



January 6, 2016

Roger Hernstadt, City Manager
City of Marco Island
50 Bald Eagle Drive
Marco Island, FL 34145

RE: City of Marco Island Fertilizer Ordinance – Public Record Documentation

Dear Mr. Hernstadt:

The Conservancy of Southwest Florida, on behalf of our over 6,000 members supports the City of Marco Island adopting a stringent and protective fertilizer ordinance that will proactively work to control non-point sources of nutrient pollution and prevent further degradation of waters in southwest Florida. Nutrient pollution, which can come from inappropriate fertilizer use, is one of the primary causes of water quality degradation in our region.

Point source and non-point sources of excess nitrogen (N) and phosphorus (P) is recognized as “the most serious pollution problem facing coastal waters worldwide.”¹ In particular, the Environmental Protection Agency considers nitrogen “one of the top stressors in aquatic ecosystems².” Nutrients as a source of pollution have also been cited in several other studies, including GESAMP 1990³, NRC 2000⁴, and Howarth et al 2000⁵.

The connection between nutrient pollution and “eutrophication, harmful algal blooms (HABs), bio-invasions, fish kills, shellfish poisonings, loss of seagrass and kelp beds, coral reef die-off, emerging marine diseases, and marine mammal and seabird deaths,”⁶ is well-known, solidified in studies such as Howarth et al 2000⁷, Lapointe et al 2004⁸, Lapointe et al 2005,⁹ Vitousek et al, 1997¹⁰, and

¹ Lapointe & Bedford, 2006. Drift Rhodophyte Blooms Emerge In Lee County, FL: Evidence of Escalating Coastal Eutrophication. Final Report to Lee County and the City of Bontia Springs.

² US Environmental Protection Agency, 2002. National Water Quality Inventory: 2000 Report. EPA/841/R-02/001. Office of Water, Washington, DC.

³ GESAMP, 1990. The State of the Marine Environment. Joint Group of Experts on the Scientific Aspects of Marine Pollution Rep. Stud. 39. UNEP.

⁴ National Research Council, 2000. Clean Coastal Waters: Understanding and Reducing the Effects of Nutrient Pollution. Ocean Studies Board, Water Science and Technology Board.

⁵ Howarth et al, 2000. Nutrient Pollution of Coastal Rivers, Bays, and Seas. Issues in Ecology 7, 1-15.

⁶ Lapointe & Bedford, 2006. Drift Rhodophyte Blooms Emerge In Lee County, FL: Evidence of Escalating Coastal Eutrophication. Final Report to Lee County and the City of Bontia Springs.

⁷ Howarth et al, 2000. Nutrient Pollution of Coastal Rivers, Bays, and Seas. Issues in Ecology 7, 1-15

⁸ Lapointe et al, 2004. Anthropogenic Nutrient Enrichment of Seagrass and Coral Reef Communities in the Lower Florida Keys: Discrimination of Local Versus Regional Nitrogen Sources. J. Exp. Mar. Biol. Ecol. 308 (1), 23-58.

⁹ Lapointe et al, 2005. Macroalgal Blooms on Southeast Florida Coral Reefs. Nutrient Stoichiometry of the Invasive Green Alga *Codium isthmocladum* in the Wider Caribbean Indicates Nutrient Enrichment. Harmful Algae 4, 1092-1105.



Carpenter et al, 1998¹¹. "With more than 50 marine and 20 freshwater harmful algal species present, Florida's Harmful Algal Blooms (HAB) have the potential to affect public health, cause economic losses, and affect living marine, freshwater, and terrestrial resources."¹² The devastating economic, health and environmental impacts of algal blooms is well-documented (Fleming et al, 1998¹³, Steidinger et al, 1999¹⁴, Williams et al, 2001¹⁵, Backer et al¹⁶, 2003, Kirkpatrick et al 2004¹⁷, Landsberg et al, 2006¹⁸). One report, Hoagland et al 2002¹⁹, estimated that between 1987 and 1992, the average annual loss of revenue from all HABs in the United States was about \$50 million dollars. In a 2006 study, HABs were reported to have a yearly negative economic cost of \$82 million dollars in the United States due to effects on public health and commercial fisheries.²⁰

