

2010 PROGRESS REPORT

For the Lower St. Johns River Main Stem Basin Management Action Plan

*Developed by the
Lower St. Johns River TMDL Executive Committee*

*In cooperation with the
Florida Department of Environmental Protection
Division of Environmental Assessment and Restoration
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LIST OF ACRONYMS

APRICOT	A Prototype Realistic Innovative Community of Today
ATAC	Allocation Technical Advisory Committee
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BNR	Biological Nutrient Removal
CBOD	Carbonaceous Biochemical Oxygen Demand
CCUA	Clay County Utility Authority
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FIT	Florida Institute of Technology
FSU	Florida State University
FYN	Florida Yards and Neighborhood (Program)
HSPF	Hydrologic Simulation Program – Fortran
IPT	In-Pipe Technology
LSJR	Lower St. Johns River
MAPS	Managed Aquatic Plant Systems
MS4	Municipal Separate Storm Sewer System
NAS	Naval Air Station
NNC	Numeric Nutrient Criteria
NS	Naval Station
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PLRG	Pollutant Load Reduction Goals
RO	Reverse Osmosis
RSF	Regional Stormwater Facility
RST	Regional Stormwater Treatment
SCR	Selective Catalytic Reduction
SJRWMD	St. Johns River Water Management District
SRF	State Revolving Fund
SSAC	Site-Specific Alternative Criterion
STORET	STOrage and RETrieval (Database)
TCAA	Tri-County Agricultural Area
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
UF–IFAS	University of Florida–Institute of Food and Agricultural Sciences
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VAC	Vegetable and Agronomic Crops
WAV	Watershed Action Volunteers
WBID	Waterbody identification
WWTF	Wastewater Treatment Facility

EXECUTIVE SUMMARY

TOTAL MAXIMUM DAILY LOADS

The Total Maximum Daily Loads (TMDLs) for the main stem of the Lower St. Johns River (LSJR) Basin were adopted by the Florida Department of Environmental Protection (FDEP) in June 2008. The TMDLs target total phosphorus (TP) and total nitrogen (TN) in the freshwater reach to achieve reductions in the chlorophyll-a levels in this portion of the river. In addition, a TN TMDL was established in the marine reach to meet dissolved oxygen (DO) levels that would be protective of aquatic life uses.

The LSJR Main Stem Basin Management Action Plan (BMAP) was adopted in October 2008 to implement these TMDLs. This 2010 Progress Report is the second annual progress report for the LSJR Main Stem BMAP, and it describes the major accomplishments and issues identified during the reporting period of November 1, 2009 through December 31, 2010.

MAJOR ACCOMPLISHMENTS

There have been many successes in BMAP implementation during the second reporting period. One wastewater treatment facility (WWTF) project in the freshwater section was completed with a reduction of 6,314 kg/yr of TN. This project, in conjunction with previously completed projects, has achieved the TN reductions required for WWTFs in the freshwater section. In addition, 3 wastewater projects were completed in the marine section for a total reduction of 134,115 kg/yr of TN.

In 2010, 2 municipal separate storm sewer system (MS4) projects were completed in the freshwater section for a total reduction of 829 kg/yr of TN. The total reductions in TN have achieved the required reductions for the MS4s in the freshwater reach. The TP reductions were met with the completion of the projects in 2009. An additional 11 MS4 projects were completed in the marine section for a reduction of 11,297 kg/yr of TN. In the freshwater section, 3 non-MS4 TP projects were completed this year yielding 723.2 kg/yr of TP reductions. A total of 7 non-MS4 projects were completed this year for TN, which reduced 7,879 kg/yr of TN. There were also 3 non-MS4 projects completed in the marine section for 881 kg/yr of TN reduction.

The Florida Department of Agriculture and Consumer Services (FDACS) continued to sign up growers under the vegetable and agronomic crop, leatherleaf ferns, sod, and cow/calf best management practice (BMP) manuals. To date, no producers have opted to monitor water quality instead of implementing BMPs. In addition, the St. Johns River Water Management District (SJRWMD) contractors have completed a technical memorandum and associated BMP Optimization Model addressing a nutrient reduction strategy for the freshwater reach for the remainder of the agricultural reductions. Land use assessments of the marine section showed that the dairy operations included in the TMDL loading have since been abandoned; therefore, it does not appear that additional regional treatment options are needed in the marine reach.

BMAP monitoring plan efforts continued in the freshwater section, marine section, and tributaries. The river transect sampling in the freshwater section occurred on schedule in April through October. The 20 new BMAP continuous DO stations were reinstalled in the marine section. The entities have continued the ambient water quality sampling in the tributaries, and the high-flow sampling.

MAJOR ISSUES

The major issue in BMAP implementation this past year has been securing funding for projects. For local governments and water management districts, the economic downturn and subsequent decreases in *ad valorem* taxes and development fees has made it difficult to obtain the funding necessary to implement the BMAP projects. While funding continues to be an issue, this limitation has not caused major delays in implementation of BMAP projects scheduled to be completed during this reporting period. Another major concern for the stakeholders is the potential impact of the U.S. Environmental Protection Agency's numeric nutrient criteria (NNC) for lakes, springs, and flowing freshwaters. The criteria were promulgated on December 6, 2010, and the details of how the criteria will be implemented have not been fully determined. Additional federal NNC for estuarine and marine waters are expected by August 2012. There are concerns that these federal standards could undermine ongoing BMAP efforts by establishing standards (other than the TMDLs) that could result in different reduction requirements than are required in the BMAP.

ACTIVITIES FOR THE UPCOMING YEAR

The third annual BMAP progress report will encompass the period of January 1, 2011 through December 31, 2011. During this time, the City of Green Cove Springs will complete their WWTF project in the freshwater section. The City of Neptune Beach, Clay County Utility Authority, and Town of Orange Park will complete WWTF projects in the marine section. The City of Jacksonville will continue to phase-out septic tanks and design stormwater projects to meet their MS4 allocation and the Florida Department of Transportation will complete 1 stormwater improvement project. For the non-MS4 reductions, Camp Blanding will continue the maintenance and repair of their swales in the marine section. FDACS should have all vegetable, container nursery, sod, and cow/calf operations enrolled in BMPs next year. In addition, all necessary components of the monitoring plan should continue.

SECTION 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

This is the second annual progress report for the Lower St. Johns River (LSJR) Main Stem Basin Management Action Plan (BMAP). **Section 2** and **Section 3** describe the accomplishments and issues, respectively, during the period from November 1, 2009 through December 31, 2010. A summary of efforts for the upcoming year (January 1, 2011 through December 31, 2011) is included in **Section 4**.

1.2 TOTAL MAXIMUM DAILY LOADS FOR THE LOWER ST. JOHNS RIVER BASIN

The area addressed by the LSJR BMAP is that portion of the St. Johns River that flows between the mouth of the Ocklawaha River, its largest tributary, and the Atlantic Ocean, encompassing a 2,750-square-mile drainage area (see **Figure 1**). Within this reach, the St. Johns River is 101 miles long and has a water surface area of approximately 115 square miles. Major centers of population within the LSJR include Palatka, a city of 10,700 at the southern entrance to the basin; Green Cove Springs, a city of 4,700 at the midpoint; and the Orange Park, Middleburg, and Jacksonville metropolitan area, with a population of over 1 million, in the northern portion of the basin. For assessment purposes, the Florida Department of Environmental Protection (FDEP) has divided the LSJR Basin into water assessment polygons with a unique waterbody identification (WBID) number for each watershed or stream reach. The main stem of the LSJR is divided into fifteen WBID segments (see **Figure 1**). The LSJR is also divided into two reaches based on salinity: the marine reach and the freshwater reach (**Figure 2**).

The total maximum daily loads (TMDLs) for the main stem of the LSJR Basin were adopted by FDEP in June 2008. The TMDLs include total phosphorus (TP) and total nitrogen (TN) in the freshwater reach to achieve reductions in the chlorophyll-a levels in this portion of the river. A TN TMDL was also established in the marine reach to meet dissolved oxygen (DO) levels that would be protective of aquatic life uses. **Table 1** lists the TMDLs and pollutant load allocations adopted by rule for the LSJR.

TABLE 1: TMDLS IN THE LOWER ST. JOHNS RIVER BASIN

RIVER SECTION	WBID(s)	TMDL (KG/YR)	TMDL BASELINE LOAD (KG/YR)	WASTELOAD ALLOCATION* (KG/YR)	LOAD ALLOCATION (KG/YR)	OVERALL NEEDED REDUCTION (KG/YR)
Freshwater	2213I to 2213N	500,325 TP	599,610	46,357 TP	453,968 TP	99,285
Freshwater	2213I to 2213N	8,571,563 TN	10,115,552	236,695 TN	8,334,868 TN	1,543,989
Marine	2213A to 2213H	1,376,855 TN	2,453,258	1,027,590 TN	349,265	1,076,403

* Includes a percent reduction from National Pollutant Discharge Elimination System (NPDES) stormwater sources.

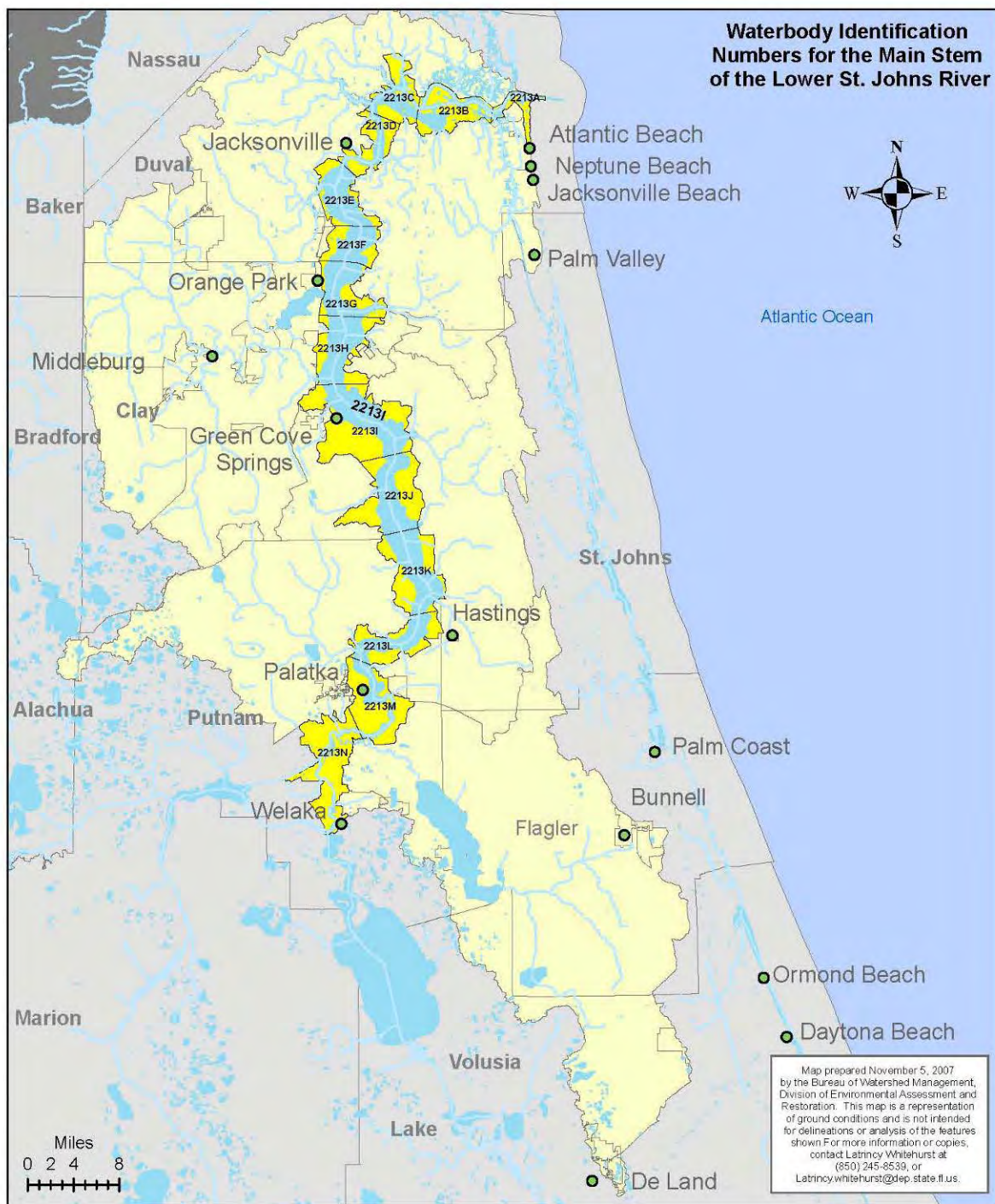


FIGURE 1: LOCATION OF THE LOWER ST. JOHNS RIVER BASIN



FIGURE 2: MARINE AND FRESHWATER REACHES IN THE LOWER ST. JOHNS RIVER BASIN

1.3 RESPONSIBLE PARTIES AND KEY STAKEHOLDERS

The LSJR BMAP identified wastewater treatment facilities (WWTFs), municipal separate storm sewer systems (MS4s), urban areas outside of MS4s (non-MS4 areas), and agricultural sources of TN and TP in the basin. Those entities that are responsible for achieving the load reductions in the freshwater reach are:

- City of Green Cove Springs WWTFs
- City of Palatka WWTF
- Georgia-Pacific WWTF
- Seminole Electric WWTF
- Clay County MS4
- Green Cove Springs MS4
- City of Palatka non-MS4
- Clay County non-MS4
- Putnam County non-MS4
- St. Johns County non-MS4
- Town of Hastings non-MS4
- Town of Welaka non-MS4
- Agriculture

The entities responsible for achieving the load reductions in the marine reach are:

- Anheuser Busch WWTF
- City of Atlantic Beach WWTFs
- City of Jacksonville Beach WWTF
- City of Neptune Beach WWTF
- Clay County Utility Authority (CCUA) WWTFs
- JEA WWTFs
- Naval Air Station (NAS) Jacksonville WWTF
- Naval Station (NS) Mayport WWTF
- Smurfit-Stone Container WWTF
- Town of Orange Park WWTF
- City of Atlantic Beach MS4
- City of Jacksonville/ Florida Department of Transportation (FDOT) MS4
- City of Jacksonville Beach MS4
- City of Neptune Beach MS4
- Clay County MS4
- NAS Jacksonville MS4
- NS Mayport MS4
- St. Johns County MS4
- Town of Orange Park MS4
- Camp Blanding non-MS4
- Clay County non-MS4
- St. Johns County non-MS4
- Agriculture

In addition to these entities, the Florida Department of Agriculture and Consumer Services (FDACS), FDEP, and St. Johns River Water Management District (SJRWMD) are essential to the implementation of the BMAP activities.

