perception of kelp as a food. We then partnered with local chefs, and restauranters to help develop a kelp chip, much like Brad's Raw Kale. The chip uses little additives, and was designed to retain as many of the "natural goodness" of kelp. On the other end, we grew kelp in a 50 gallon tank, using a chiller, halogen lights, a filter, saltwater solution, and nitrate additives. Our kelp continues to grow on Mountaintop, and we continue to work on our entrepreneurial venture for credit through the Sustainable Development department. We plan on entering various competitions, and to gain publicity. Our first event will be at the Allentown TedX event on September 19th.

**INTRODUCTION**

Kelp, being a natural filter, is one of the most effective ways to reduce nitrogen and carbon in our oceans. Realizing the necessity to increase kelp growth, our team spent the summer focusing on developing the American kelp industry. We started our project with the objective of developing an added value product for sugar kelp (Saccharina latissima) while simultaneously attempting to grow our own kelp on Mountaintop Campus. At the start of our project we were unsure on which route we would be taking. One of our goals was to have a tangible and realistic kelp-based food option by the end of the summer. Additionally, we also hoped to gain a more developed understanding of how kelp matured from spores to a full plant. The goal was to have successfully grown multiple lines of sugar kelp before the conclusion of the project. Finally, in order to spread awareness about our project and collect information regarding the cooking process, we hoped to reach out to local businesses and restaurants for insight.

**RESULTS**

After 10 weeks our tank up on Mountaintop didn’t look very promising. It wasn’t until our team returned to school that we saw a lot of kelp growth in our tank! Through this process we learned that kelp can be grown in a tank using artificial sea water. We also learned a lot about the nursery procedures for kelp which will be helpful if we ever decide to start our very own kelp farm.

**REFERENCES**