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(WP-6) **A New Look at Nutrient Reduction in the Indian River Lagoon** v1

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The Indian River Lagoon has come under scrutiny, as of late, for its bloom of toxic algae. Wherever algae blooms occur they are associated with excess nutrients fueling the bloom. Controlling the algae with herbicide has been suggested but that recycles some the nutrient from the decaying algae, is too expensive and may hurt the ecosystem. Other control suggestions are too expensive or dangerous to the estuary.

Algae-eating fish have been considered but it is unlikely that there is a fish that would be suitable or environmentally sound in the Indian River Lagoon.

Mechanical removal is too expensive and temporary.

Lake Okeechobee discharges will continue during excess water events for the safety of residents around Lake Okeechobee. So, what are the solutions?

One solution is Storm Treatment Areas (STA's). They hold some excess water and filter some of the nutrient. These are extremely expensive to build and maintain but used extensively today.

There is one other option that has been and is overlooked and inexpensive.

From the beginning of time, beneficial bacteria have provided management of organic material in lakes and on land. If beneficial bacteria were not present, we would be over our heads in leaves and detritus. Every lake would be full. Plants could no longer grow. Man would not be able to survive.

Bacteria as *Fecal* and *Total Coliform*, *Salmonella*, *Staphylococcus*, etc. can be our worst enemy in causing disease.



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Bacteria can also be our best friend. Friendly bacteria names are usually less familiar. They are used in making medications, making yogurt, cleaning oil spills and decomposing organic matter.

Probiotics (helpful bacteria) are taken by many people for digestive health benefits. Without helpful bacteria the earth could not survive.

Bio-Zyme is the name we have given to a product containing a group of beneficial bacteria naturally found in the lakes to decompose organics and reduce nutrients. These bacteria have been isolated, grown and then released in lakes and waterways.

Bio-Zyme accelerates nutrient reduction upstream before the water reaches the lagoon.

Bio-Zyme has been used by many Florida aquatic companies for nutrient management. They would not use **Bio-Zyme** if it was not effective. Many dozens of golf course superintendents insist on the management of their systems with **Bio-Zyme**. There are thousands of lakes presently managed by **Bio-Zyme**. Documentation, measuring organic sediments reduction in many locations is available. Water quality data is also available.

Generating bacteria on site is new technology and one of the main successes of Bio-Zyme. Some biologists are skeptical, as is in any new technology. The very rapid increase in its use speaks to its effectiveness.

Bio-Zyme adds thousands of times the amount of bacteria occurring naturally to reduce the nutrient before it reaches the Lagoon. It also slowly reduces the organics by about 1 – 2 cm per month. This is not quick but simply accelerates the natural process and compensates for the excessive nutrient introduced by man's activities.

Bio-Zyme could even be used in Lake Okeechobee to clear the water and remove much of the nutrient. Lake Okeechobee is so big the cost would be high but only a small fraction of the cost of other methods.

The **Bio-Zyme** bacteria are applied daily or weekly, because as the bacteria multiply and utilize nutrient, bacteria become food for protozoa and then protozoa are eaten by fish. This enhances fish production and wildlife utilization.



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We are extremely anxious to see water improvement and nutrient reduction in our waterways and Indian River Lagoon.

Bio-Zyme may be the only feasible management tool. Data and tours of systems managed by Bio-Zyme are available.

Trials for efficacy in some of the local water inputs could be arranged.

Those interested can call 1-888-212-1390 or look on the internet for bio-zyme.com. Locally, call Elroy Timmer, scientist for Aquatic Vegetation Control Inc. at 561-248-4628 or Rick Anderson owner of Aquatic Balance at 772-360-8115. Bio-Zyme agents from this area would be happy to arrange a meeting with interested parties.