1.4 BMAP ALLOCATIONS

The required reductions in the BMAP were developed through an extensive allocation process that built off of the three-step process recommended in the Allocation Technical Advisory Committee (ATAC) Report to the Governor and Legislature (February 2001). “Step 1” and “Step 2” reductions were only applied to nonpoint sources (urban and agriculture) to provide treatment approximately equivalent to the treatment required for domestic and industrial WWTFs. The Step 2 reductions were based on the reduction from nonpoint sources expected from implementation of their respective best management practices (BMPs). Since Step 2 reductions did not result in meeting the assimilative capacity of the river, additional “Step 3” reductions were necessary, which required the same overall percentage reduction from both point and nonpoint sources. The starting point loads and BMAP allocations for each entity in the marine and freshwater reaches of the river are shown in **Table 2** through **Table 4**.

TABLE 2: TN STARTING POINT LOADS AND BMAP ALLOCATIONS IN THE FRESHWATER REACH

SOURCE	SOURCE TYPE	STARTING POINT LOAD (KG/YR)	ALLOCATION (KG/YR)
Georgia-Pacific	WWTF	258,155	165,909
Green Cove Springs WWTFs	WWTF	14,600	9,052
Palatka WWTF	WWTF	60,889	40,795
Seminole Electric	WWTF	21,045	14,732
Future APRICOT/ Reverse Osmosis (RO) Dischargers	WWTF	9,961	9,961
Clay County	MS4	2,770	1,976
Green Cove Springs	MS4	6,961	4,967
Alachua County Non-MS4	Non-MS4	636	0.0
Clay County Non-MS4	Non-MS4	5,579	4,401
Flagler County Non-MS4	Non-MS4	7	7
Hastings	Non-MS4	624	448
Palatka	Non-MS4	9,683	6,908
Pomona Park	Non-MS4	108	108
Putnam County	Non-MS4	43,616	33,976
St. Johns County Non-MS4	Non-MS4	27,277	25,340
Welaka	Non-MS4	1,175	838
Agriculture	Nonpoint Source	310,700	194,336
Upstream Anthropogenic Load	Other Source	4,148,223	2,693,852
Atmospheric Deposition	Other Source	105,688	105,688
Natural Background	Other Source	5,087,856	5,087,856
Total Freshwater TN Loads	Total Load	10,115,552	8,401,150

TABLE 3: TP STARTING POINT LOADS AND BMAP ALLOCATIONS IN THE FRESHWATER REACH

SOURCE	SOURCE TYPE	STARTING POINT LOAD (KG/YR)	ALLOCATION (KG/YR)
Georgia-Pacific	WWTF	63,875	33,182
Green Cove Springs WWTFs	WWTF	3,865	2,397
Palatka WWTF	WWTF	9,955	6,670
Future APRICOT/RO Dischargers	WWTF	3,320	3,320
Clay County	MS4	404.6	212.6
Green Cove Springs	MS4	1,095.7	575.9
Alachua County Non-MS4	Non-MS4	83.8	83.8
Clay County Non-MS4	Non-MS4	767.3	499.4
Flagler County Non-MS4	Non-MS4	0.9	0.9
Hastings	Non-MS4	92.9	49.3
Palatka	Non-MS4	1,507.8	792.5
Pomona Park	Non-MS4	15.8	15.8
Putnam County	Non-MS4	5,990.4	3,964.9
St. Johns County Non-MS4	Non-MS4	3,727.4	3,296.6
Welaka	Non-MS4	172.0	90.4
Agriculture	Nonpoint Source	83,455	70,974
Upstream Anthropogenic Load	Other Source	137,157	76,502
Atmospheric Deposition	Other Source	1,356	1,356
Natural Background	Other Source	282,768	282,768
Total Freshwater TP Loads	Total Load	599,610	486,751

TABLE 4: TN STARTING POINT LOADS AND BMAP ALLOCATIONS IN THE MARINE REACH

SOURCE	SOURCE TYPE	STARTING POINT LOAD (KG/YR)	ALLOCATION (KG/YR)
Anheuser Busch – Main Street	WWTF	24,399	12,418
Atlantic Beach Aggregate	WWTF	49,275	21,863
CCUA Aggregate	WWTF	61,569	84,058
Jacksonville Beach WWTF	WWTF	40,150	23,878
JEA Aggregate	WWTF	1,396,622	654,672
Neptune Beach WWTF	WWTF	11,448	7,014
Orange Park WWTF	WWTF	24,886	9,999
Smurfit-Stone Container	WWTF	145,989	74,305
U.S. Navy WWTF Aggregate	WWTF	27,225	16,118
Future APRICOT/RO Dischargers	WWTF	4,979	4,979
Atlantic Beach	MS4	2,474	976
Clay County Marine MS4	MS4	25,249	10,556
Jacksonville/FDOT	MS4	243,438	96,016
Jacksonville Beach	MS4	4,974	1,941
Neptune Beach	MS4	1,484	585
Orange Park	MS4	3,451	1,289
St. Johns County	MS4	3,057	746
U.S. Navy MS4s	MS4	7,530	2,798
Camp Blanding – State of Florida	Non-MS4	2,870	1,220
Clay County Marine Non-MS4	Non-MS4	12,051	4,898
St. Johns County Marine Non-MS4	Non-MS4	9,846	4,865
Agriculture	Nonpoint Source	12,800	4,170
Atmospheric Deposition - Marine	Other Source	95,028	95,028
Natural Background	Other Source	242,300	242,300
Total Marine TN Loads	Total Load	2,453,094	1,376,692

1.5 NUMERIC NUTRIENT CRITERIA

On December 6, 2010, the U.S. Environmental Protection Agency (EPA) promulgated numeric nutrient criteria (NNC) for freshwater streams, springs, and lakes in Florida. As part of the NNC rule, EPA allows for the submission of existing TMDLs for consideration to be adopted as site-specific alternative criterion (SSAC). The TMDLs have been developed with more waterbody-specific data and, as SSACs, would supersede the generally applicable regional criteria. EPA is currently drafting guidance on how to prepare SSAC documentation for EPA approval. As of the time of this report, FDEP and the Executive Committee are working to better understand EPA's expectations for implementation of the NNC rule and the SSAC provision.

EPA is also in the process of developing criteria for estuary systems, which will include the marine section of the LSJR, and the draft estuary NNC will be released in November 2011.

1.6 LOWER ST. JOHNS RIVER WATER QUALITY ISSUES

During the spring and summer of 2010, there were a series of environmental events that occurred in the LSJR Basin, including an algal bloom, fish kill, and foam on the river. The bloom was the cyanobacteria *Aphanizomenon*, which is not the species typically found in algal blooms in the LSJR. The bloom was mainly located in the freshwater and low salinity areas of the river. In late May 2010, there was a spike in the salinity, which caused the bloom to die-off. During this time there was a subsequent fish kill, which lasted until July 2010. However, when the bloom crashed, the typical low DO concentrations did not occur. The cause of the fish kill is still being explored, since water quality does not seem to be a factor, but it appears that the fish kill was due to exposure to microcystin, which is a toxin. Also during this time, foam appeared on

the river. The composition and cause the foam are still being studied but it appears that the foam may be a natural byproduct of the algae breaking down.

While these events are discouraging as indicators of the river's health, it is important to note that the TMDL has not yet been achieved and that this 2010 annual BMAP progress report demonstrates that the stakeholders in the LSJR Basin continued to make nutrient reductions in 2010, and have begun the planning and design of additional projects. With full implementation of the projects outlined in the BMAP, the conditions in the river should improve such that events like those observed in 2010 should be minimized.

SECTION 2: MAJOR ACCOMPLISHMENTS

2.1 SUMMARY OF EFFORTS

There have been many successes in BMAP implementation during the reporting period. One WWTF project in the freshwater section was completed with a reduction of 6,314 kg/yr of TN. This project, in conjunction with previously completed projects, has achieved the TN reductions required for WWTFs in the freshwater section. In addition, 3 wastewater projects were completed in the marine section for a total reduction of 134,115 kg/yr of TN. Over the last year, 2 MS4 projects were completed in the freshwater section for a total reduction of 829 kg/yr of TN. The total reductions in TN have achieved the required reductions for MS4s in the freshwater reach. The TP reductions were met with the completion of the projects in 2009. An additional 11 MS4 projects were completed in the marine section for a reduction of 11,297 kg/yr of TN. In the freshwater section, 3 non-MS4 TP projects were completed this year yielding 723.2 kg/yr of TP reductions. A total of 7 non-MS4 TN projects were completed this year, which reduced 7,879 kg/yr of TN. There were also 3 non-MS4 projects completed in the marine section for 881 kg/yr of TN reduction.

FDACS has continued to sign up growers under the vegetable and agronomic crop, leatherleaf ferns, sod, and cow/calf BMP manuals. To date, no producers have opted to monitor water quality instead of implementing BMPs. In addition, SJRWMD contractors have completed a technical memorandum and associated BMP Optimization Model addressing a nutrient reduction strategy for the freshwater reach for the remainder of the agricultural reductions. Land use assessments of the marine section showed that the dairy operations included in the TMDL loading have been abandoned; therefore, it does not appear that additional regional treatment options are needed in the marine reach to treat agricultural runoff.

BMAP monitoring plan efforts have continued in the freshwater section, marine section, and tributaries. The river transect sampling in the freshwater section occurred on schedule in April through October. Two new BMAP continuous DO stations were reinstalled in the marine section. The entities have continued the ambient water quality sampling in the tributaries, and the high-flow sampling.

Additional details about the accomplishments over the past year are described in **Section 2.2** through **Section 2.4**. The individual project tables are included in **Appendix A**, and photographs of project implementation efforts are included in **Section 2.2** and **Appendix C**.

2.2 ACCOMPLISHMENTS BY SOURCE TYPE

2.2.1 WASTEWATER TREATMENT FACILITIES

2.2.1.1 Freshwater Section

City of Green Cove Springs

The City of Green Cove Springs is working on the design for the WWTF upgrade with Mittauer & Associates as the engineer on the project. Due to Magnolia Point Golf Course's reduced levels of reuse usage in comparison to those that were typical during completion of the original BMAP, the city has to upgrade to a 5-stage Bardenpho treatment process as opposed to a Modified Ludzack-Ettinger treatment process at the South WWTF (project GCS-2). This treatment upgrade will be accomplished by the construction of an oxidation "ditch" that will allow the city to

reduce TN and TP to advanced levels. Chemical addition is still planned for TP removal, but the design will attempt to reduce as much as possible via biological treatment.

The city has explored the option of using reuse at the River Bend Golf Course (formerly Cattail Creek) near the South WWTF. However, this project was deemed ineffective in comparison to constructing the oxidation ditch due to the necessary plant improvements to meet reuse standards, the potential short-term life of the golf course (depends on the FDOT "Outer Beltway"), and the ongoing economic concerns for their business operation.

If Magnolia Point reuse remains around current levels (0.19 million gallons per day for average annual daily flow) and the South WWTF project included construction of an oxidation ditch with advanced wastewater treatment standards, then the city will remain in compliance with the current FDEP Administrative Order requirements. However, to further bolster the city's position to reduce TN and TP levels reaching the St. Johns River, the city is reviewing options to complete a \$2,000,000 project to install residential reuse within Magnolia Point (project GCS-1). Given the capital outlay needed for the South WWTF improvements, the city will require grant proceeds to complete such a project.

Through operational controls, the plant operators (Mike Williams, Lead Operator) have been able to consistently reduce TN and TP levels at the Harbor Road WWTF. They have been able to reduce TN from an average of 10 mg/L a year ago to an average of 5-6 mg/L. They have reduced TP from an average of 3-4 mg/L to well below 1 mg/L. There have been no capital expenses to support their efforts. They have accomplished this by controlling the air throughout the aeration basin to create "anoxic" zones thus denitrifying, and through modifying their wasting practices to ensure TP that is consumed biologically is not deposited back into the system within the clarifier as the mixed liquor approaches anoxic/anaerobic conditions.

City of Palatka

The City of Palatka WWTF zero discharge project (PAL-5) involved several phases. Phase 1 was the construction in 2006 of the golf course irrigation system which included piping from the WWTF to the golf course, holding pond, pump station and golf course irrigation (project PAL-1). Phase 2 was the construction in 2008 of a pump station, 17,000 linear of main line distribution piping, and 15,000 linear of irrigation piping. Phase 3, which was constructed in 2010, included an additional 15,000 linear feet of main line distribution piping and 7,500 linear feet of irrigation piping. These projects in total have connected several large recreational areas, the cemetery, the airport as well as the SJRWMD to the reuse system for irrigation (projects PAL-2 and PAL-3). Phase 4, which will be constructed in 2011, will consist of upgrading the treatment capacity of the WWTF to fully filter and treat the 3.5 million gallon per day design capacity of the WWTF. A Phase 5 associated with this project was constructed in 2009 at the city's water treatment plant that reduced the amount of backwash water associated with the new treatment process (PAL-4). The above projects (Phases 1 through 5) are estimated to have cost the city nearly \$8.5 million to construct. The BMAP includes a completion date of December 31, 2010 for the zero discharge project (PAL-5). This project will now be completed by March 30, 2012. However, this project provides additional reduction credit, beyond the city's BMAP requirements. Therefore, the city is still in compliance with their BMAP provisions.

