

UPDATE ON DEP STORMWATER RESEARCH AND PROJECTS

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PRESENTATION OUTLINE

- **Florida's Stormwater Problem and Program – Basics**
- **Need for Better Stormwater Treatment**
- **Statewide Stormwater Treatment Rule Concepts**
- **Closing Sermon**

DID YOU KNOW???

Section 403.0891, F.S. says:

The FDEP, in coordination and cooperation with the WMDs and local governments, is to conduct a continuing review of the costs of stormwater management systems and the effects on water quality and quantity, and fish and wildlife values.

DID YOU KNOW???

Section 201.15 (8), F.S. provides 0.5% of doc stamp funding to DEP and FDACS for research, development, demonstration, and implementation of urban and agricultural BMPs to reduce NPS loads to impaired waters.

DID YOU KNOW???

- Chapter 201, F. S. establishes excise tax on documents, deeds
- Deeds - \$0.70/\$100 value; \$0.35/\$100 value on notes, loans, etc

YEAR	DOC STAMP \$\$
FY04/05	\$3.365 Billion
FY05/06	\$4.058 Billion
FY06/07	\$3.060 Billion
FY07/08	\$1.825 Billion

USE OF TMDL FUNDING FOR URBAN NPS RESEARCH AND IMPLEMENTATION

YEAR	DOC STAMPS	Urban NPS Research	Urban SW Retrofit Projects	WSP TF	Urban SW Retrofit or Research Projects
2001	\$2,500,000		\$2.5 m		
2002	\$2,800,000	\$415,000	\$2.385m		
2003	\$2,800,000	\$2,641,850	\$160,000		
2004	\$2,800,000		\$2.8 m		
2005	\$9,280,000	\$1,847,115	\$7.433 m		
2006	\$8,500,000	\$450,200	\$8.050m	\$15m	\$13.553 m
2007	\$14,400,000	\$3.915m	\$8.261m	\$17m	\$957,365
2008	\$4,500,000	\$1.233m	\$1.314m	\$12m	

NONPOINT SOURCE RESEARCH FOCUS

- **Evaluation of current stormwater criteria**
- **Improving wet pond treatment removal**
 - **Wet pond depth and WQ**
 - **Wet pond discharge frequency**
 - **Benefits of MAPS**
 - **Increasing stormwater nitrogen removal**
- **Improving retention design/treatment**
 - **Infiltration rates and compaction**
 - **Retention/Karst area nutrient migration**
- **Health effects of stormwater reuse**

NONPOINT SOURCE RESEARCH FOCUS

- **Low Impact Design BMPs**
 - **PREC workshops**
 - **Greenroof-cistern design/effectiveness**
 - **Pervious pavement design/OM**
 - **Urban turf fertilizer/irrigation needs**
 - **FYN stormwater EMCs**
- **Retrofitting BMP design/effectiveness**
 - **Regional ponds design/treatment**
 - **Effectiveness of baffle boxes**
- **Passive nutrient removal OSTDS**

URBAN STORMWATER BMP RESEARCH RESULTS

UCF Stormwater Management Academy

- “Managed stormwater is good water”
- <http://stormwater.ucf.edu/>



DEP Nonpoint Source Web Site

- http://www.dep.state.fl.us/water/nonpoint/pubs.htm#Urban_Stormwater_BMP_Research_Reports

Florida Urban BMP Data Base

Florida DEP - Nonpoint Source Management - Publications - Internet Explorer

http://www.dep.state.fl.us/water/nonpoint/pubs.htm#Urban_Stormwater_BMP_Research_Reports

File Edit View Favorites Tools Help

Florida DEP - Nonpoint Source Management - Publicati...