There are many factors that contribute to HAB occurrence, including blue-green algae growth. A peer-reviewed study by Gilbert et al 2009,²¹ found that cyanobacterial blooms, such as *Synechococcus*, which are prevalent along the southwest Florida coast, increase the likelihood for *Karenia brevis* (red tide) growth. "With evidence that blooms of *Synechococcus* can be enhanced due to anthropogenic nutrients, the potential importance of this particulate nutrient source for sustaining red tide blooms in situ is large...."²² The benefits of controlling excessive algal growth that may contribute to potential harmful algal bloom events, should be considered when discussing fertilizer regulations.

¹⁰ Vitousek et al, 1997. Human Alteration of the Global Nitrogen Cycle: Causes and Consequences. *Issues in Ecology* 1:1-15.

¹¹ Carpenter et al, 1998. Nonpoint Pollution of Surface Waters with Phosphorus and Nitrogen. *Issues in Ecology* No. 3, Ecological Society of America, Washington, DC.

¹² Fish and Wildlife Research Institute, 2009. Resource Guide for Public Health Response to Harmful Algal Blooms in Florida. Based on Recommendations of the Florida Harmful Algal Bloom Task Force Public Health Technical Panel. FWRI Technical Report TR-14.

¹³ Fleming et al, 1998. Marine Seafood Toxin Diseases: Issues in Epidemiology and Community Outreach. From *Environmental Health Resources for Community Outreach and Education Marine Science*. NIEHS. P. 5.

¹⁴ Steidinger et al, 1999. Harmful Algal Blooms in Florida. Unpublished Technical Report Submitted to the Florida Harmful Algal Bloom Task Force. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute. P. 63.

¹⁵ Williams et al, 2001. Assessment of Cyanotoxins in Florida's Lakes, Reservoirs, and Rivers. Final Report to the St. John's River Water Management District, Palatka, Florida. Cyanobacterial Survey Project, Florida Harmful Algal Bloom Task Force, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute. P. 97.

¹⁶ Backer et al, 2003. Epidemiology, Public Health and Human Illness Associated with Harmful Marine Algae. From *Manual on Harmful Marine Microalgae*. Intergovernmental Oceanographic Commission of UNESCO. P. 723-750.

¹⁷ Kirkpatrick et al, 2004. Literature Review of Florida Red Tide Implications for Human Health. *Harmful Algae* 3:99-115.

¹⁸ Landsberg, et al, 2006. Saxitoxin Puffer Fish Poisoning in the United States, With the First Report of *Pyrodinium bahamense* as the Putative Toxin Source. *Environmental Health Perspectives* 114:1502-1507.

¹⁹ Hoagland et al, 2002. The Economic Effects of Harmful Algal Blooms in the United States Estimates, Assessment Issues, and Information Needs. *Estuaries* 25(4): 819-837.

²⁰ Russell, 2013. The Columbus Dispatch. Scotts Drops Phosphorous from Lawn Fertilizer. Citing 2006 study by National Centers for Coastal Ocean Science.

²¹ Gilbert et al 2009. Grazing by *Karenia Brevis* on *Synechococcus* Enhances its Growth Rate and May Help to Sustain Blooms. *Aquatic Microbial Ecology*. Vol. 55:17-30.

²² Gilbert et al 2009. Grazing by *Karenia Brevis* on *Synechococcus* Enhances Its Growth Rate and May Help to Sustain Blooms. *Aquatic Microbial Ecology*. Vol. 55:17-30. P. 18.