In addition, the city constructed a nutrient separating baffle box within one of its largest drainage basins (399 acres) to the St. Johns River. This project is expected to significantly reduce the phosphorus and nitrogen loading from this basin. The cost of this project without engineering and land acquisition, which was provided by the local landowner, was nearly \$300,000.

The City of Palatka has entered into the BMAP program with the goal of meeting the mandated reduction. Through the cooperative efforts of SJRWMD, FDEP, and city leadership, the City of Palatka increased the goal to being the first city to ultimately remove all of its wastewater from the St. Johns River. The above referenced projects have allowed the city to construct over 6 miles of distribution piping and 4 miles of irrigation piping to give the city the opportunity to remove its wastewater from the St. Johns River. The WWTF upgrade project will be constructed in 2011 while the city concurrently works to optimize reuse options and output during this same time period. It is also very likely depending on the need and the availability that the city will consider making available the reuse water for other uses including irrigation of homeowner's lawns.



FIGURE 3: CITY OF PALATKA INSTALLATION OF RECLAIMED WATER PIPING

Seminole Electric

The selective catalytic reduction (SCR) units at the Seminole Electric facility are working as predicted. Seminole Electric installed new intake water flow meters to improve the accuracy of discharge calculations and found that process water management at the facility has resulted in less mass loading of TN than originally anticipated. The actual net mass loading of TN in 2010 was 9,664 kg/yr, compared to the original estimate of 27,390 kg/yr.



FIGURE 4: SEMINOLE ELECTRIC UPGRADES

WWTF Progress Towards the Freshwater TMDLs

Figure 5 and **Figure 6** show the progress made towards meeting the WWTF portion of the freshwater TP and TN TMDLs. The first bar in the figures shows the starting load for the freshwater WWTFs as calculated in the BMAP. The second bar shows the estimated 2010 load based on all completed freshwater WWTF projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the WWTFs in the freshwater section of the river. With the completion of projects during the reporting period, the WWTFs in the freshwater section have achieved their portion of the TN TMDL.

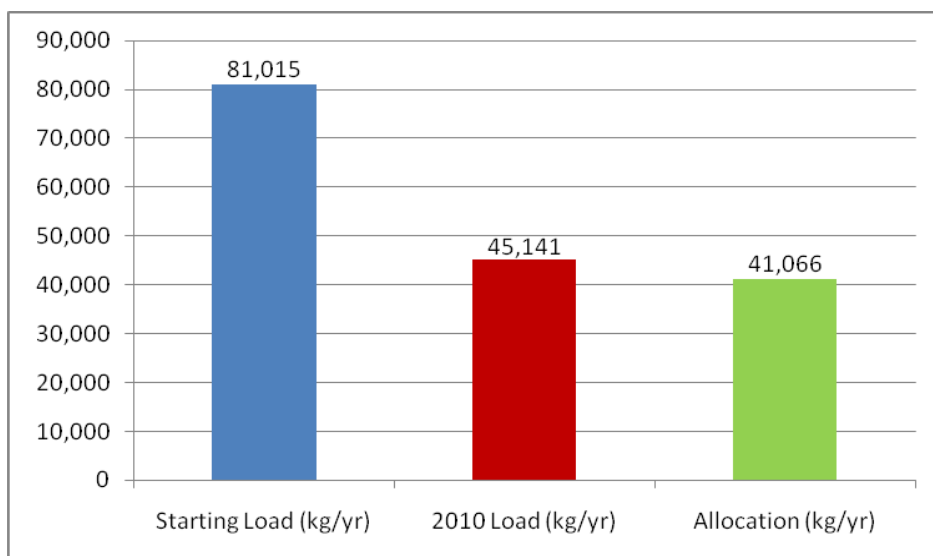


FIGURE 5: WWTF PROGRESS TOWARDS THE TP FRESHWATER TMDL

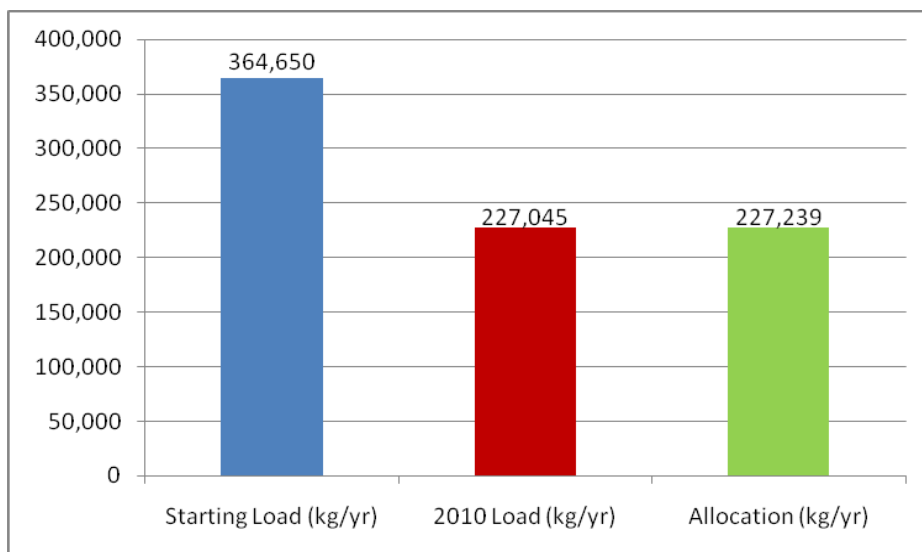


FIGURE 6: WWTF PROGRESS TOWARDS THE TN FRESHWATER TMDL

2.2.1.2 Marine Section

City of Atlantic Beach

The City of Atlantic Beach's overall BMAP project was modified, and a modified Administrative Order was received from FDEP. The revised BMAP project is to upgrade the Main WWTF to provide biological nitrogen removal, to transfer flow from the Buccaneer WWTF to the Main

WWTF, and phase out the Buccaneer WWTF. During the past year, plans and specifications were completed for the entire project. Construction contracts were awarded by the City Commission on December 13, 2010, and bids came in well under budget. The project is currently on schedule.

City of Jacksonville Beach

The City of Jacksonville Beach WWTF project (JB-1) is ahead of the proposed BMAP schedule and construction is progressing in a timely manner. WWTF construction is approximately 90% complete and is scheduled to be substantially completed by next summer.



Note: The circular structures will be the new sequencing batch reactor tanks.

FIGURE 7: AERIAL VIEW OF THE NEW JACKSONVILLE BEACH WWTF AND CONSTRUCTION AREA

City of Neptune Beach

The TMDL construction efforts at the City of Neptune Beach WWTF are 36% complete, and the filtration facilities should be operational by the end of January 2011. In-Pipe Technology (IPT) has provided a significant reduction for both TN and carbonaceous biochemical oxygen demand (CBOD) at the WWTF. The City of Neptune Beach chose IPT to improve the nutrient and organic removal performance and reduce operating expenses associated with wastewater treatment. IPT is a patented process for adding high concentrations of live, facultative, heterotrophic bacteria into the collection system; the engineered process transforms what is normally regarded as a passive conveyance system into a biofilm-based pretreatment reactor. As a result, the incoming pollutant load to the plant is lower and more easily processed and the existing treatment process is enhanced.

Since IPT started serving the City of Neptune Beach in August 2009 the average CBOD of the WWTF effluent water dropped by nearly 50% from 17 lbs/day to 9 lbs/day. This translates into nearly 1.5 tons less CBOD entering the St. John's River every year. In addition the average daily effluent nitrogen went from 126 lbs/day to 86 lbs/day, which is a reduction of over 30% compared with baseline conditions and a savings of nearly 7.5 tons of nitrogen from being discharged into the St. John's River each year. The city also saved significant electrical energy because the IPT bacteria do not require the higher levels of aeration normally associated with wastewater treatment processes. Greater savings and lower effluent levels could have been achieved but for the fact that the existing aeration process equipment could not be further enhanced.

The WWTF is currently undergoing a retrofit to convert the process from its current configuration (contact stabilization) to an integrated fixed film activated sludge system. During the retrofit the plant will be limited to operating with just half of the available biological processing capacity. The benefits of IPT service to improve the efficacy and efficiency of wastewater biological treatment during the retrofit period will ensure that the plant maintains acceptable operations, even while running with reduced treatment capacity. This reduction will benefit the St. Johns River most significantly for the 30 to 36 month period leading up to the complete process improvements deadline for project NB-1 in the BMAP.



FIGURE 8: NEPTUNE BEACH WWTF UPGRADE

Clay County Utility Authority

CCUA completed the Orange Park Transmission Main project including the expansion of the Spencer's WWTF and upgrade of the Miller Street WWTF to provide filtration and high level disinfection. Facilities include new effluent filters, disinfection basins, transfer pumping station, 2 million gallon ground storage tank, and high service pumping station. The reclaimed water transmission main project was completed in December 2010 and CCUA is ready to begin testing the main. Once the pipeline testing is complete, the system will be placed into service and reclaimed water will be transferred from CCUA's Miller Street WWTF and the Town of Orange Park's WWTF in 2011. Because of the economic slowdown, bid prices were low during the entire construction period for the Orange Park Transmission Main project. The Engineer's original estimate for the project was \$25,349,148. The total actual cost of the work, which is substantially completed at this point, was \$23,687,597 or \$1,661,551 less than the original estimate.



FIGURE 9: PHASE 1 REUSE FACILITIES AT CCUA'S MILLER STREET WWTF

JEA

The biological nutrient removal (BNR) improvements at the Arlington East facility were completed ahead of schedule, and the facility is performing very well (project JEA-13). The phase-out of the Beacon Hills facility was completed in early September 2010 (project JEA-10). The flow for this plant is now sent to the Arlington East facility. JEA's Aggregate Permit TN annual total for the most recent 12 month period (November 2009 – October 2010) was 1,332,010 lbs, or 666 tons, which is well below JEA's final allocation of 720 tons. This is attributable to the ongoing projects being performed, as well as favorable climatic conditions in 2010.



FIGURE 10: JEA UPGRADES AT THE ARLINGTON EAST WWTF

Town of Orange Park

During the past year, the Town of Orange Park has completed Phase 1 of the Ash Street Advanced Wastewater Treatment Project (OP-1), began construction of Phase 2 of the Ash Street Advanced Wastewater Treatment Project (OP-2), closed out Consent Order 04-0179, and significantly reduced TN discharged from the town into the St. Johns River.

Since December 2007, the town has been executing a plan to rehabilitate the existing WWTF to achieve the BMAP goals for the town. Phase 1 of the plan was substantially completed by July 31, 2010. During 2010, the town reduced TN effluent from the Ash Street WWTF by 15,953 kg/year or 35,906 lbs/year. This represents a 56.6% reduction in stormwater and wastewater TN discharge from the starting point load. With these reductions, the town is approximately 94% complete in meeting its BMAP TN reduction goals. Phase 1 of the Ash Street WWTF Improvements has been so effective in removing nutrients that the town anticipates removing the Phase 3 of the project from the BMAP schedule and from the town's Administrative Order. The town anticipates completing Phase 2 and exceeding its BMAP reductions by January 2012.

The success story of 2010 is the unique combination of biological alterations in the wastewater collection system, equipment capability, and plant operator skills in optimizing reductions in TN effluent from the Ash Street WWTF. **Figure 11** depicts the weekly effluent concentrations of TN and ammonia in 2010. Throughout the reporting period, the town faced numerous challenges in achieving nutrient reductions; however, the town succeeded in making large TN reductions because of the following:

1. *Use of facultative bacteria (from IPT) in the wastewater collection system created biological conditions that matched the plant mechanical design.*
2. *Use of mixer-aerator systems (from Invent, Inc.) created flexibility to match aeration requirements with the oxygen needs of the facultative bacteria.*
3. *The town's wastewater operators were observant and innovative in controlling the new equipment and biological processes to maximize nutrient removal.*

An important benefit to use of IPT biotechnology and Invent equipment has been the continued reduction of electrical consumption at the Ash Street WWTF. Energy efficiency has an intangible benefit in TN reduction over the entire Lower Basin since much of the base load electricity for the Ash Street WWTF is generated using fossil fuels, which contribute to atmospheric deposition of nitrogen. **Figure 12** depicts the reduction of electric consumption (in kilowatt/hours per day) for the Ash Street Public Works compound, which supports water treatment, wastewater treatment, and other public works functions. All reductions in energy consumption are the result of efficient energy use at the Ash Street WWTF.

The town staff continues to explore some of the unique capabilities of the Ash Street biological processes and treatment equipment. Although the town has no phosphorous wasteload allocation, the town is beginning to examine the effects of IPT facultative bacteria on phosphorous removal. Currently, town effluent TP concentration is less than 1 mg/L with no chemical addition during the treatment process.