Urban Stormwater/Nonpoint Source BMP Research Reports - The Florida Watershed Restoration Act Provides Funding to DEP to conduct research on the design, implementation, and effectiveness of BMPs to reduce pollutant loading from urban nonpoint sources of pollution, especially stormwater discharges. The reports are listed below:

1. [Comparative Analysis of Greenroof Designs Including Depth of Media, Drainage Layer Materials, and Pollution Control Media](#) (Sept 2008 - 2.5 mb). This research, performed by the University of Central Florida Stormwater Management Academy, evaluates differences in greenroof designs and provides recommendations with respect to the depth of the media, the drainage layer materials, and the use of pollution control media. The project investigated the water quality and hydrology effects of different greenroof designs and included a comparison study on the cistern water quality, direct filtrate water quality, and control roof filtrate water quality.
2. [Evaluation of the Performance Efficiency of the New York Avenue Exfiltration Facility](#) (July 2008 - 7.5 MB). - This report summarizes activities associated with a stormwater retrofitting project in Winter Park consisting of an exfiltration system. The project was funded, in part, by a TMDL Water Quality Restoration Grant. The report describes the contributing drainage area, pre-project stormwater pollutant loadings, post-project stormwater pollutant loadings, and summarizes the results of the monitoring program to document stormwater pollutant load reductions. Results of the monitoring program demonstrated that the exfiltration system reduced stormwater volume, TN loads, TP loads, and TSS loads by 83%. TN loadings were reduced from 105.5 kg/yr to 17.9 kg/yr; TP loadings were reduced from 27.1 kg/yr to 4.6 kg/yr, and TSS loadings were reduced from 3252 kg/yr to 553 kg/yr.
3. [Evaluation of Current Stormwater Design Criteria within the State of Florida](#) (Final Report - Adobe PDF Document - 5 MB) This report, prepared by Environmental Research and Design, Inc. (July 2007) evaluates the current design criteria of each of the WMDs and DEP to determine whether the minimum treatment level specified in 62-40, F.A.C. is being met. It provides updated information on rainfall patterns, land use specific event mean concentrations, and BMP effectiveness. It provides recommendations on a new performance standard of post-development nutrient loading shall not exceed pre-development nutrient loading and BMP design criteria that can achieve this level of treatment.
4. [Stormwater Irrigation Volume I: Evapotranspiration and Nitrate Reduction After Biofiltration to Reduce Health Risks](#) (Final Report - Adobe PDF Document - 4 MB) This research, performed by the University of Central Florida Stormwater Management Academy, used field experiments to determine the evapotranspiration and impacts on ground water of nitrogen of stormwater used to irrigate St Augustine lawns.
5. [Stormwater Irrigation Volume II: Cyanobacteria Counts with Toxin Concentrations in Stormwater Ponds and After Biofiltration to Reduce Health Risks](#) (Final Report - Adobe PDF Document - 13 MB) The second phase of the research on stormwater reuse by the Stormwater Management Academy. This report summarizes information on the levels of total and potentially toxin Cyanobacteria and the Microcystin toxins that may be present in stormwater ponds. It also examines the potential reduction of these constituents by sand filtration so that the stormwater can be reused for nonpotable purposes.
6. [Stormwater Intelligent Control System](#) (Final Report - Adobe PDF Document - 2.7 MB) - Water restrictions, pollution control, volume balances, and the emergence of stormwater utilities have lead to the development of an automated intelligent system ("I-Water") for water use and control. With the use of this system, water stored in stormwater ponds or in the surficial aquifer is not discharged to surface waters because it is used to meet water demands, such as, lawn irrigation, environmental protection, agriculture, drinking and industrial uses.
7. [Quantifying the Effect of a Vegetated Littoral Zone on Wet Detention Pond Pollutant Load Reduction](#) (Final Report - Adobe PDF Document - 2.4 MB) - This report describes an investigation sponsored by the Florida Department of Environmental Protection (FDEP) in which DR Environmental, Inc. with assistance from Community Watershed Fund

Local intranet 100%

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UNIVERSITY OF CENTRAL FLORIDA
**Stormwater
Management
ACADEMY**
"Managed Stormwater is Good Water"