Regional Model Fertilizer Ordinance is More Protective than State Model Ordinance

Creating a fertilizer ordinance and corresponding education/outreach effort is one of the most important steps a community can undertake in ensuring it maintains the water quality and quality of life it currently enjoys. The "primary impetus" for the wave of southwest Florida fertilizer ordinances was based on an effort to address regional water quality by the Southwest Florida Regional Planning Council (SWFRPC). Utilizing scientific literature and after review by the Institute of Food and Agricultural Sciences (IFAS) and the Florida Department of Environmental Protection (DEP)²³, the SWFRPC adopted "a resolution that provided a [regional] model ordinance for fertilizer use regulation that was approved by all 22-member jurisdictions on March 15, 2007."²⁴ Many southwest Florida municipalities have subsequently adopted stringent fertilizer ordinances, modeled closely to the SWFRPC resolution, to address water quality protections that have: 1) included prohibition for rainy season application, 2) reduced the amount of total phosphorus application, 3) required at least 50% slow-release nitrogen content, 3) set limits on the total amount of fertilizer that can be distributed per application and per year, and 4) set a buffer zone to protect runoff into adjacent waterbodies. Most ordinances also included other components to educate and certify applicators and to ensure that application is controlled outside of impervious surfaces and that deflector shields are utilized.

The 2009 state Model Ordinance, unfortunately, does not require these essential elements of an effective ordinance. The state Model Ordinance is the minimum floor for fertilizer ordinances passed after January 1, 2009²⁵. The state statute language as well as the model ordinance provides assurance that local municipalities may adopt more stringent measures to adequately protect their water resources.

The criteria to meet the statutory test for more stringent ordinance language includes:

1. that local government demonstrate more stringent measures are part of a science-based, economically- and technically-feasible comprehensive program to address non-point source pollution²⁶. The legislative findings at Sect. 403.9336 also indicate that "local conditions, including variations in the types and quality of water bodies, site-specific soils and geology, and urban or rural densities and characteristics, may necessitate the implementation of additional or more stringent fertilizer management practices at the local government level²⁷."
2. that the government has considered all relevant information, including scientific information and input from DEP, IFAS and the Department of Agriculture and Consumer Services (DACS) in their decision-making and that all information considered in determining the cause for more stringent ordinance language be on the record²⁸. The Conservancy offers this letter as relevant information to be utilized in this process.

"The statewide model ordinance is, of necessity, a generic document,"²⁹ meant to provide the minimum baseline provisions for proposed fertilizer ordinances. With red tide in the Gulf, the Rookery

²³ Personal communication, October 20, 2009. Jim Beaver, SWFRPC, Phone.

²⁴ Hartman et al, 2008. The Spread of Fertilizer Ordinances in Florida. Sea Grant Law and Policy Journal, Vol. 1., No. 1. City of Marco Island was represented on the SWFRPC by Councilman Kiester.

²⁵ Fl. Stat. §403.9337(2). "Each county and municipal government located within the watershed of waterbody or water segment that is listed as impaired by nutrients pursuant to s. 403.067, shall, at a minimum, adopt the department's Model Ordinance for Florida-Friendly Fertilizer Use on Urban Landscapes" (emphasis added).

²⁶ Fl. Stat. §403.9337(2)(a).

²⁷ Fl. Stat. §403.9336.

²⁸ Fl. Stat. §403.9337(2)(b).

²⁹ Personal communication, October 15, 2009. Michael Thomas, DEP, Email.

Bay watershed already impaired, and with some local water quality tests not meeting the nutrient standard³⁰, there are significant threats to the health of Marco's aquatic ecosystem.

Fertilizer ordinances are proactive measures for pollution prevention. Language cited above from the Model Ordinance clearly allows for Marco to implement more stringent measures to protect the water quality it currently enjoys.