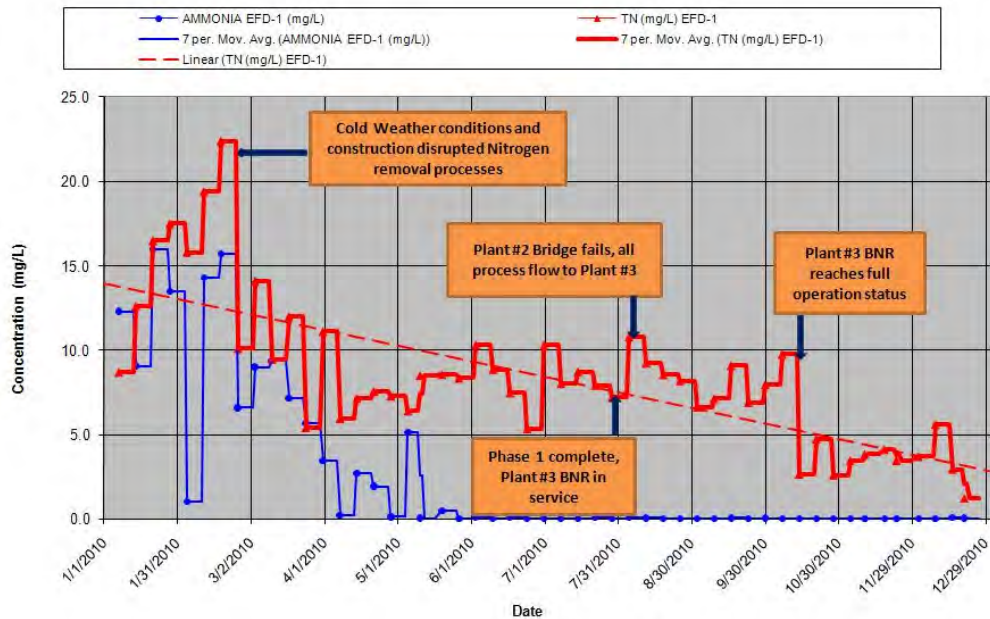


FIGURE 11: TOWN OF ORANGE PARK ASH STREET WWTF TN AND AMMONIA EFFLUENT CONCENTRATIONS

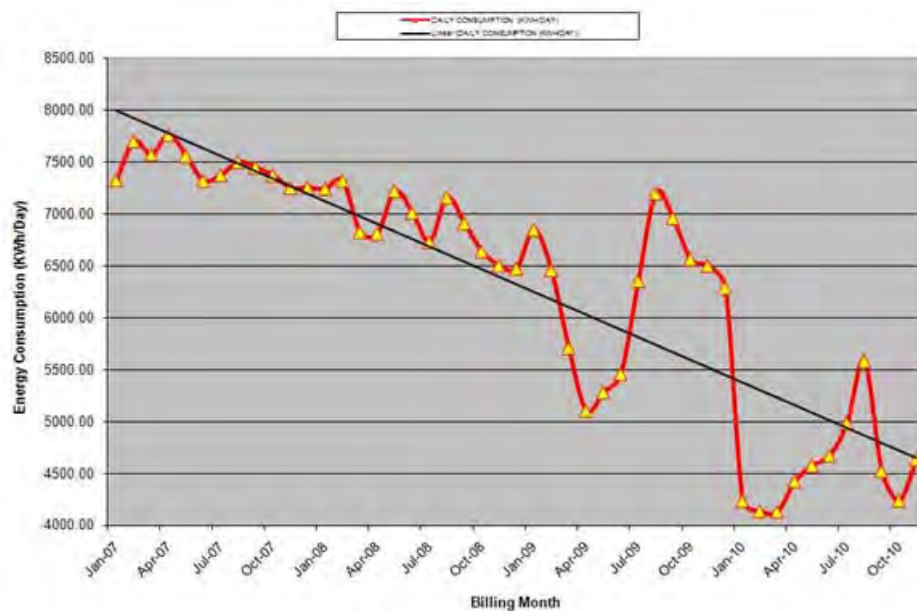


FIGURE 12: TOWN OF ORANGE PARK ASH STREET WWTF ENERGY CONSUMPTION

U.S Navy

The Navy received funding in 2010 for Phase 1 of the Reuse Expansion project at NAS Jacksonville (project USN-2). This project will provide reuse water to the NAS Jacksonville golf course. The project will install pumps and controls at the WWTF, piping across the Station, a holding pond on the golf course, and a pump station and controls for connection to the golf course irrigation system. The construction contract was awarded in September 2010 with construction starting in January 2011. The construction time is estimated to be 6-9 months, depending on the weather.

WWTF Progress Towards the Marine Section TMDL

Figure 13 shows the progress made towards meeting the WWTF portion of the marine TN TMDL. The first bar in the figure shows the starting load for the marine WWTFs as calculated in the BMAP. The second bar shows the estimated 2010 load based on all completed marine WWTF projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the WWTFs in the marine section of the river.

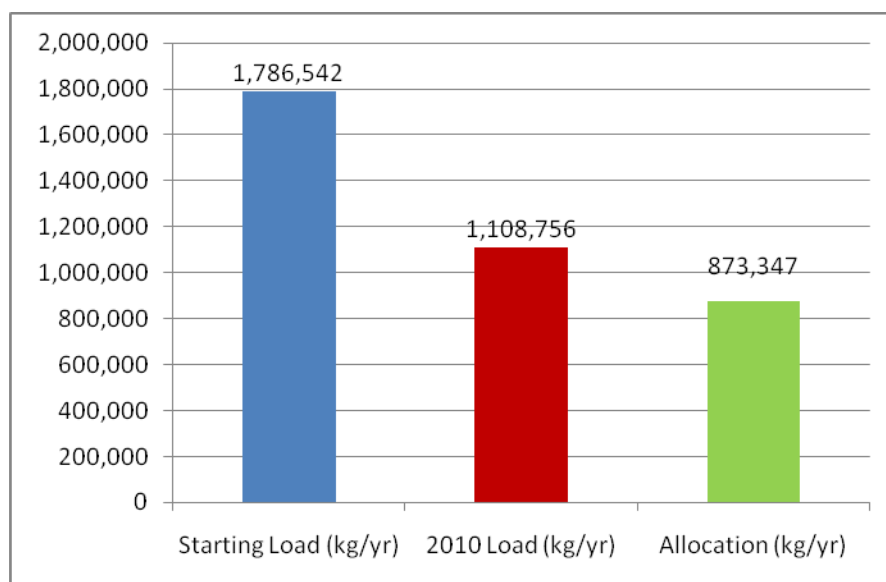


FIGURE 13: WWTF PROGRESS TOWARDS THE TN MARINE TMDL

2.2.1.3 Project Implementation Status

The section above described all the efforts in the past year related to project implementation including design and construction. These are important milestones that lead to project completion and actual load reductions. The WWTF projects that were completed during the last year and their associated load reductions are shown below in **Table 5** for the freshwater section of the river and **Table 6** for the marine section.

TABLE 5: WWTF PROJECTS COMPLETED IN THE FRESHWATER SECTION FOR TN (NOVEMBER 2009 – DECEMBER 2010)

ENTITY	PROJECT NUMBER	DESCRIPTION	TN PROJECT REDUCTION (KG/YR)
Seminole Electric	SE-1	SCR Upgrade	6,314
Total	-	-	6,314

TABLE 6: WWTF PROJECTS COMPLETED IN THE MARINE SECTION (NOVEMBER 2009 – DECEMBER 2010)

ENTITY	PROJECT NUMBER	DESCRIPTION	TN PROJECT REDUCTION (KG/YR)
Town of Orange Park	OP-1	Ash Street WWTF Phase One Improvements	15,943
JEA	JEA-10	Beacon Hills complete phase out	5,700
JEA	JEA-13	Arlington East complete process improvements	118,172
Total	-	-	139,815

2.2.2 MS4s

2.2.2.1 Freshwater

Clay County

Clay County has continued their education program (project CC-1) over the last year. The Florida Yards and Neighborhoods (FYN) Program was very active. Efforts through FYN included 39 program presentations by the FYN Agent and 26 programs by the Master Gardener volunteers to individual homeowners, organized clubs, and plant societies; attended 10 fairs, festivals, exhibits, and plant clinics to deliver materials on FYN practices; developed 8 PowerPoint presentations; published 24 issues of county newsletters; and used mass media (newspapers) on 84 occasions to deliver information.



FIGURE 14: CERTIFIED FLORIDA FRIENDLY YARD IN CLAY COUNTY

Clay County also uses video public service announcements, which are run before Clay County Commissioner meetings and during meeting breaks. These educational videos and the Commissioner meetings are available to the public via the public access television channel. In addition, the videos are indexed and available at the Clay County website: http://clayfl.swagit.com/Storm_Water_Management/. Clay County prepared a flyer titled, "Help Protect Your Watershed," which explains illicit discharges and how citizens can report and prevent these discharges (see **Appendix C** for a copy of the flyer). The flyer was distributed to county residents in June 2010 with their quarterly water/sewer bill from CCUA. Clay County also maintains a stormwater section on their website, which is available through the navigation pane of the main website: <http://www.claycountygov.com/>. Basic information related to erosion control, stormwater discharges, and the NPDES program is available. Additionally, Clay County inspects for illicit discharges through their compliance department and maintains a call-in number for illicit discharges. This number is available at their website and was included on the informational flyer.

In addition to the activities listed above, the county conducts several outreach activities in coordination with the Watershed Action Volunteers (WAV) and other organizations. Examples of these activities include science night at Oakleaf Elementary School sponsored by WAV; a WAV booth at the Clay County Fair in Green Cove Springs; a school fieldtrip to Camp Chowenwaw, located along Black Creek; clean up in the Black Creek Ravines Preserve; the

Florida Youth Challenge Academy clean-up at Crosby Sanctuary in Orange Park; and monofilament recycling at the Eagle Harbor Foot Dock on Doctor's Lake.



FIGURE 15: SCIENCE NIGHT AT OAKLEAF ELEMENTARY SCHOOL SPONSORED BY WAV

MS4 Progress Towards Meeting the Freshwater TMDLs

Figure 16 and **Figure 17** show the progress made towards meeting the MS4 portion of the freshwater TP and TN TMDLs. The first bar in the figures shows the starting load for the freshwater MS4s from the BMAP. The second bar shows the estimated 2010 load based on all completed freshwater MS4 projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the MS4s in the freshwater section of the river. As shown in the figures, the MS4s in the freshwater section have met the TP and TN reductions required under the BMAP.

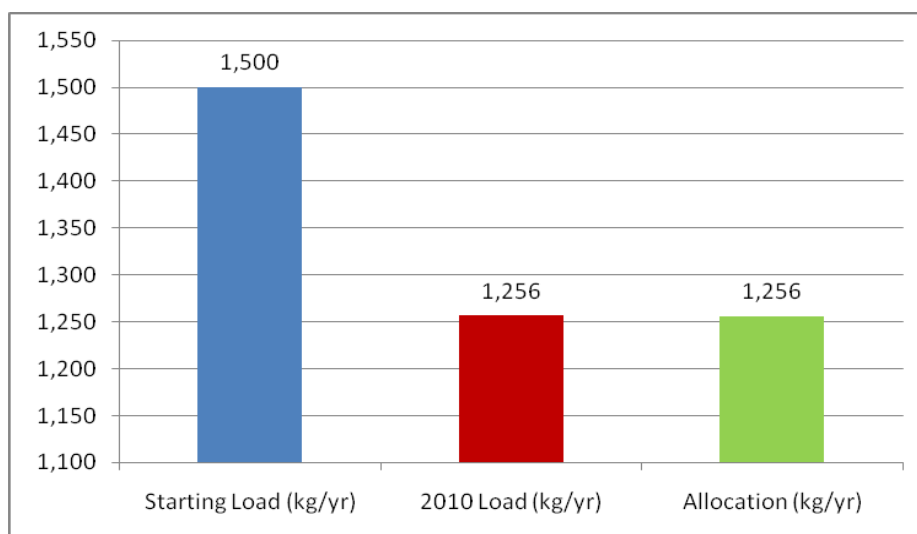


FIGURE 16: MS4 PROGRESS TOWARDS THE TP FRESHWATER TMDL

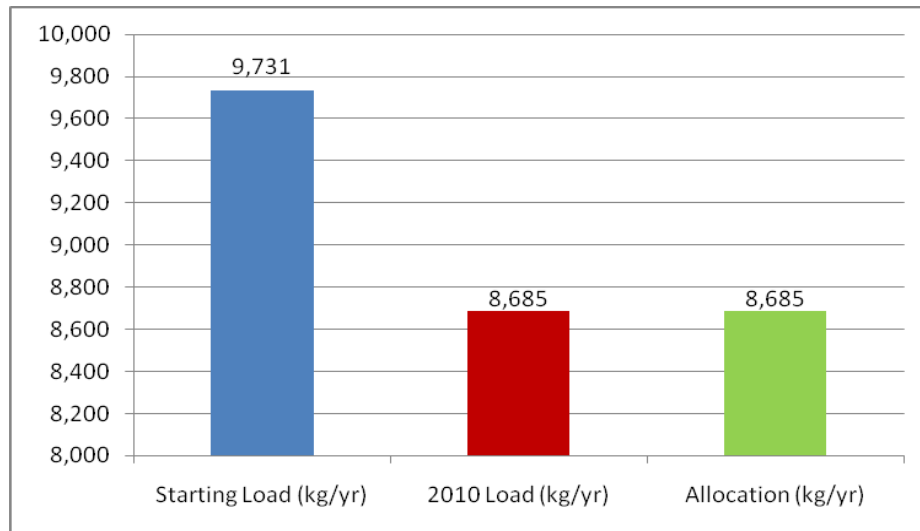


FIGURE 17: MS4 PROGRESS TOWARDS THE TN FRESHWATER TMDL

2.2.2.2 Marine

City of Jacksonville

To meet the reductions associated with the septic tank phase-out project (COJ-52), the City of Jacksonville in cooperation with the Water and Sewer Expansion Authority has made approximately 350 sewer connections to properties on a voluntary basis and has several projects geared toward septic tank failure areas. COJ is currently funding sewer extensions to 515 septic systems in Oakwood Villa Estates Phase 2. The Lincoln Villas Phase 1 Septic Tank Phase-out Project was completed, providing approximately 85 septic tanks with connection to central sewer facilities. Finally, Lincoln Villas Phase 2 has completed design and is expected to break ground in 2011, providing sewer connections for an additional 197 properties. Of the 600 connections provided through the Oakwood Villas Phase 2 and Lincoln Villas Phase 1 projects, approximately 295 occur within 300 meters of surface waters.

