

Marco Island and Mackle Brothers

- The Mackle Brothers who developed Marco Island built the island using swales to capture stormwater runoff.
- Most homes built back then had septic tanks.
- Marco is a barrier island which is comprised of sand and limestone
- Sand and Limestone ground composition inherently contain bacteria that absorb the most harmful pollutants; Nitrogen and Phosphorus (Fertilizer)
- Swales held stormwater and natural percolation would cleanse the water of contaminants.

What's Changed?

- STRP
- Creation of 1800+ Stormwater outflows into our canals.
- Adding swales drains flush with the bottom of swales to eliminate natural percolation removing Nitrogen and Phosphorus before they enter out waterways.
- No swales with new construction and redevelopment.
- Street flooding because Suntree filters only serve to collect debris and clog pipes.
- Lack of enforcement of Marco's Fertilizer Ordinance
- The list goes on and on, but I'll stop here for now.

Key Points to Protect Our Canal System; simple A, B,C Approach

- **A**nalyze and Inform
- **B**lock with Swales Drain Boxes
- **C**ontrol **C**ontaminants
 - Strictly Enforce Fertilizer Ordinance
 - Remove Suntree Filter Boxes and their Expense



Analyze and Inform

- Move from Quarterly testing to Monthly testing
 - Approved by WAC in June but not yet submitted to City Council for a vote.
 - FY18 Budget included money for monthly testing.
- Monthly testing will yield more data points to help determine point source contamination; long term trending.
- Monitor effects on flora and fauna. Seagrass health is the best indicator of our water quality.
- Marco is the only City in SW FL that tests quarterly.
- **Publish test results for Public Information. Citizens have a right to know if our waterways are safe, getting better, or getting worse.**

From 2015 to Now Total Nitrogen Exceeds State Threshold by Double

FDEP Total Nitrogen Level is 0.3 mg/liter

AF12780	BARFIELD_BRIDGE	8/11/2016	09:12	TN	TN-PC	0.713	10/17/2016 15:18	mg/L
AF12781	JH_PARK	8/11/2016	09:41	TN	TN-PC	0.6	10/17/2016 15:18	mg/L
AF12782	KENDALL	8/11/2016	10:59	TN	TN-PC	0.624	10/17/2016 15:18	mg/L
AF12783	PERRINE	8/11/2016	11:29	TN	TN-PC	0.789	10/17/2016 15:18	mg/L
AF12784	COLLIER_BRIDGE	8/11/2016	10:03	TN	TN-PC	0.528	10/17/2016 15:18	mg/L
AF12785	HC_CENTER	8/11/2016	10:29	TN	TN-PC	0.6	10/17/2016 15:18	mg/L
AF12786	W_WINTERBERRY_BRIDGE	8/11/2016	11:04	TN	TN-PC	0.573	10/17/2016 15:18	mg/L
AF12787	MCILVAINE	8/11/2016	10:20	TN	TN-PC	0.465	10/17/2016 15:18	mg/L
AF12788	HOLLYHOCK	8/11/2016	09:34	TN	TN-PC	0.708	10/17/2016 15:18	mg/L
AF12789	HUMMINGBIRD	8/11/2016	09:54	TN	TN-PC	0.822	10/17/2016 15:18	mg/L
AF12790	WINDMILL	8/11/2016	09:08	TN	TN-PC	0.772	10/17/2016 15:18	mg/L
AF12793	DUP1	8/11/2016	11:30	TN	TN-PC	0.79	10/17/2016 15:18	mg/L
AF12794	E_WINTERBERRY_BRIDGE	8/11/2016	10:43	TN	TN-PC	0.75	10/17/2016 15:18	mg/L

Block and contain with **Swale Drain Boxes**

- The first 2-3 inches of rain contain the most concentrated contaminants from fertilizer which today drain directly into waterways with no percolation, strictly conveyance.
- Swap out swale drains with Drain Boxes to allow for percolation first, and conveyance second.
 - This alone would have a profound impact on improving our water quality by removing most of the Nitrogen and Phosphorus.
- Dig swales where the City has allowed none.
 - The City invested in a piece of machinery specific to dig swales with, but it's rusting away. Put to use!