MISSION

RESEARCH & PUBLICATIONS

CONFERENCES

PUBLIC EDUCATION

ASSOCIATE MEMBERS & LINKS

Google™ Custom Search

Search

A Source for Stormwater
Information Supported by
the University of Central
Florida, Florida
Department of
Transportation, and
Florida Department of
Environmental Protection

What's New

- [Alternative Stormwater Sorption Media for the Control of Nutrients](#)
- [A comparative study for depth, drainage layer, and pollution control media](#)
- [Pervious Pavement Design Aid](#)
- **2nd Annual H2O and Erosion Control Workshop "Green Solutions", March 13-14, 2008.**
[Click here](#) to view the presentations
- [Rainfall Simulator Dedication](#)
- [State of Florida Erosion & Sediment Control Designer & Reviewer Manual](#) - Sign-up to receive updates on the Manual [click here](#).
- [BMP Database Summary Stats](#)
- [Rainfall Analysis for Florida \(volume with return periods and durations\) - a "WIKI" site](#)

See Featured Publications

NEW!

SEAL OF
APPROVAL



2nd Biennial
Stormwater
Research
Symposium
Award Plaques



[Click here to view Flash Videos](#)

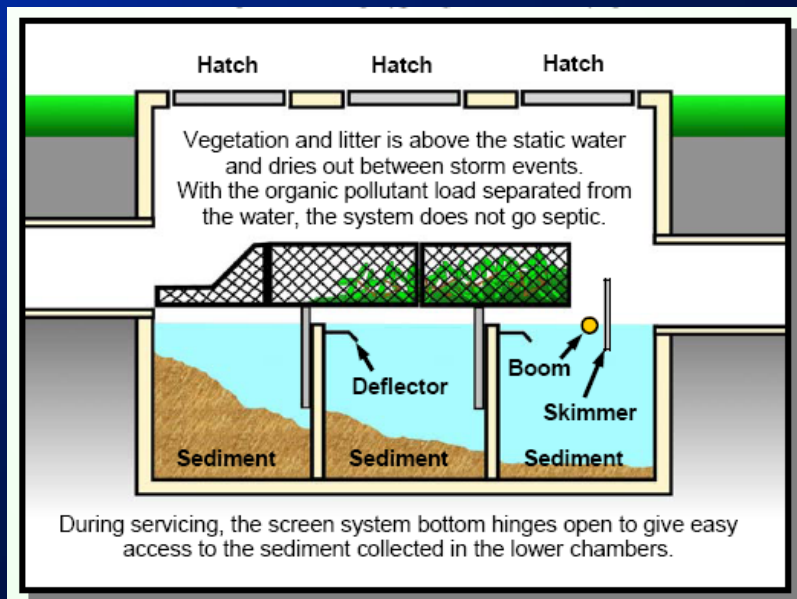
STORMWATER RETROFITTING IN FLORIDA



Greenwood Wetland



Lake Dot Alum injection



Baffle Boxes

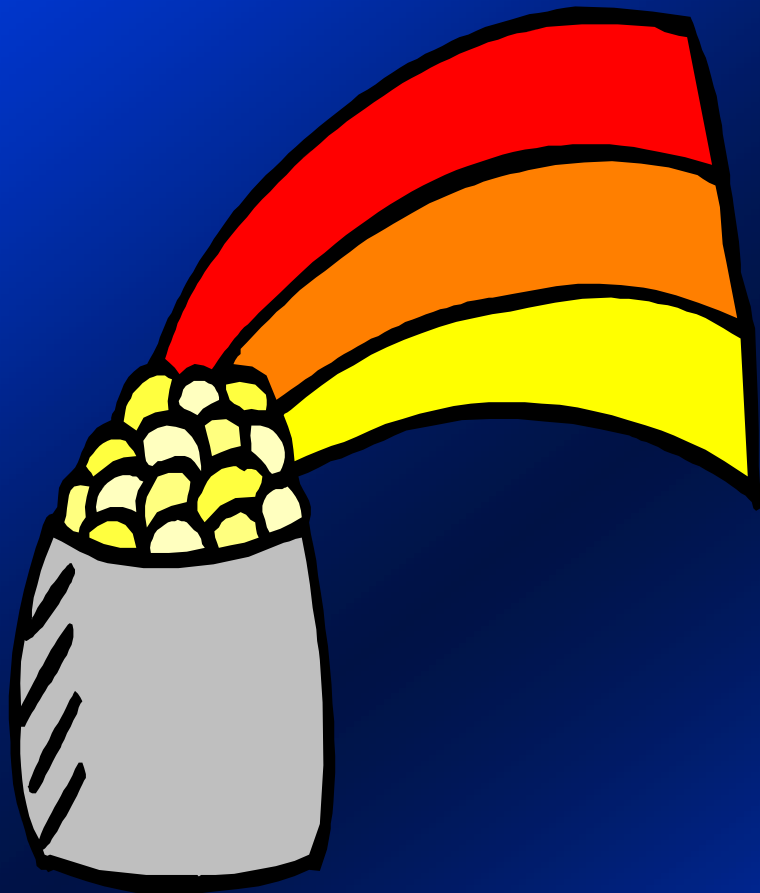


Packed bed wetland

RETROFITTING IN TAMPA BAY AND INDIAN RIVER LAGOON BASINS

BASIN	ACRES	DEP EPA	MATCH	TSS (lbs)	TN (lbs)	TP (lbs)
IRL	47,144	\$17.6M	\$34.3M	9,848,949	379,217	68,691
TAMPA BAY	24,930	\$ 9.5M	\$16.8M	1,634,628	67,230	43,866