Based on the methodology submitted with the city's BMAP projects, the completion of these 2 projects represents a reduction of 2 metric tons of TN per year. As outlined in the BMAP, FDEP is conducting a study to quantify nutrient contributions from failing septic tanks to area waterways (refer to **Section 2.3.2.1**). Results of the study will be used to quantify the final water quality credits applicable to the city's septic tank phase-out projects. The initial study results were expected in late 2010; however, the completion date has been revised to summer 2011. Accordingly, the language in the city's project table footnote was modified to reflect this change, with the new deadline for a detailed septic tank phase-out plan and additional projects or purchase of water quality credits, as needed, within 6 months of the septic tank study completion.

In order to maximize nutrient reductions, the city has developed a dedicated amount of \$2 million annually allocated to septic tank phase-outs. These funds are intended to fund both septic tank phase-out construction projects as well as to subsidize connection fees for residents. The connection fee subsidy will dramatically increase connections to the new collection system. Additionally, the City of Jacksonville will be revising its septic tank ordinance and developing ranking criteria for phase-outs that includes a water quality/environmental impact component in addition to the more traditional public health component.

Also during 2010, the City of Jacksonville completed construction for 4 stormwater treatment projects, began implementation for 4 projects, completed design on 4 projects, and initiated design on 3 projects as listed in **Table 7**. Of the projects completed and under construction, most are wet detention facilities with associated water quality benefits. These benefits are outlined in **Table 7**.

TABLE 7: STATUS OF CITY OF JACKSONVILLE STORMWATER TREATMENT PROJECTS

COJ PROJECT NAME	BMAP PROJECT NAME	PROJECT NUMBER	STATUS	TECHNOLOGY
Melba/Green Street	LSJR Upstream of Trout River	COJ-42	Complete	Flood Control
Smith Broward Pond	LSJR Upstream of Trout River	COJ-42	Complete	Wet Detention
Woodland Acres/Oakwood Villa Area Drainage Phase I	Arlington River	COJ-44	Complete	Wet Detention
Hugh Edwards Road Drainage	Ortega River	COJ-43	Construction	Wet Detention
Pine Forest/Larsen Acres	LSJR Upstream of Trout River	COJ-42	Construction	Wet Detention
Upper Deer Creek Phase 3	LSJR Upstream of Trout River	COJ-42	Construction	Wet Detention with Managed Aquatic Plant Systems (MAPS)
Venetia Terrace Drainage	Ortega River	COJ-43	Construction	Erosion Control and Wet Detention
Newtown Drainage Main Trunk-Line Improvement	LSJR Upstream of Trout River	COJ-42	Design Complete	Wet Detention
Air Liquide Pond Retrofit	LSJR Upstream of Trout River	COJ-42	Design Complete, Permitting	Wet Detention
McCoys Creek Pond C	LSJR Upstream of Trout River	COJ-42	Design Complete, Permitting	Wet Detention
Mireulo Circle	LSJR Upstream of Trout River	COJ-42	Design Complete, Permitting	Wet Detention
Paul Avenue Outfall	LSJR Upstream of Trout River	COJ-42	Design Complete, Permitting	Wet Detention
Hamilton Jersey Outfall	LSJR Upstream of Trout River	COJ-42	Design in Progress, Permitting	Erosion Control
Pinedale Area	Ortega River	COJ-43	Design in Progress	Flood Control
Country Creek Area Drainage Improvements	Ortega River	COJ-43	Study in Progress	Wet Detention

The city's Master Stormwater Management Plan has been completed for a majority of sub-basins within the LSJR Basin. **Table 8** outlines the recommended projects and associated water quality benefits. This list of projects is being compiled into a master list of projects prioritized for the entire county. This list may change as the county-wide prioritization is completed. Any additional changes to the list of proposed projects will be included in subsequent BMAP updates. **Figure 18** below summarizes the nutrient reduction goals listed in the BMAP, those proposed through master plan projects, and those already realized through project implementation since BMAP adoption.

TABLE 8: RECOMMENDED STORMWATER PROJECTS AND ESTIMATED TN REDUCTIONS

B MAP PROJECT	PLAN DESCRIPTION	TN REMOVAL (KG/YR)	COST
Arlington River	Channel Reinforcing, Putnam Hudnel Pond, COJ acquisition of 2 existing ponds	1,050	\$2,890,000
Arlington River	8 Acre Regional Stormwater Facility (RSF) + 7.5 Acre RSF + Existing Pond w/MAPS	3,750	\$11,112,000
Arlington River	Acquire existing RSF	240	\$449,000
Arlington River	Channel Lining + 23 Acre RSF with MAPS	1,600	\$19,278,000
Arlington River	Basin Subtotal	6,640	\$33,729,000
Broward River	Pickett Pond	3,780	\$16,710,000
Broward River	Channel Widening +2-36"Culvert	0	\$3,026,000
Broward River	Basin Subtotal	3,780	\$19,736,000
Dunn Creek	10 Acre RSF with MAPS	1,070	\$8,030,000
Dunn Creek	New Berlin Conveyance Improvements - 3.5 ft CMP with MAPS	300	\$1,141,000
Dunn Creek	Basin Subtotal	1,370	\$9,171,000
Intracoastal Waterway	Conveyance Improvements - 3-8 ft x 7 ft box culverts	0	\$296,000
Intracoastal Waterway	5 Acre RSF + Conveyance Improvements	210	\$1,800,000
Intracoastal Waterway	Basin Subtotal	210	\$2,096,000
Julington Creek	2 Acre RSF + 2-5ft CMP + MAPS (optional)	140	\$1,000,000
Julington Creek	12 Acre RSF	90	\$5,007,000
Julington Creek	9 Acre RSF with MAPS	600	\$7,631,000
Julington Creek	Basin Subtotal	830	\$13,638,000
LSJR Downstream of Trout River	Atlantic Boulevard Improvements, 7.9 Acre RSF, Holly Oaks Deepening	2,300	\$6,800,000
LSJR Downstream of Trout River	Atlantic Boulevard and Arboretum Ponds	400	\$4,200,000
LSJR Downstream of Trout River	0.4 Acre RSF	30	\$110,000
LSJR Downstream of Trout River	Basin Subtotal	2,730	\$11,110,000
Ortega River	0.4 Acre RSF w/MAPS, add MAPS to Cedar River, regrade I-10 to Ramona, channel lining, 8.5 Acre RSF	1,170	\$1,110,436
Ortega River	RSF with MAPS + Channel Lining	620	\$1,812,527
Ortega River	RSF with MAPS	700	\$366,429
Ortega River	Basin Subtotal	2,490	\$3,289,392
LSJR Upstream of Trout River	In-line dry pond, widen downstream channel (Hamilton to Plymouth)	0	\$2,500,000
LSJR Upstream of Trout River	RSF joint project with Buckman WWTF	330	\$2,400,000
LSJR Upstream of Trout River	University Point Pond Exp, 35% baffle boxes	160	\$4,200,000
LSJR Upstream of Trout River	Philips Highway Pond	150	\$1,100,000
LSJR Upstream of Trout River	Pond near Senior Center	230	\$2,100,000
LSJR Upstream of Trout River	Berm, New Pond with MAPS, Existing Pond with MAPS and Borrow Pit with MAPS	1,490	\$4,300,000
LSJR Upstream of Trout River	Emerald Necklace + Liberty Ponds	660	\$2,153,000
LSJR Upstream of Trout River	21 Acre RSF	1,410	\$10,400,000
LSJR Upstream of Trout River	Pond in Boone Park (Downstream)	520	\$1,960,000
LSJR Upstream of Trout River	Close McCoy Creek Blvd, Channel Improvements Myrtle to Outfall	0	\$2,800,000
LSJR Upstream of Trout River	Conveyance under San Jose Blvd	0	\$150,000
LSJR Upstream of Trout River	E Pond + Pine Forest Pond + Paul Avenue Outfall	500	\$4,000,000
LSJR Upstream of Trout River	Basin Subtotal	5,450	\$38,063,000
Trout River	Box Culvert + Borrow Pit Pond	1,050	\$4,300,000
Trout River	RSF + Bank Stabilization	1,900	\$6,700,000
Trout River	Channel Reinforcing + 5.5 Acre RSF with MAPS	370	\$3,900,000
Trout River	11 Acre RSF with MAPS	4,440	\$13,500,000

B MAP PROJECT	PLAN DESCRIPTION	TN REMOVAL (KG/YR)	COST
Trout River	27 Acre + 14 Acre RSF with MAPS	2,000	\$21,500,000
Trout River	Basin Subtotal	9,760	\$49,900,000

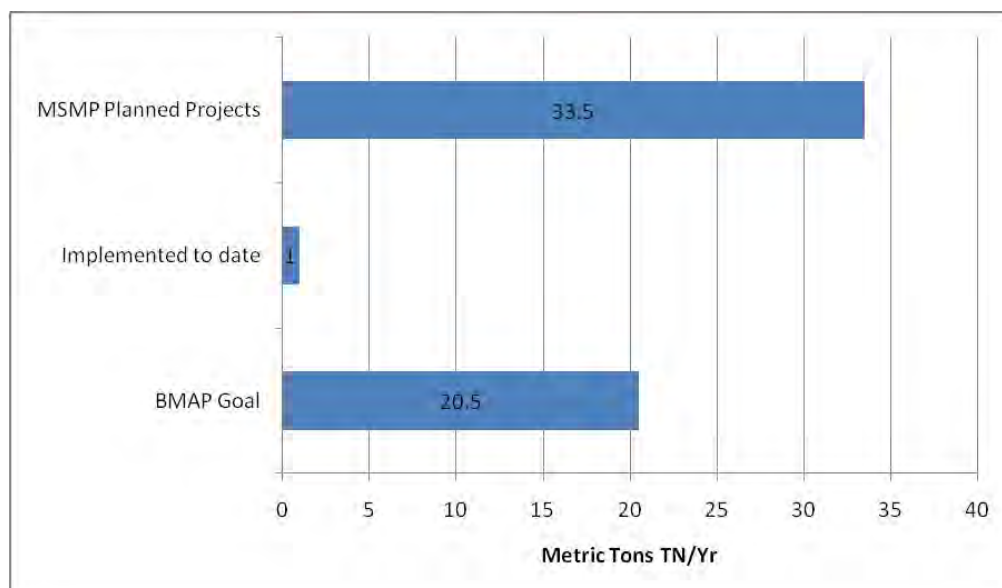


FIGURE 18: PROJECTED TN REDUCTIONS THROUGH COJ STORMWATER PROJECTS



FIGURE 19: NEW COJ RSF AT MELBA STREET AND GREEN STREET IN MCCOY CREEK SUB-BASIN

To help meet the reductions associated with the public education activities (COJ-51), the City of Jacksonville enacted a Fertilizer Best Management Practice Ordinance and an Irrigation Ordinance to address residential and commercial practices that contribute to nutrient levels in the LSJR. A primary component of these ordinances is outreach and education of residents to understand the impacts of fertilizer and over-watering on the health of the river.

Ordinance 2008-28-E established fertilizer BMPs in the City of Jacksonville code. It requires commercial fertilizer applicators to be trained in the state BMPs and bulk storage facility operators to have a spill prevention plan. In order to accomplish the intended goals and objectives of the ordinance, the Environmental and Compliance Department created an educational campaign to inform residents about the value of natural water resources, and to

educate them about ways to effectively apply fertilizer on home lawns and around commercial properties. The major purpose of the city's outreach is public and business partnering. The city conducts irrigation and fertilizer educational outreach at town meetings, homeowner association meetings, businesses, civic organizations, and the Florida Pest Management Association meetings. To date, over 40,000 irrigation and fertilizer brochures have been printed and over 35,000 have been distributed at these events. The city is partnering with local "greenhouse" retailers to help communicate the importance of proper irrigation and fertilizer use to their customers. Local greenhouse retailer Home Depot Inc. now displays irrigation and fertilizer posters that emphasize irrigation and fertilizer BMPs in their stores. Efforts to encourage other stores to have similar programs are continuing. During this past year there has been a transition to include ticket writing enforcement activities; however, education is still the major component of this program. Since ordinance enactment, there have been 672 issues reported to the city. There were 65 observed violations and 732 investigations. The fertilizer and irrigation public outreach includes comprehensive distribution of more than 50,000 brochures.

Ordinance 2009-360-E establishes landscape irrigation conservation measures. Data suggests that 50% of Northeast Florida's groundwater is being used for irrigation purposes. Over-watering contributes to the depletion of water supply and excess runoff of nutrients into the river, compromising overall water quality. In light of this fact, city government realized the need to enact landscape irrigation requirements that will reduce the impact to the Floridan Aquifer. The landscape irrigation requirements provide for residential and non-residential addresses to irrigate on scheduled days. The city enacted Ordinance 2009-864-E that includes the promotion of landscaping methods that provide for the preservation of existing plant communities, re-establishment of native plant communities, use of site specific plant materials, use of pervious paving materials, and Florida-Friendly concepts in order to promote water conservation and surface water quality. Efforts are being made to expand these requirements to include private residences. A draft ordinance that will address the residence requirements is under legislative review.

Two recent City of Jacksonville public service announcements focus on the importance of septic system maintenance and pet waste management as required by ordinance. The completed public service announcements were aired on July 16, 2010 at the University of North Florida Conference Center during the 2010 Environmental Symposium. The city is currently working to procure contracts to broadcast the public service announcements on local television.