Marco's Swale Drains



Marco Swale Drains



New Construction Drain Hummingbird Ct.



Banyan Dr.

Swale Drain Boxes; Percolate then Convey



Bonita Springs Swale Box Drain



Naples Swale Box Drain

Sidewalk Expansion & No Swale



Control Contaminants

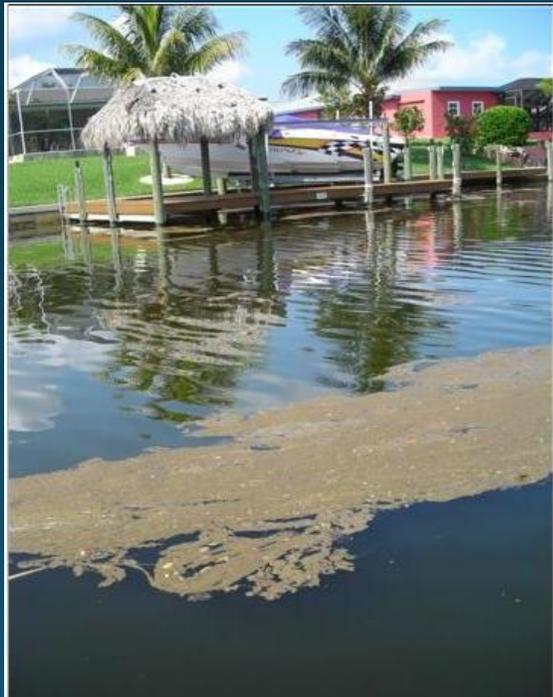
- **Enforce Fertilizer Ordinance**
 - Our own City Contractor violates the Ordinance by blowing grass clippings into curbside drains along Collier Blvd. and into swale drains along medians.
- **Eliminate Suntree Filters that cost taxpayers over \$1M plus not including maintenance**
 - Clogged Suntree Filter boxes clogged and caused the flooding on Bald Eagle in June.
 - No other City in South FL uses them.
 - City Staff can't even maintain them
- **Move to Xeriscaping in City Medians and no tree plantings in Swales**

City Fertilizer Ordinance Summary

- Here are the some of the main rules for applying fertilizer:
- Do not apply fertilizer containing Nitrogen or Phosphorus during the rainy season (June 1 – September 30) or when a weather event is predicted that will include heavy rainfall.
- Do not apply fertilizer to impervious surfaces (concrete, asphalt, pavers, etc.) or within 10 feet of a watercourse, lake, wetland or storm drain. Always use a spreader deflector shield to prevent fertilization in those areas.
- Landscapers must have City Certification and Training by law.
- Fertilizer Free zones: Fertilizer shall not be applied w/in 10 ft of any water body.
- Grass Clippings shall not be blown in water bodies.
- First violation is \$150, subsequent violations are \$300 each.
- **There's more, so I urge you to print a copy from City Web Site and read it. No enforcement on Marco I'm sorry to say.**