TMDL FINANCIAL CHALLENGES



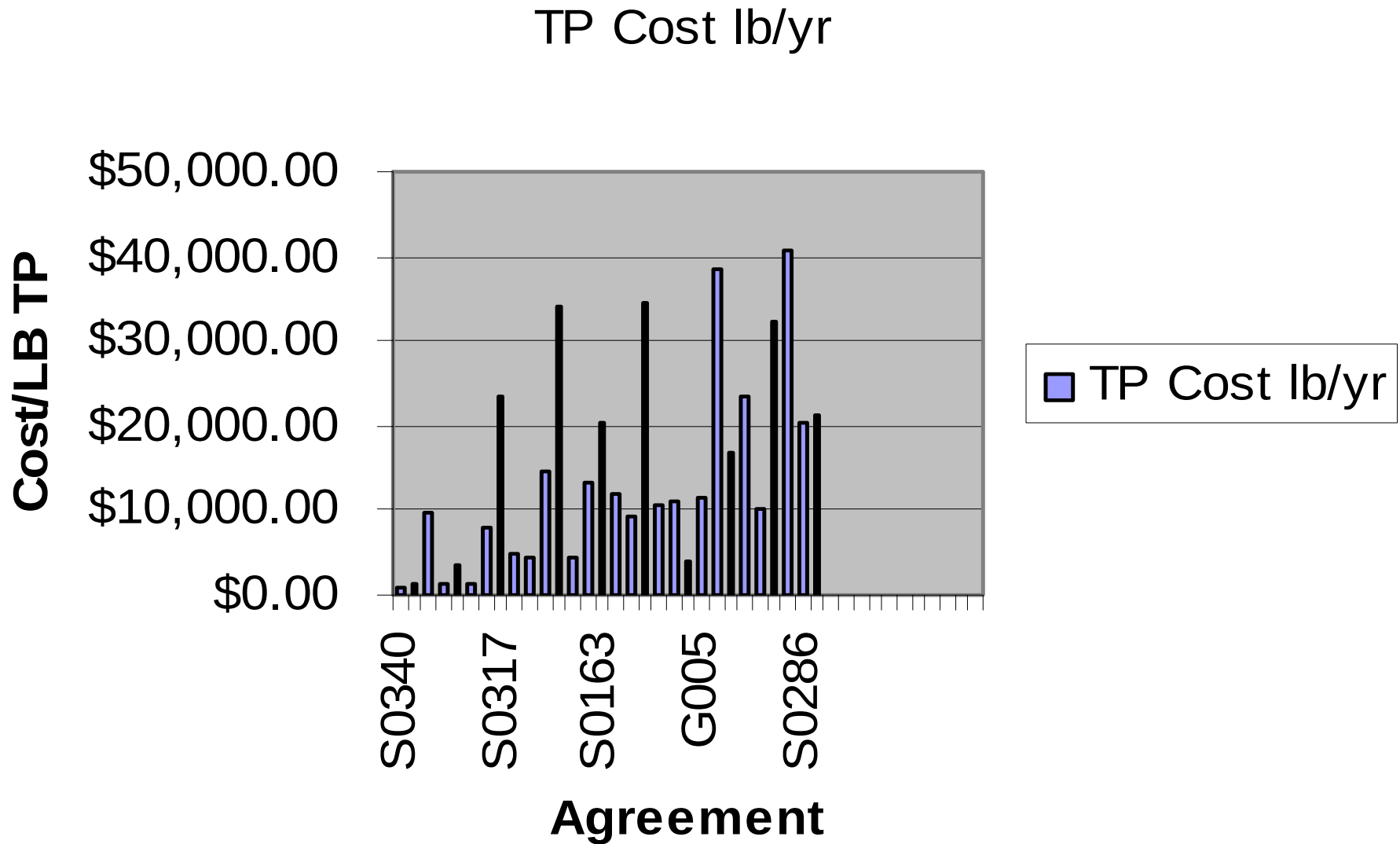
**Big
Money
Problem**

MEETING THE FINANCIAL CHALLENGE

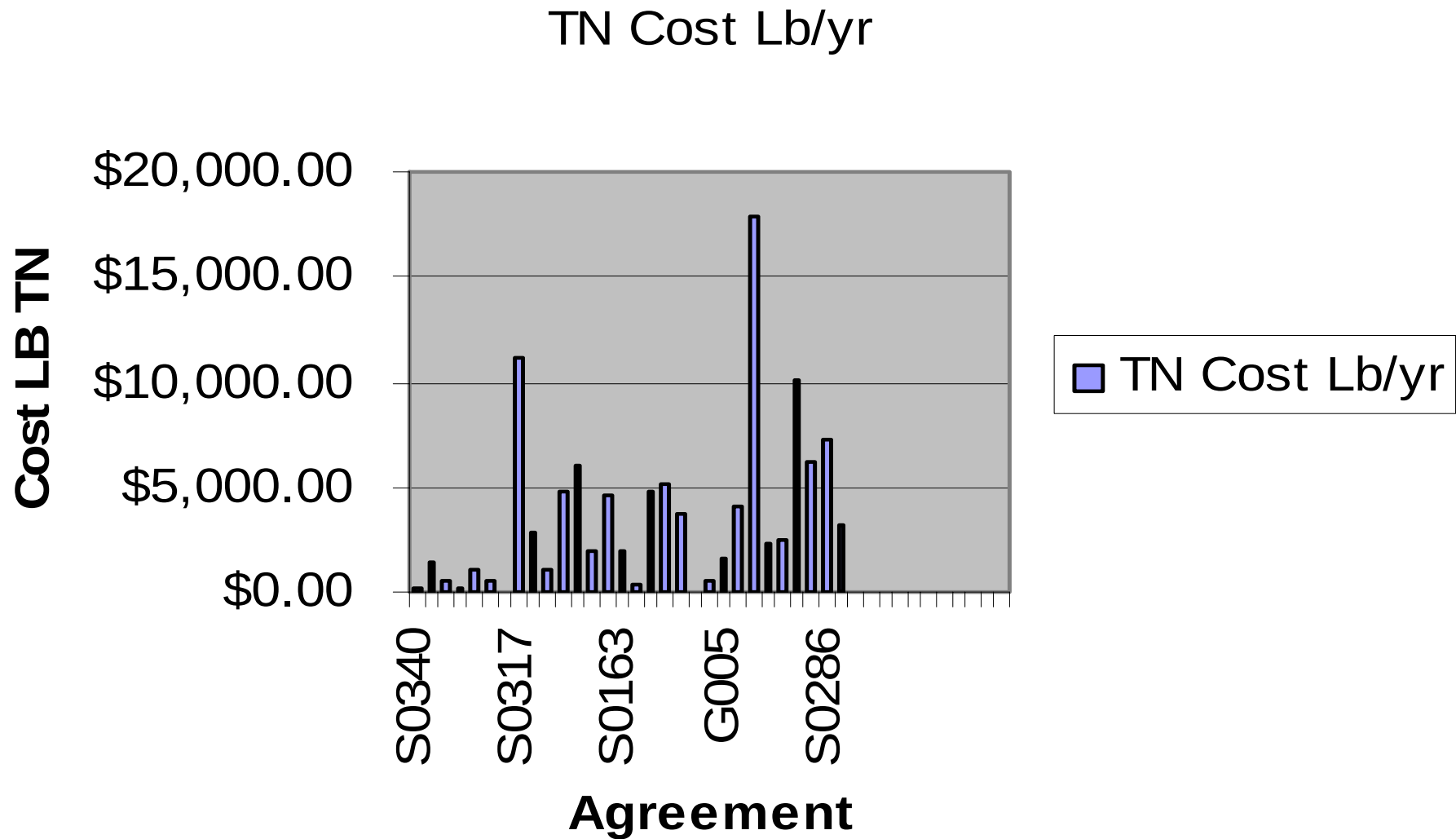
FLORIDA FUNDING SOURCES

- **TMDL Water Quality Grants**
- **Alternative Water Supply Funds**
- **State Revolving Fund**
- **WMD Cooperative Funds**
- **Stormwater utility fee**
- **Farm bill ag BMP cost sharing**
- **WMD/DACS ag BMP cost sharing**

TOO MANY DOLLARS LB



TOO MANY DOLLARS LB



CHAPTER 62-305

TMDL WATER QUALITY RESTORATION GRANTS

- **Effective November 2008**
- **Accept applications continuously**
- **Apply electronically**