The Environmental Quality Division, Water Quality Branch annually conducts many proactive investigations and inspections. The Water Quality Branch uses numerous methods to direct its efforts. One method is the City of Jacksonville Citizen Active Response Effort call center, where citizens can report issues of concern and to obtain information about City services by calling 630-CITY or 630-2489. Another method uses the Potential Illicit Connection database. These and other tools enable field investigators conduct ongoing investigations to identify and resolve illicit connections. Potential illicit connection investigations are conducted throughout Duval County by the Water Quality Branch. The city was also able to add 4 staff positions in 2010 to conduct NPDES inspections. These positions will be responsible for identifying illicit discharges and fulfilling the inspection requirements in the city's MS4 permit.

In addition, the City of Jacksonville has successfully partnered with FDEP and Beemats Inc. to implement a study investigating the nutrient removal capabilities of managed aquatic plant systems (MAPS), vegetated floating islands, in existing and future stormwater ponds. The MAPS act as a littoral zone planted with aquatic vegetation managed to optimize uptake of nutrients. Unlike a traditional littoral zone, which dies back in winter releasing the nutrients

through its detritus, MAPS are harvested annually to permanently remove nutrients from the system. Additionally, the MAPS are typically implemented as floating islands that remain in contact with nutrients in the water even during periods when traditional littoral zones would be left dry.



FIGURE 20: COJ INSTALLATION OF MAPS AT THE UPPER DEER CREEK POND EXPANSION

Florida Department of Transportation

FDOT submitted a plan to FDEP to meet the TN reductions associated with project COJ-120. This plan is to eliminate the historical practice of fertilizing 15 feet adjacent to pavement edges along FDOT roadways. The change in fertilizer practice will result in an estimated reduction of 8,362 kg/yr of TN. The University of Central Florida is conducting a study to verify the removal associated with the change in fertilizer practices, and this study should be completed in spring 2011. At that time, FDOT will provide updated TN reduction estimates to FDEP along with any additional projects, if needed, to meet the reductions under project COJ-120.

City of Jacksonville Beach

In the City of Jacksonville Beach, the FDOT Beach Boulevard Widening Pond 2 project (JB-2) was completed on schedule in 2010.



FIGURE 21: BEACH BOULEVARD STORMWATER RETENTION POND IN JACKSONVILLE BEACH

Clay County

Clay County has continued their education program (project CC-12) over the last year. These activities include participation in the FYN Program, public service announcements, educational flyers, stormwater information on the county website, a call-in number for illicit discharges, and outreach efforts in conjunction with WAV and other organizations. Refer to **Section 2.2.2.1** for more details on these education efforts.

St. Johns County

St. Johns County enjoyed another successful year with the stormwater education program (project SJC-11). SJRWMD no longer funds the WAV program, so St. Johns County has taken over full funding of this program. Presentations were made to 181 student groups with over 5,600 student interactions. There have also been presentations to 25 adult groups with 1,345 adult interactions. Over 10,000 education materials have been distributed this year. The county's Erosion and Sedimentation Course had 31 participants, and 203 additional stormdrains were marked throughout St. Johns County. The county also adopted a fertilizer ordinance (Ordinance 2010-19) on June 10, 2010 (project SJC-13).

In addition, St. Johns County acquired 160 acres for a regional stormwater (RST) facility in the Hastings area to meet the Algal Initiative requirement (project SJC-17). This facility will be known as the Masters Tract RST. Three agricultural canals cross the property and convey stormwater runoff from 1,426 acres of land, 74% of which is planted in row crops. Project design is underway with a treatment train that yields an estimated 2,145.5 kg/yr of TN removal. FDEP is in the process of reviewing information about this project to approve the estimated reductions. Permitting will be the next step in the process.

MS4 Progress Towards Meeting the Marine TMDLs

Figure 22 shows the progress made towards meeting the MS4 portion of the marine TN TMDL. The first bar in the figure shows the starting load for the marine MS4s from the BMAP. The second bar shows the estimated 2009 load based on all completed marine MS4 projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the MS4s in the marine section of the river.

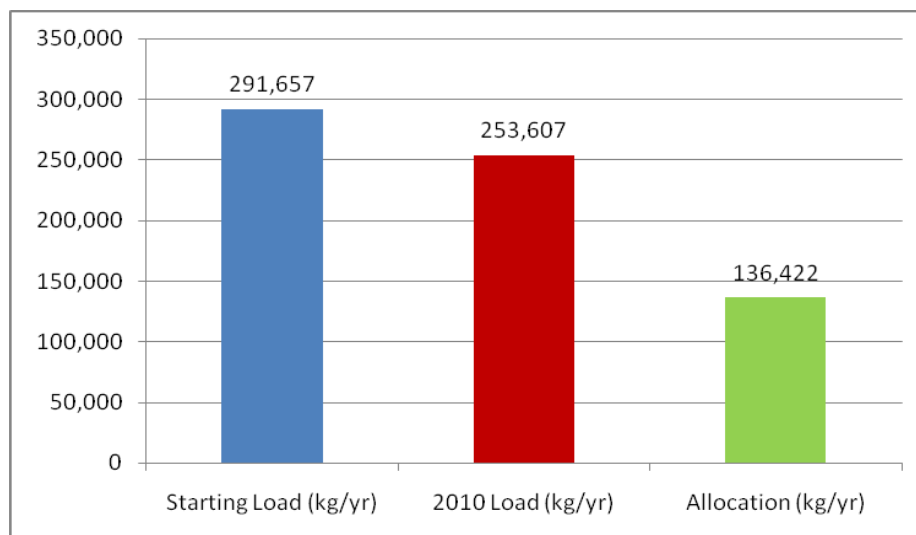


FIGURE 22: MS4 PROGRESS TOWARDS THE TN MARINE TMDL

2.2.2.3 Project Implementation Status

The section above described all of the activities that were underway during the past year, which includes efforts that are not yet complete or are continuous, such as public education. The MS4 projects that were completed during the last year and their associated load reductions are shown below in **Table 9** for the freshwater section of the river and **Table 10** for the marine section. The MS4s in the freshwater section have met the required TP reductions; therefore, no additional projects were completed for TP in the reporting period.

TABLE 9: MS4 PROJECTS COMPLETED IN THE FRESHWATER SECTION FOR TN (NOVEMBER 2009 – DECEMBER 2010)

ENTITY	PROJECT NUMBER	DESCRIPTION	TN PROJECT REDUCTION (KG/YR)
City of Green Cove Springs	GCS-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	593
Clay County	CC-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	236
Total	-	-	829

TABLE 10: MS4 PROJECTS COMPLETED IN THE MARINE SECTION (NOVEMBER 2009- DECEMBER 2010)

ENTITY	PROJECT NUMBER	DESCRIPTION	TN PROJECT REDUCTION (KG/YR)
City of Atlantic Beach	AB-9	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	78
City of Jacksonville	COJ-52	Septic Tank Phase-Out Projects (295 tanks)	2,000
City of Jacksonville	COJ-53	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	6,926
City of Jacksonville Beach	JB-2	FDOT Beach Boulevard widening (Pond 2)	14
City of Jacksonville Beach	JB-3	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	156
City of Neptune Beach	NB-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	47
Clay County	CC-16	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	846
FDOT	COJ-119	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	769
St. Johns County	SJC-16	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	60
Town of Orange Park	OP-4	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	103
US Navy	USN-6	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	298
Total	-	-	11,297

2.2.3 URBAN STORMWATER

2.2.3.1 Freshwater

Clay County

Clay County has continued their education program (project CC-3) over the last year. These activities include participation in the FYN Program, public service announcements, educational flyers, stormwater information on the county website, a call-in number for illicit discharges, and outreach efforts in conjunction with WAV and other organizations. Refer to **Section 2.2.2.1** for more details on these education efforts.

Putnam County

The Putnam County Board of County Commissioners approved an agreement for Putnam County staff to conduct the maintenance of the Edgefield RST facility (project PUT-4). The county is developing plans for an advanced wastewater collection system from San Mateo to Dunn's Creek to meet a portion of the Algal Initiative requirements (PUT-6). The remainder of the Algal Initiative requirements will be met through the septic tank phase-out project (PUT-3), as more tanks are expected to be taken off line than was originally estimated. The wastewater collection system along the US 17 corridor was installed at the same time as the water distribution system saving considerable amounts of funding. This infrastructure is needed for the county to complete their trade with the Hiawatha WWTF (PUT-2), which will occur when the East Putnam County Regional WWTF is completed to allow tie in of the Hiawatha facility.

St. Johns County

St. Johns County enjoyed another successful year with the stormwater education program (project SJC-3) and adopted a fertilizer ordinance (Ordinance 2010-19) on June 10, 2010 (project SJC-5). Details can be found in **Section 2.2.2.2**. A Cooperative Agreement was approved on September 21, 2010 between St. Johns County and SJRWMD for the county to take over operation and maintenance of the Deep Creek RST facility (project SJC-6). In addition, the county finalized the agreement with the Town of Hastings WWTF for the trade of TP credits. The education and RST operation and maintenance projects provided additional TN credit for St. Johns County beyond the BMAP requirements for their freshwater non-MS4 allocation. Therefore, St. Johns County is applying these additional credits to towards their reductions in the marine non-MS4.

Non-MS4 Progress Towards Meeting the Freshwater TMDLs

Figure 23 and **Figure 24** show the progress made towards meeting the non-MS4 portion of the freshwater TP and TN TMDLs. The first bar in the figures shows the starting load for the freshwater non-MS4s from the BMAP. The second bar shows the estimated 2010 load based on all completed freshwater non-MS4 projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the non-MS4s in the freshwater section of the river.

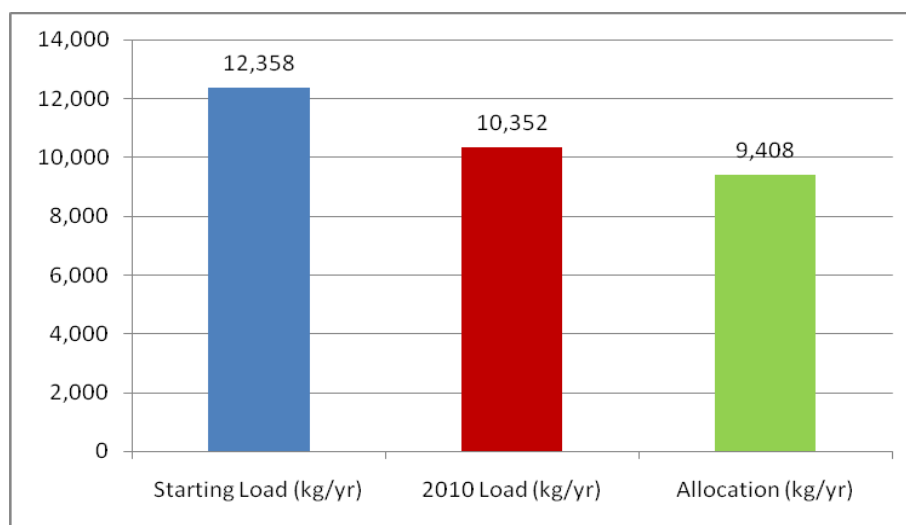


FIGURE 23: NON-MS4 PROGRESS TOWARDS THE TP FRESHWATER TMDL

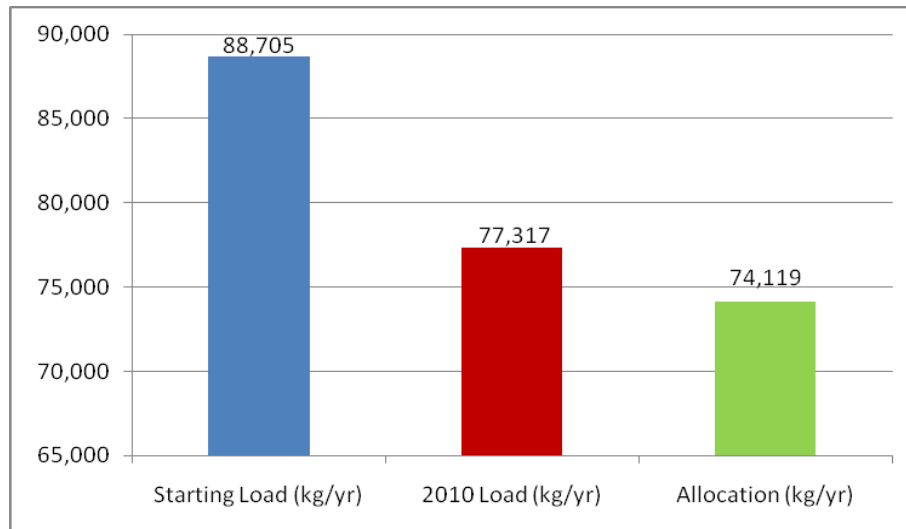


FIGURE 24: NON-MS 4 PROGRESS TOWARDS THE TN FRESHWATER TMDL

2.2.3.2 Marine

Camp Blanding

During the reporting year, Camp Blanding purchased 4,180 feet of new culvert pipe and a single box culvert for the repair and construction of the Cantonment Area swales and road crossings. Camp Blanding also resurfaced 1.035 miles of roads, which included associated right-of-way and swale repair. A grading bucket for swale construction and maintenance was purchased, which allowed the Camp Blanding Facilities Engineering Division to conduct repair and maintenance, including vegetation removal and clearance, along 17.33 miles of swales and ditch lines within the Cantonment Area. The Camp Blanding Forestry Division re-graded and restored over 4.3 miles of swales (including the restoration of 4.3 miles of 2 foot by 3 foot concrete pavers), which involved removal of 3,600 tons of vegetation and dirt. Camp Blanding also added a new retention pond and constructed drainage/swales for the Regional Training Site, United States Property and Fiscal Office, Recreational Vehicle Park, and State Road 16 West.