Marco Island Has a Comprehensive Program in Place

The City of Marco Island meets the statutory language embodied in Fl. Stat. §403.9337(2)(a), because it has elements of a comprehensive program that work in tandem to address and reduce non-point source pollution. The following already-established Code of Ordinances and programs contribute to this effort by the City:

- Section 18-31 City of Marco Island Nuisance, Litter, Weed, Plant, and Right-of-Way Control Ordinance has identified grass clippings as potential source of pollution and regulates illegal dumping of them into waterbodies
- Section 30-581(r) Language regarding stormwater management, including the use of swales
- Sec. 30-431 City of Marco Island Landscape Ordinance, of which the goal is to promoting "water conservation by encouraging the use of native and drought-tolerant vegetation and properly zoned irrigation system through xeriscape," the use of moisture detection devices on irrigation system, the use of drought-tolerant species, and appropriate plan and design (choosing proper plants, wise use of turf and efficient use of irrigation, use of mulches)
- Sect. 8-70 City of Marco Island Lawn and Landscape Maintenance Certification Regulations to require education of lawn care workers to avoid "adverse impacts from stormwater run-off into natural water bodies located in and adjacent to the City of Marco Island"
- Septic Tank Replacement Program
- Water quality sampling
- Community education (e.g. brochures on water conservation, Florida Friendly Plant Alternatives, Swales, Landscaping, etc.)

Support for Slow Release Nitrogen Fertilizer Content

The use of slow-release nitrogen and low content phosphorus is supported by several scientific studies. The DEP and IFAS Florida-Friendly BMP manual³¹, Florida Yards and Neighborhoods Handbook³² support the use slow-release nitrogen. Slow-release nitrogen is nitrogen in a form that adds nutrients into the soil slowly over time. Also known as water-insoluble nitrogen, it is formed by coating the nitrogen granules with sulfur or plastic-based materials that break down over time.³³ Because slow-release nitrogen takes time to activate and provide nutrient components to the soil, many advocate its use over a quick-release nitrogen product that could leach and run off more quickly, causing water quality concerns.

³⁰ STORET, September 2015. Current Assessment Cycle Information.

³¹ DEP, 2010. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries.

³² IFAS, 2015. A Guide to Florida-Friendly Landscaping: Florida Yards and Neighborhoods Handbook.

³³ IFAS, 2007. The Florida Fertilizer Label. Soil and Water Science Department, Florida Cooperative Extension Service, IFAS, University of Florida.

Fertilizers with a high percentage of slow release nitrogen are less likely to leach or runoff into Florida's waters.³⁴ DEP recommends that *"to limit the environmental impact of your fertilization program, it is recommended that no more than 0.5 pounds of water-soluble N per 1,000 square feet be applied in a normal application."*³⁵ However, the state Model Ordinance allows up to 0.7 pounds of readily available nitrogen per application and does not require use of slow-release nitrogen to this level. Slow release nitrogen products are readily available on the market and although the cost may be more per bag, it is actually more cost efficient for the consumer as less product is needed.

Support of Minimal or Zero Phosphorus Fertilizer Content

Soils throughout Florida generally contain enough phosphorus that fertilization with additional phosphorus is not necessary to maintain a healthy state. "Due to their marine origin, Florida soils often test high in... P. Additionally, many of our soils have received abundant fertilizer P in the past and have high soil test levels of P."³⁶ Therefore, as DEP has recommended, phosphorus application should be limited to soils that require additional P based on soil or tissue testing.³⁷

Unfortunately, the state Model Ordinance allows for additional phosphorus loading on already phosphorus-rich soils up to 0.50 lbs. per year. "Excess P application can result in enrichment of the P status of run-off or leachate [in] waters, and in the eutrophication of adjacent waterbodies."³⁸ Since 2009, several states have banned the use of urban fertilizers containing phosphorous for these reasons, including Illinois, Maine, Maryland, Michigan, Minnesota, New Jersey, New York, Vermont, Virginia, Washington, and Wisconsin.³⁹ In 2013, the Scotts company began a campaign to remove phosphorous from many of its products to help reduce the likelihood of HABs.⁴⁰

Support for 4 lb. Cap on Fertilizer Application Per Year

The Urban Turf Rule⁴¹ and the Florida-Friendly BMP manual can be utilized to support an application rate of 4 lbs. of nitrogen for most types of grasses per year. These sources provide that 2 to 4 pounds of nitrogen (per 1000 square feet per year) is suggested for a healthy lawn for Bahia, Centipede, St. Augustine, and Zoysia grasses. However, the State Model Ordinance allows for fertilizing up to 6 lbs. of nitrogen per year for some of these grasses.