Issues with Fertilizers

Algae, Phytoplankton



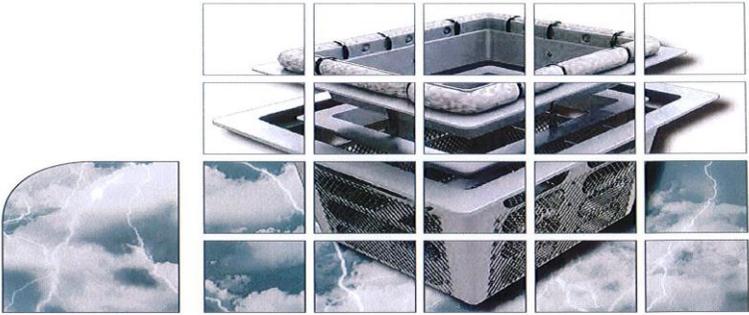
City of Cape Coral



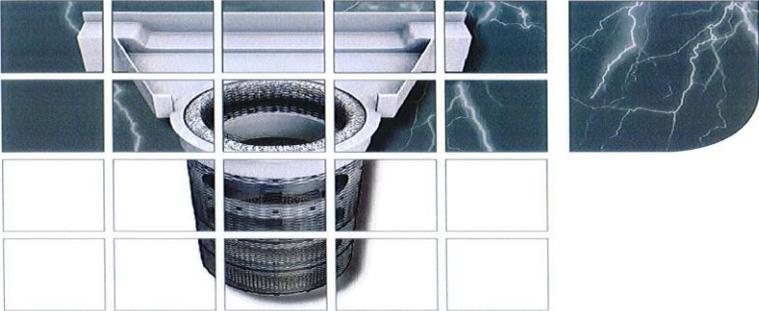
Photo credit: Lee County Hyacinth Control District



Suntree Filters: wasted Tax Dollars



SUNTREE INLET FILTERS



PROVEN SOLUTIONS for Stormwater Treatment

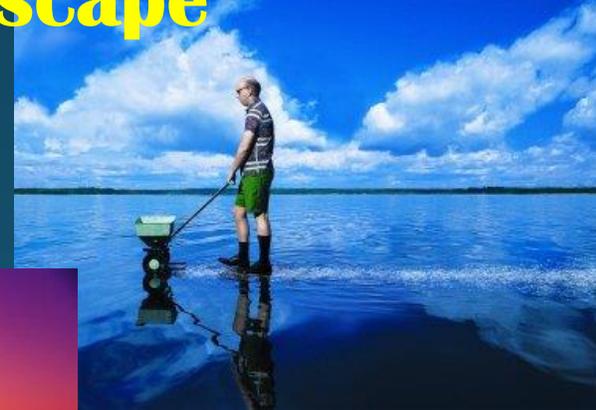
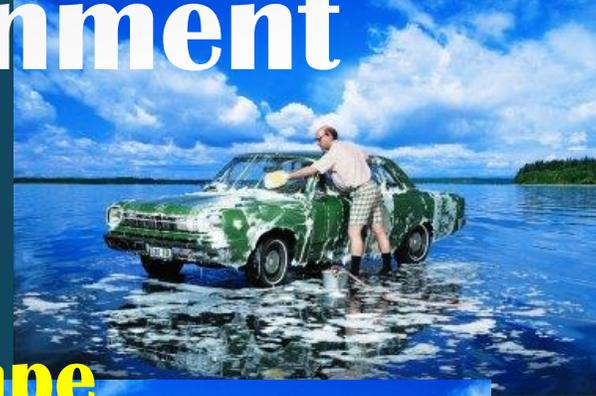


Suntree
Technologies Inc.

- Cost \$1,000+ each and Marco has 1,300 of them. Then add cost to maintain them!
- They need constant filter replacement which only do a partial job of reducing pollutants
- City does not have enough staff to keep up with maintenance alone!
- They add no value in pollution reduction.
- No other City in South FL uses them.
- They clog and cause street flooding.
- **They should be eliminated.**

Ways to Protect the Canal System and surrounding environment

- **Public Education**
- **Better Landscape Management**
 - **Planting Native Plants / Xeriscape**
 - **Fertilizer Ordinance**
 - **Watering Restrictions**



City of Cape Coral



Tributary Strategies Program

Marco Xeriscaping: Use plants that need little fertilizer or water.



Marco medians that require Fertilizer and grass clippings that get blown into sewer drains.



What can you do to make a difference?

Get involved, expect more from your City in terms of protecting our waterways and publishing test data on the City web site so all citizens can stay informed.

Please send an e-mail to City Council stating your support of the "A,B C" approach to improving our waterways.

A = Analyze and Inform

B = Block and Contain Storm Water

C = Control Contaminants

Capt. Sam Young

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Thank you !!!