In addition to the above activities to address project CB-1, Camp Blanding and the National Guard Bureau created a BMAP Working Group to aid in BMAP implementation. Camp Blanding also performed Toxicity Characteristic Leaching Procedure sampling of seven wash racks for programmed closure and restoration of drainage/retention areas. Members of the Florida National Guard Environmental Division also pulled wild taro, a foreign and invasive plant, from over 500 meters of Black Creek at Camp Blanding, in observation of Earth Day. The taro, which must be pulled by hand, crowds out native species in Black Creek, which feeds into the St. Johns River.



FIGURE 25: CAMP BLANDING KINGSLEY LAKE OUTFALL TO BLACK CREEK

Clay County

Clay County has continued their education program (project CC-17) over the last year. These activities include participation in the FYN Program, public service announcements, educational flyers, stormwater information on the county website, a call-in number for illicit discharges, and outreach efforts in conjunction with WAV and other organizations. Refer to **Section 2.2.2.1** for more details on these education efforts.

St. Johns County

St. Johns County enjoyed another successful year with the stormwater education program (project SJC-3) and adopted a fertilizer ordinance (Ordinance 2010-19) on June 10, 2010 (project SJC-5). Details can be found in **Section 2.2.2.2**. A portion of the credit from the planned Masters Tract RST will be used to meet part of the Algal Initiative requirement (project SJC-26). Locations are being reviewed for another RST facility in the freshwater section to complete the nutrient removal considered in the Algal Initiative. St. Johns County has removed the projects related to street sweeping from their project table (projects SJC-19 and SJC-20) and will meet these reductions through the Algal Initiative.

Non-MS4 Progress Towards Meeting the Marine TMDL

Figure 26 shows the progress made towards meeting the non-MS4 portion of the marine TN TMDL. The first bar in the figure shows the starting load for the marine non-MS4s from the BMAP. The second bar shows the estimated 2010 load based on all completed marine non-MS4 projects (from the BMAP, 2009 progress report, and those listed above). The third bar indicates the total allocation allowed for the non-MS4s in the marine section of the river.

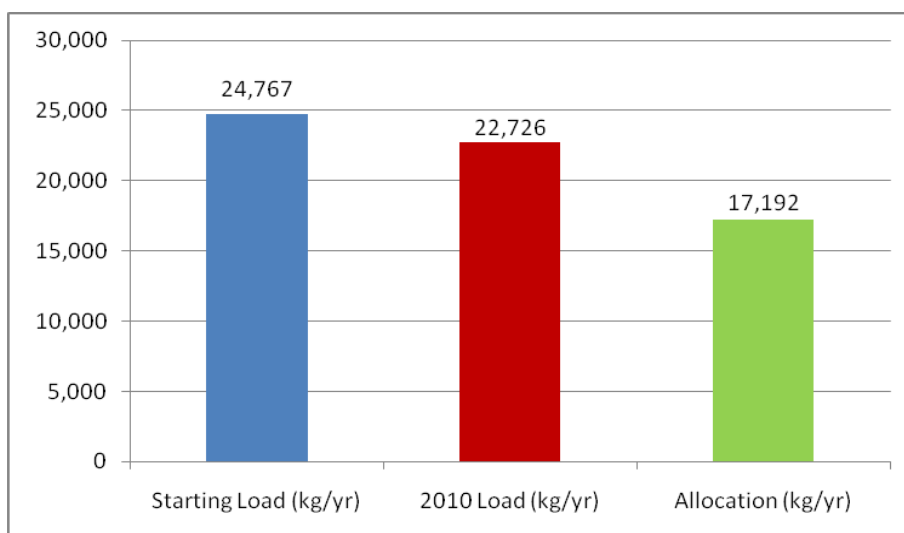


FIGURE 26: NON-MS4 PROGRESS TOWARDS THE TN MARINE TMDL

2.2.3.3 Project Implementation Status

The non-MS4 projects that were completed during the last year and their associated load reductions are shown below in **Table 11** and **Table 12** for the freshwater section of the river and **Table 13** for the marine section.

TABLE 11: NON-MS4 PROJECTS COMPLETED IN THE FRESHWATER SECTION FOR TP (OCTOBER 2008 – OCTOBER 2009)

ENTITY	PROJECT NUMBER	DESCRIPTION	TP PROJECT REDUCTION (KG/YR)
Putnam County	PUT-4	Edgefield RST O&M Value	269.1
St. Johns County	SJC-6	Deep Creek RST O&M Value	255.9
St. Johns County	SJC-7	Purchase Hastings WWTF Reduction Credits	198.2
Total	-	-	723.2

TABLE 12: NON-MS4 PROJECTS COMPLETED IN THE FRESHWATER SECTION FOR TN (OCTOBER 2008 – OCTOBER 2009)

ENTITY	PROJECT NUMBER	DESCRIPTION	TN PROJECT REDUCTION (KG/YR)
Palatka	PAL-6	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	825
Hastings	HAS-4	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	54
Putnam County	PUT-4	Edgefield RST O&M Value	594
Putnam County	PUT-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	4,056
St. Johns County	SJC-6	Deep Creek RST O&M Value	313
St. Johns County	SJC-8	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	1,937
Welaka	WEL-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	100
Total	-	-	7,879

TABLE 13: NON-MS 4 PROJECTS COMPLETED IN THE MARINE SECTION (OCTOBER 2008 – OCTOBER 2009)

ENTITY	PROJECT NUMBER	DESCRIPTION	PROJECT REDUCTION (KG/YR)
Camp Blanding	CB-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	98
Clay County	CC-19	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	393
St. Johns County	SJC-25	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	390
Total	-	-	881

2.2.4 AGRICULTURE

2.2.4.1 BMP Implementation Status

The acres of each agricultural commodity currently enrolled in a BMP program are listed in **Table 14**. Agricultural acreage in the LSJR Basin has declined since the 2004 land use data were collected. In addition, some categories of agricultural land use may include acreage that is not in production or that is not really agriculture. This is because aerial photos of land use are not always clear enough to interpret accurately. The potential for misinterpretation is generally greatest in the pasture categories.

TABLE 14: ACRES OF EACH COMMODITY ENROLLED IN A BMP PROGRAM

FDACS BMP PROGRAM	COMMODITY TYPE	ACRES BASED ON SJRWMD 2004 LAND USE	ACRES ENROLLED AS OF DECEMBER 2010	PERCENT OF COMMODITY ACREAGE ENROLLED ²
Citrus	Citrus Groves	375	45	12%
Vegetable and Agronomic Crops (VAC) (includes TCAA Interim BMP Program) ¹	Field, Mixed, Row, Potatoes, Cabbage	42,546	6,057	14%
Container Nurseries	Ornamentals	964	0	0%
Leatherleaf Ferns ¹	Ferns – Hammock, Shade	698	78	11%
Sod	Sod	4,678	890	19%
Cow/Calf (adopted 2009)	Cattle Feeding Operations, Pastures – Improved, Unimproved, Woodland	55,932 ³	11,069	20%
Totals	-	105,193	18,139	17%
BMPs Otherwise Implemented (TCAA)⁴	-	-	12,000	-
BMP Implementation Total	-	-	30,139	29%

Note: The acres in this table include Clay, Duval, Flagler, Putnam, and St. Johns counties. Some of the area in these counties is outside of the LSJR Basin.

¹ Enrollment in these programs has been discontinued. Acres enrolled under the TCAA BMP will be re-enrolled under the VAC manual. A modified leatherleaf fern BMP will be incorporated in revisions to the VAC manual.

² Based on SJRWMD 2004 Agricultural Land Use Acres in the LSJR pertinent to each commodity with an adopted BMP manual. These acreages may include non-production areas of farm operations. In addition, the land use categories do not fall neatly under FDACS manuals.

³ Land use acres were not included in this table in the 2009 Progress Report.

⁴ See discussion below. These acres may include all or part of the acres enrolled under the TCAA Interim BMP Program.

The Tri-County Agricultural Area (TCAA) is included in the LSJR BMAP for nutrients. Vegetable growers are under a statutory mandate either to sign up for the FDACS BMP program or monitor the quantity and quality of the water leaving their farms. To date, no producers have opted to monitor water quality. Although submittal of Notices of Intent (NOIs) to implement the

FDACS BMPs by potato farmers in the TCAA is lagging, most are implementing the BMPs to a significant degree.

In 2009, data were collected from 22 on-farm assessments conducted in the TCAA on vegetable farms by IFAS BMP Implementation staff, funded through federal, state, and water management district programs. These preliminary assessments indicated that the targeted operations (representing about 12,000 acres) are conducting an average of 94% of the applicable BMPs in the 2005 *Water Quality/Quantity Best Management Practices for Florida Vegetable and Agronomic Crops*. On average, there are 27 (out of 49) BMPs applicable to these operations, with a range of 21 - 35. BMPs typically being implemented include soil testing/soil pH, fertilizer management, water control structures, flood protection, ditch construction and maintenance, conservation tillage, and irrigation maintenance and evaluation.



FIGURE 27: EXAMPLE AGRICULTURAL WATER CONTROL STRUCTURE

2.2.4.2 Regional Stormwater Treatment Facilities

Within the marine reach, the primary contributing agricultural operations consisted of dairy operations. These operations have been abandoned as confirmed by land use assessments, thus negating the need for agricultural runoff treatment facilities within that section of the river. Within the freshwater reach, agriculture is a very active land use and SJRWMD contractors have completed a technical memorandum and associated BMP Optimization Model addressing a nutrient reduction strategy for the TCAA. Initial indications are that regional stormwater treatment areas such as those already constructed may not offer the lowest life-cycle cost per mass of TN and TP. Field-level treatment such as reuse of irrigation water or overhead irrigation and fertigation may be more justified from an economic perspective. The memorandum and model are under internal technical staff review. There are no currently foreseeable sources of funding available to develop options identified in the memorandum at this time.

2.3 IMPROVING SCIENTIFIC UNDERSTANDING

2.3.1 WATER QUALITY MONITORING

2.3.1.1 Freshwater Section for the Chlorophyll-a Target

The monitoring plan includes two components to determine progress towards the chlorophyll-a target in the freshwater section: (1) routine ambient sampling; and (2) supplemental river transects. SJRWMD is conducting the ambient sampling in the freshwater section and this monitoring occurs on a biweekly basis at nine sites. SJRWMD has conducted this sampling on

schedule over the last year and the effort is ongoing. The ambient water quality data are uploaded to STORET on a regular basis.

The river transects sampling occurs biweekly from April through October in the two worst case freshwater WBIDs (2213K and 2213L). The purpose of this sampling is to augment the ambient sampling during the high chlorophyll period of the year to better estimate the mean chlorophyll-a concentration. As noted in the BMAP, 29 samples are recommended in each WBID (58 samples total per monitoring event) to estimate mean concentrations with acceptable confidence. This sampling includes both standard laboratory analyses and *in vivo* fluorescence. However, there was an issue with the fluorometer (refer to **Section 3.3** for details) and this sampling did not occur for the entire period of April through October. The river transect sampling was funded by Georgia-Pacific and Seminole Electric and the samples were collected and analyzed by FDEP. The river transects data for the standard parameters are uploaded to STORET, and the fluorescence data are maintained by FDEP.

2.3.1.2 Marine Section for the Dissolved Oxygen Target

Compliance with the DO target in the marine section of the river will be determined through data from three continuous DO stations, in which samples are collected every 15 minutes. The U.S. Geological Survey (USGS) station at Dames Point is an existing station, and the DO sampling occurred at this station throughout the last year. The data from this station are maintained by USGS and can be accessed through their website. There are also two BMAP stations at Fulton Point and Clapboard Creek. FDEP obtained the equipment for these stations and originally set them up in August 2009. As noted in the 2009 progress report, the Clapboard Creek station was damaged in October 2009. FDEP was able to obtain new data sondes and set the station up again in July 2010. In addition, the Fulton Point station went down in November 2009 (see **Section 3.3** for more details) but this station was also re-established in July 2010. FDOT provided divers to assist FDEP in setting up the stations and to ensure the sondes were better secured. During the installation of the stations, the FDOT diver found 2 of the sondes that had been lost in 2009. These sondes are being repaired and will be used as backups for the stations. JEA will purchase additional sondes for the stations. FDEP is responsible for the operation and maintenance of these 2 stations and is storing the continuous DO data.

2.3.1.3 Nonpoint Source Monitoring and Monitoring of Tributary Inputs

The tributaries monitoring includes both ambient and high-flow event sampling. This information will be used to determine the loads entering the main stem of the river from its tributaries and to estimate the reductions associated with the implementation of stormwater projects.

For the ambient monitoring, SJRWMD samples a total of 21 stations. Four stations are sampled biweekly, 12 stations are sampled monthly, and the remaining 5 stations are sampled bimonthly. This sampling occurred on schedule over the last year. In addition, JEA is responsible for sampling 5 stations on a bimonthly basis, and this sampling occurred throughout the year. All of the ambient monitoring data are uploaded to STORET on a regular basis.

The high-flow event sampling is conducted by CCUA, SJRWMD, and the City of Jacksonville. CCUA hired a contractor to collect the samples at their 5 stations following rainfall events. Samples were collected in December 2009, February 2010, March 2010, May 2010, June 2010, July 2010, August 2010, and September 2010. SJRWMD is responsible for collecting high-flow event samples at 1 station in Rice Creek. They collected samples at this station in March 2010, May 2010, and July 2010. In addition, SJRWMD collected storm event samples at 3 other stations in the basin. The City of Jacksonville is responsible for sampling at 7 stations and the

sampling occurred at 6 of the stations in March 2010, May 2010, June 2010, September 2010, and November 2010. The storm event data are maintained by FDEP and are included in **Appendix B**.

2.3.2 SPECIAL PROJECTS

2.3.2.1 Septic Tank Study

FDEP is concluding a study in conjunction with the Florida Institute of Technology (FIT) to assess nutrient and bacteria loadings from septic tanks and their impact on surface and ground water quality. The study included 4 phases of field work: (1) identification and initial setup of residential septic sites that are located on nutrient and/or DO impaired waterbodies (completed in summer 2009); (2) 3 sampling phases (completed December 2009, May 2010, and October 2010); (3) data analysis; and (4) the draft and final reports. Nine of the sites evaluated have active septic systems and 3 have abandoned-in-place systems. The study sites are shown in **Figure 28**.