In order to avoid over-fertilization, the Conservancy supports placing a cap on the annual amount that can be applied to 4 lbs. Note that the Urban Turf Rule is based on turf grass science, and does not consider the nutrient load maximums that may adversely impact local waterbodies. Furthermore, these nitrogen recommendations do not reflect nitrogen inputs that may be received from rain or from use of reclaimed water. Use of reclaimed water on a Collier County administrative grounds test plot showed that some sources of reclaimed water contains enough nitrogen not only to meet the

³⁴ DEP, 2010. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries. P. 26; IFAS, 2015. A Guide to Florida-Friendly Landscaping: Florida Yards and Neighborhoods Handbook.

³⁵ DEP, 2010. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries. P. 29. Emphasis added.

³⁶ Sartain, 2015. Soil and Tissue Testing and Interpretation for Florida Turfgrasses. IFAS, University of Florida.

³⁷ DEP, 2010. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries

³⁸ IFAS, 2015. General Recommendations for Fertilization of Turfgrasses on Florida Soils. IFAS, University of Florida.

³⁹ Miller, 2012. State Laws Banning Phosphorous Fertilizer Use. OLR Research Report. 2012-R-0076.

⁴⁰ Russell, May 10, 2013. The Columbus Dispatch. Scotts Drops Phosphorous from Lawn Fertilizer.

⁴¹ FAC 5E-1.003.

landscape needs but also at rates that are higher than the state water quality standard indicating pollution-level concentrations.⁴²

Support for Minimum Buffer Adjacent to Waterbodies

Buffer areas adjacent to water resource areas "function[] by removing sediments and associated pollutants from surface water runoff, removing, detaining, or detoxifying nutrients and contaminants from upland sources."⁴³ A buffer area is put in place to mitigate against application error and prevent runoff. There is a significant amount of sources that support buffer areas as nutrient filters, including Belt et al 1992⁴⁴, Johnson & Ryba 1992⁴⁵, Castelle et al 1994⁴⁶, Fennessy & Cronk 1997⁴⁷, Fischer & Fischenich 2000⁴⁸, and Christensen 2000⁴⁹.

The SWFRPC recommendation of a 25-foot buffer was drawn from Environmental Resource Permit Basis of Review rules by the South Florida Water Management District, which is put in place to ensure that upland uses do not adversely impact adjacent water resources. Scientific literature shows that much of the nutrient removal occurs within the first 15-30 feet⁵⁰. Buffers of at least 15 feet reduced subsurface nitrate flows by up to 80%⁵¹.

Although sources suggest that the benefits reaped from buffer zones increase with the width of the buffer, the IFAS Florida Yards and Neighborhoods document states that one should "never fertilizer within 10 feet of any water body."⁵² This fertilizer-free zone "helps to protect the water from runoff."⁵³

⁴² Cisar, December 9, 2011. Collier County Fertilizer Project. Final Report.

⁴³ Environmental Law Institute, 2008. Planner's Guide to Wetland Buffers for Local Governments. P. 1.

⁴⁴ Belt et al, 1992. Design of Forest Riparian Buffer Strips for the Protection of Water Quality: Analysis of Scientific Literature. Idaho Forest, Wildlife, and Range Policy Group Report No. 8, University of Idaho, Moscow, ID.

⁴⁵ Johnson & Ryba, 1992. Literature Review of Recommended Buffer Widths to Maintain Various Functions of Stream Riparian Areas. Water and Land Resources Division, King County Department of Natural Resources, Seattle, WA.

⁴⁶ Castelle et al, 1994. Wetland and Stream Buffer Size Requirements – a Review. Journal of Environmental Quality 23:878-882.

⁴⁷ Fennessy and Cronk, 1997. The Effectiveness and Restoration Potential of Riparian Ecotones for the Management of Nonpoint Source Pollution, Particularly Nitrates. Critical Reviews in Environmental Science and Technology 27:285-317.