- **Remain in grant pool for one year**
- **Review/rank in March, July, November**
- **New form, required EMCs, models**

http://www.dep.state.fl.us/water/watersheds/tmdl_grant.htm

CHAPTER 62-305

TMDL WATER QUALITY RESTORATION GRANTS

305.300 General Program Information

- Match: 50% with 25% from local govt**
- Allowable project costs**
- Project schedule – construct w/in 6 months**
- Load reduction estimates required**
- Effectiveness monitoring required**

CHAPTER 62-305

TMDL WATER QUALITY RESTORATION GRANTS

305.400 Project Selection Criteria

- Maximum points = 490
- Status of impaired water body
- Stormwater load reduction
- Amount of local matching funds
- Cost effectiveness (\$/lb/acre)
- Educational component
- Stormwater utility funding

CHAPTER 62-305

TMDL WATER QUALITY RESTORATION GRANTS

- **\$4.9 million “appropriated”**
- **November revenue projections**
 - **\$2.9 million cash available**
 - **\$1.5 million old money available**
- **Have about \$10 million in projects**
- **Only few projects will get funded right now**

FSA TMDL DAY HANDOUTS

We will post the presentations at:

**[ftp://ftp.dep.state.fl.us/pub/water/
BMAP/FSADec08](ftp://ftp.dep.state.fl.us/pub/water/BMAP/FSADec08)**