

# Abolition of Unfurling Nutrients Is the Solution for Elimination of Microalgae in the Indian River Lagoon (Year III)

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The Indian River Lagoon consumes forty-percent of Florida's east coast, and is the most biodiverse estuary in North America. Recently the lagoon has gone through devastation, due to the abundance of microalgal blooms smothering the lagoon's waters. Microalgae reproduces expeditiously, and can asphyxiate any life in the encompassing environment. The lagoon contains many excessive nutrients, including Phosphorus and Nitrogen, which found their way into the lagoon mostly through runoff and perforated septic tanks. These excessive nutrients fuel algae growth, and allow the reproduction process to rapidly increase in speed. This mass of growing algae smothers the surface blocking sunlight from aquatic plants in the depths of the lagoon and drops oxygen levels in the water immensely. To generate an effective solution to reduce microalgae, the researcher tested three different methods, one using Magnesium Hydroxide as a phosphate binder for chemical absorption, a second using clams as live natural filters, and a third using an oyster mat simulation to filter out excessive nutrients in the lagoon waters. Once results were collected, all three methods reduced absorbance levels astronomically, with the oyster mat simulation being the most effective. At the end of experimentation, the oyster mat method decreased the average absorbance level by 0.316 Au, while the control tank had an average increase of 1.099 Au. The fortuitous solution to convalesce the Indian River Lagoon is to eliminate and reduce algae growth through the abolition of unfurling nutrients that nurture the growth of microalgae, yet these solutions can be implemented to all other bodies of water experiencing the same nodi internationally.

## Awards Won:

Fourth Award of \$500