⁴⁸ Fischer & Fischenich, 2000. Design Recommendations for Riparian Corridors and Vegetated Buffer Strips. Technical Note ERDC-TN-EMRRP-SR-24, Army Engineer Waterways Experiment Station, Vicksburg, MS.

⁴⁹ Christensen, 2000. Protection of Riparian Ecosystems: a Review of the Best Available Science. Jefferson County Natural Resources Division, Port Townsend, WA.

⁵⁰ Environmental Law Institute, 2008. Planner's Guide to Wetland Buffers for Local Governments. P. 7.; Dillaha et al., 1988. Evaluation of Vegetative Filter Strips as Best Management Practice for Feed Lots. Journal of the Water Pollution Control Federation 60(7): 1231-1238.; Dillaha et al, 1989. Vegetative Filter Strips for Agricultural Nonpoint Source Pollution Control. Transactions of the ASAE 32:513-519. ; Magette et al, 1989. Nutrient and Sediment Removal by Vegetated Filter Strips. Transactions of the ASAE 32(2): 663-667. ; Schoonover et al, 2006. Agricultural Sediment Reduction by Giant Cane and Forest Riparian Buffers. Water, Air, and Soil Pollution 169: 303-315.

⁵¹ Muscutt et al, 1993. Buffer Zones to Improve Water Quality: A Review of Their Potential Use in UK Agriculture, Ecosystems, and Environment. 45:59-77. ; Parkyn, 2004. Review of Riparian Buffer Zone Effectiveness. Ministry of Agriculture and Forestry Technical Paper No. 2004/05, Wellington, New Zealand.

⁵² IFAS, 2015. A Guide to Florida-Friendly Landscaping: Florida Yards and Neighborhoods Handbook.

⁵³ IFAS, 2015. A Guide to Florida-Friendly Landscaping: Florida Yards and Neighborhoods Handbook.

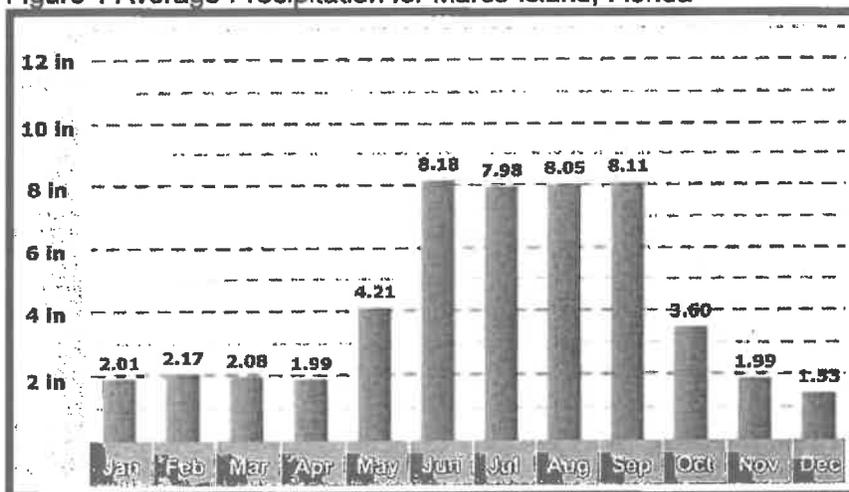
While some may be concerned with the inability to fertilize in the buffer zone, turf and other plants within the zone may receive nutrient nourishment from other sources, for example, sloughing of fertilizer applied landward of the buffer zone or from rain deposits.

Support of the Rainy Season Prohibition

The State Model Ordinance only prohibits fertilizing during major storm events, such as floods, hurricanes, or tropical storms, or when rain fall is expected to be more than 2 inches⁵⁴. However, there is scientific support for prohibiting fertilizer application during other times of the year when rainy weather is likely.

A blackout period would address frequent rainstorms washing fertilizer into adjacent waterbodies during the typical rainy season. The rainy season in Marco Island is generally from June through September with 32.3 inches, or 62%, of average annual rainfall for Marco Island falling within this period (see Figure 1). DEP has stated that, of all places in Florida, the prohibition for rainy season application makes the most sense for southwest Florida, considering its fairly normal rain cycles⁵⁵.

Figure 1 Average Precipitation for Marco Island, Florida⁵⁶



Furthermore, limiting prohibitions to rainfall events greater than 2 inches, severely limits the ability to control runoff during the most common rain events. About half of southwest Florida's rain events contribute greater than inch of rain to the landscape (see Figure 2), however only 3 to 5% of Florida's rain events exceed two inches⁵⁷.

⁵⁴ DEP, January 2009. Florida-Friendly Landscape Guidance Models for Ordinances, Covenants, and Restrictions.

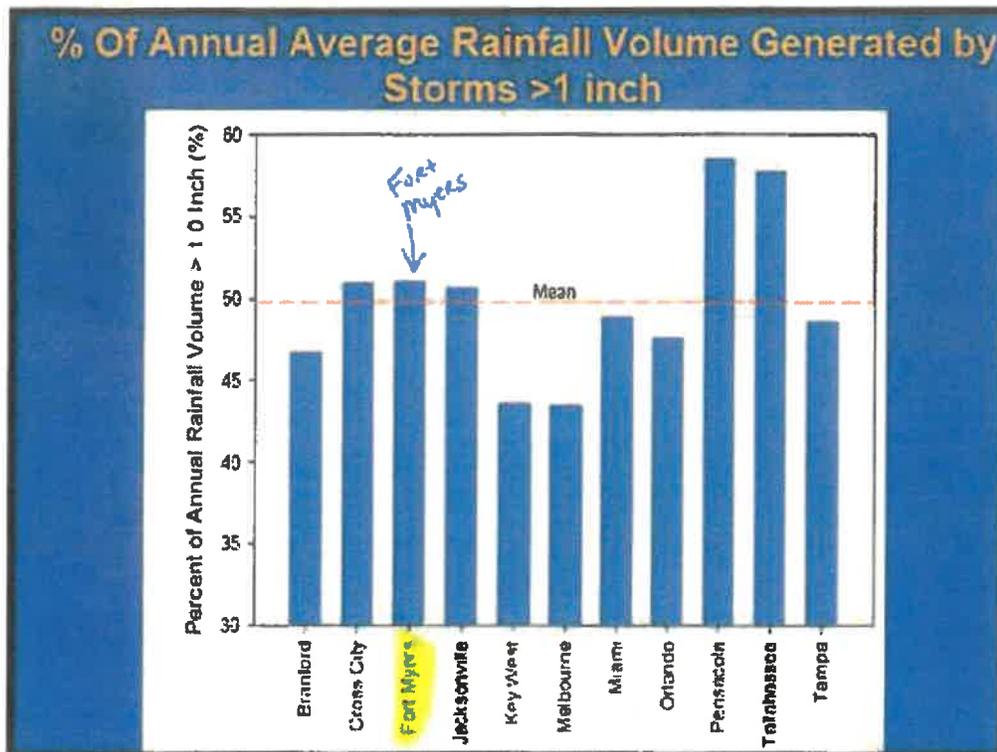
⁵⁵ Personal communication, October 13, 2009. Michael Thomas, DEP, phone.

⁵⁶ The Weather Channel.

<http://www.weather.com/outlook/travel/vacationplanner/wxclimatology/monthly/graph/USFL0302?from=36hr_bottomnav_vacation>. Accessed October 23, 2009.

⁵⁷ DEP, 2008. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries. P. 30.

Figure 2 Annual Average Rainfall Volume By Florida Location⁵⁸



Application of (urea) fertilizer followed by rainfall of an inch or greater within 8-12 hours, may cause nitrogen to "move below the turfgrass root zone because of its non-ionic nature and be lost through leaching."⁵⁹ Many sources, including a study from IFAS, can be utilized to support the prohibition for rainy season application. "Fertilization with N in the summer is not always desirable since this often encourages disease and insect problems."⁶⁰ Instead, a slow-release fertilizer could be applied before June 1st and provide steady nutritional aid during the black-out period while decreasing risk of disease and insect infestation. While many Florida-based companies have been making "summer-safe" blends for many years, in 2015, the Scotts company announced the availability of "Smarter Solutions for Cleaner Waterways Initiative" product that does not contain nitrogen or phosphorous for use on lawns in the summer rainy season.⁶¹

Additionally, grass clippings can be utilized to provide nutrients to turf during the rainy season application prohibition. Grass clippings are a significant source of nitrogen that will improve soil fertility over time and reduce the need for nitrogen fertilization by up to 50% without a decrease in turf grass quality⁶². Publications throughout the country provide evidence that up to 1 to 2 pounds of nitrogen

⁵⁸ Thomas, DEP. Nonpoint Source Management Section Presents Florida's Urban BMPs: Homeowners, Landscaping, Golf, and the Future of Stormwater. Powerpoint.

⁵⁹ DEP, 2010. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries. P. 26.

⁶⁰ IFAS, 2007. General Recommendations for Fertilization of Turfgrasses on Florida Soils. Soil and Water Science Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.

⁶¹ Scotts Miracle-Grow, July 15, 2015. Scotts Launches New Florida-Friendly Lawn Supplement in Key Test Markets. Scotts Smarter Solutions for Cleaner Waterways Initiative Brings Lawn Response Nitrogen and Phosphorous Free Product to Florida.

⁶² IFAS, 2006. Florida Yards and Neighborhoods Program Handbook.

per 1000 sq. ft. can be provided back to lawns from decomposed grass clippings⁶³. As you are aware, more grass clippings are produced in our rainy season than any other time of the year.

A black-out period is unlikely to effect the ability to fertilize during the active growing season, since that is often year-round in south Florida.⁶⁴

Scientific Support for Water Quality Improvements from Stringent Fertilizer Ordinances

While it is difficult to attribute all water quality improvements to fertilizer ordinance implementation, several municipalities in our area have seen positive changes after adoption of stringent and protective fertilizer ordinances. For example, although the sample size was small, Lee County Pondwatch did an analysis of stormwater ponds and found there was a decrease in Chlorophyll a and Total Nitrogen.⁶⁵ The Charlotte Harbor National Estuaries Program reviewed changes to Charlotte County and Sarasota County waters and found there was a decrease in both phosphorous and nitrogen after the ordinances were adopted.⁶⁶

And finally, just in the past year, the City of Naples has released their report on Naples Bay restoration and found there was a decreasing trend in nutrients that coincides with adoption of the fertilizer ordinance.⁶⁷

Conclusion

The Conservancy of Southwest Florida supports the City of Marco Island in implementing a stringent and scientifically-supported fertilizer ordinance to best protect its water quality, and the health of its wildlife, citizens, and economy.

The scientific sources referenced in this letter and in the attached enclosures we hope will provide a basis for enacting these more stringent measures.

If you have any questions, please feel free to contact me at (239)262-0304 ext. 286.

Sincerely,



Amber Crooks, Senior Natural Resources Specialist

Cc: Jennifer Hecker, Conservancy of Southwest Florida
Sarah Propst, Planner II

ENCLOSURE: CD

⁶³ Swift, 1996. Updated 2009. Colorado State University Extension.

⁶⁴ Trenholm, et al., 2014. St. Augustine for Florida Lawns.

⁶⁵ Ryan, et al.. Analysis of Phosphorous, Nitrogen, and Chlorophyll a in Stormwater Ponds Relative to the 2008 Fertilizer Ordinance.

⁶⁶ Charlotte Harbor National Estuaries Program, 2014. Biological Sciences, 2014 Watershed Summit: Our Vision in Action.

⁶⁷ Cardno, prepared on behalf of City of Naples, 2015. Naples Bay Water Quality and Biological Analysis Project.