The initial field work involved the installation and survey of piezometers for ground water flow gradient assessment; collection of soil samples for grain size, permeability, and percent organic matter; collection of shallow ground water samples from points down gradient from the septic tank drainfields; and collection of surface water samples from adjacent waterbodies. The water samples were analyzed by the FDEP laboratory for nitrogen, phosphorus, chloride, and boron. FIT is performing analyses for triclosan and caffeine (two indicators of human wastewater) and contracted analysis of bacteria samples with a local laboratory to meet holding times. Samples for nitrogen isotopes (used as tracers) were analyzed by Colorado Plateau Stable Isotope Laboratory. As of the time of this report, FIT has completed the field work and most of the laboratory results are complete. Presently, FIT is evaluating the data and completing the draft report; the final results will be available in spring 2011. Preliminary data from this sampling indicate a significant variation in nitrogen inputs amongst sites. Unfortunately, due to delays in sampling and analysis, the schedule for this project was extended and a final report will not be available until summer 2011.

The information from this study will assist FDEP in refining the BMAP estimates for TN and TP loading from septic tanks to adjacent waterbodies, and the distance those pollutants can travel from the septic tank drainfield to a waterbody. By March 2011, FDEP will provide a summary report on this study with a synthesis of data from other sources, including the data from SJRWMD's LSJR Basin ground water monitoring network located in septic tank areas. This information will increase the understanding of nitrogen loadings from areas on septic tanks and in calibrating the septic tank loading tool under refinement by the model development team at Florida State University (FSU).

Beginning in October 2009 under the direction of Dr. Ming Ye and with funding and oversight from FDEP, FSU began the development of a simplified conceptual model of nitrate fate and transport from septic tank systems through the shallow groundwater aquifer. The goal of this model was to account for nitrate from all septic systems in a given area, even if they are fully functional. The model was developed using laboratory measurements and field observations and used Arc-GIS as its software platform. As Arc-GIS is widely used, the finished model will be user friendly and available in the public domain. The model is designed to be a tool where the independent variables such as flow path, velocity, and travel time can be customized if site-specific data are available. The FSU team has tested the model using the Julington Creek and Eggleston Heights areas as case studies. As of December 2010, the draft version of the model

was complete. The FSU team is currently working on model verification and validation, field data collection, and model calibration. The final product will be delivered by September 2011. The finished model could be used by the stakeholders to refine the estimate of septic tank loads to the river and to prioritize septic tank phase out areas. This information is especially needed for the COJ septic tank phase-out project.

The outcome of these combined efforts should be a viable tool for estimating nitrogen inputs to surface waters from septic tank failure areas and refining the expectations in the BMAP for reductions in nutrient loads through septic tank phase-outs.

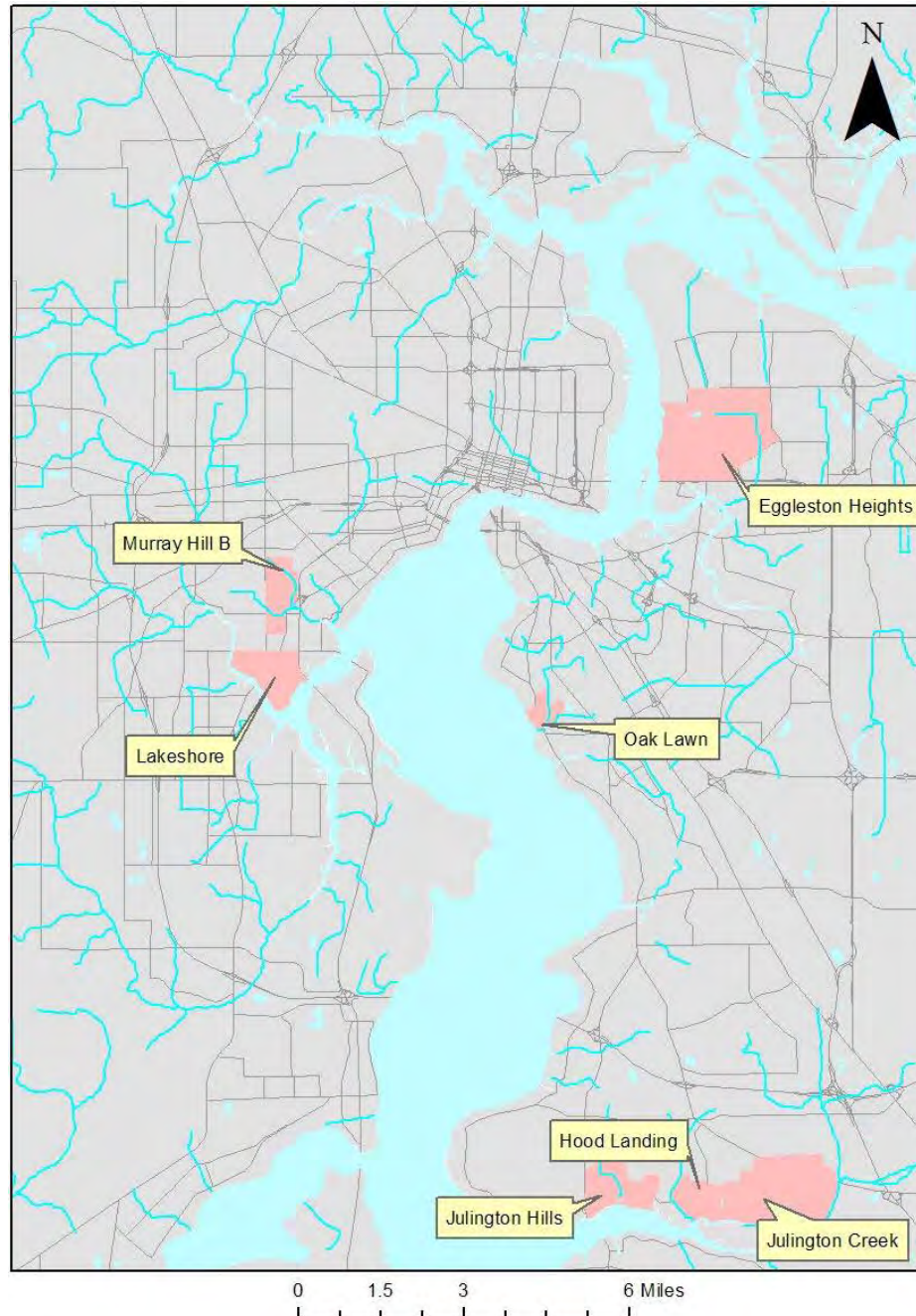


FIGURE 28: FIT SEPTIC TANK STUDY SITES

2.3.2.2 Algal Initiative

The development of the St. Johns River Nutrient Reduction Initiative (“Algal Initiative”) is proceeding but is challenged by internal SRJWMD staff demands related to the multi-year water supply impact study. A broad range of project options have been identified. As stated in the 2009 progress report, SJRWMD has completed two RST facilities, Deep Creek West (Yaborough) and Edgefield, in the TCAA. The Deep Creek West RST was estimated to achieve 687 kg/yr of TN reduction and 562 kg/yr of TP reduction. The Edgefield RST was estimated to achieve 1,815 kg/yr of TN reduction and 822 kg/yr of TP reduction.

According to the most recent Draft Water Quality Report for the Deep Creek West facility, treatment efficiencies and the greatest mass removals were associated with storm events, while treatment under ambient conditions remains limited for the period 2008-2010. However, TN removed for both ambient and storm conditions combined exceeded the estimated load reduction outlined in the LSJR BMAP, which was 1,000 kg/yr. In 2009, 3,189 kg were removed and through August 2010, 2,111 kg were removed. TP removals in 2009 through August 2010 also exceeded the LSJR BMAP reduction estimate of 818 kg. In 2009, 1,416 kg were removed and through August 2010, 882 kg were removed.

Based on the findings of a wetland dye tracer study conducted in June 2010, only 5.1 acres of the wetland are functioning under baseflow conditions. Retrofits to the wetland flow regime may be possible but construction costs are high and current funding is limited. However, the SJRWMD and St. Johns County may be able to work together to determine which improvements could cost-effectively be implemented through in-kind services, or otherwise to increase the wetted area of the wetland, thereby increasing residence time.

SJRWMD is also investigating projects to reduce nutrient loadings emanating from Lake George, including the feasibility of gizzard shad harvesting (which has proven exceptionally cost-effective in other areas) and macrophyte management and harvesting. Additionally, upstream project opportunities within the Middle St. Johns River Basin are being examined. To date, however, no definitive determinations have been made on the most cost-effective projects to pursue, and no SJRWMD or State funds are identified to initiate or construct projects.

2.3.3 TMDL MODEL REVISIONS

The LSJR model has continued to evolve to expand its capability to evaluate a variety of water quantity and quality management scenarios. Several significant enhancements have been added to the modeling suite over the past year in order to assess potential water withdrawals from the St. Johns River for the SJRWMD's Water Supply Impact Study.

The water quality model time period has been expanded to over 10 years, from mid-1995 through 2005, allowing for the examination of management scenarios over a broad range of flow and loading conditions. The work to set up this model expansion was performed by the environmental consulting firm, Limno-Tech, which recently completed the Potomac River portion of the Chesapeake Bay Model update. This more than 10 year simulation capability was done for the expanded area model, which now extends upstream through Crescent Lake and Lake George. Work is ongoing with the U.S. Army Corps of Engineers' model development team to encode a more science-based computational method to predict nitrogen fixation, the important process by which blue green algae “internally” load the river by converting atmospheric nitrogen gas to organic nitrogen. This revision will also allow for the separation of the two major types of nuisance blue-green algae blooms: those dominated by *Cylindrospermopsis* and *Anabaena*, which fix atmospheric nitrogen and form extremely dense blooms that lower DO, versus blooms

dominated by *Microcystis*, which tend to be less dense but more widespread, form surface scums, and often produce high levels of the algal toxin microcystin.

The hydrodynamic foundation of the St. Johns River model has been expanded upstream through the Middle St. Johns River Basin to just upstream of Lake Harney, and into the Ocklawaha River up to State Road 40, to the mouth of the Silver River. Because changes in water surface elevation in these reaches results in considerable expansion of inundated area, the hydrodynamics in these reaches utilizes a novel algorithm, developed by the engineering consulting firm Applied Technology and Management, that expands the model grid at higher stages to account for the increased volume and area. It is expected that these hydrodynamic improvements will be operational by the end of 2011.

A significant enhancement has also been made to the availability of quality input data to run the St. Johns River model. Runoff water volume has been computed for the entire St. Johns River Basin utilizing the Hydrologic Simulation Program – Fortran (HSPF) watershed model, for the meteorological record from 1974 through 2008.

2.3.4 SJRWMD FUNDING FOR ADDITIONAL NUTRIENT REDUCTIONS

Several cost share agreements for the expansion of reclaimed water service have been executed by the SJRWMD, including those with the City of Palatka, JEA, CCUA, City of Neptune Beach, and St. Johns County. Per the BMAP, water quality credits generated by projects funded by SJRWMD are being held by SJRWMD based on the percentage of SJRWMD *ad valorem* in relation to the total project cost. Held credits are not available for TMDL compliance or for sale as water quality credits to other entities. Credit reductions will be documented in the recipient's WWTF permit. Currently, the estimated amount of credit reservations is 47,003.2 kg/yr or 103,407 lbs/yr of TN. These reductions will be finally calculated for adoption within each applicable permit at the time projects are completed and will be based on final construction costs and actual nutrient reduction data.

2.4 FUNDING

Camp Blanding spent \$3,150 on washrack sampling, \$54,163 on culvert pipe purchase and box culvert installation, \$2,000 on the grading bucket, \$1,049,263.43 on new swale and retention pond construction and drainage improvements, and \$184,356 on road resurfacing and right-of-way improvements.

The City of Atlantic Beach signed a cost-sharing agreement with SJRWMD for \$1,000,000 towards the TMDL improvements. The city applied for a FDEP State Revolving Fund (SRF) loan for the remainder of the project costs, and an Authorization to Incur Construction Costs has been received from FDEP. The project will be included in the next public hearing for allocation of SRF funds.

The City of Green Cove Springs is pursuing a U.S. Department of Agriculture (USDA) grant/loan to fund the South WWTF improvements. The engineer has completed the Preliminary Engineering Report and the Environmental Review for submittal to the USDA for review. This is a \$5,900,000 project as it stands now.

The City of Jacksonville Beach received \$7,000,000 in legislative grant funding from SJRWMD and \$4,000,000 in District grant funding from SJRWMD for the city's WWTF project.

The City of Neptune Beach has received \$700,000 from SJRWMD for the TMDL improvement projects.

The City of Palatka has partnered on funding the projects with SJRWMD and FDEP.

CCUA requested an amendment to its existing cost share agreement with SJRWMD to build a reclaimed water transmission main between the Ridaught Landing and Mid-Clay WWTFs. This pipeline is approximately 3.5 miles long and will interconnect CCUA's northern and southern reclaimed water service areas. SJRWMD increased the current grant funding by \$2,721,648 for this project.

JEA did not receive any funding during the reporting period. However, JEA is expecting to receive approximately \$2.3 million in retroactive cost share reimbursements from SJRWMD for reclaimed water projects already completed, pending final adoption of a revised contract between JEA and SJRWMD.

St. Johns County has secured funding to take over the educational component of the Watershed Action Volunteer program. The county expended \$26,000 on this program and also obtained \$1.3 million for a countywide stormwater model. The Masters Tract RST was funded for \$2.4 million, which included the acquisition of the site and initiation of design.

The Town of Orange Park has completed and closed out one BMAP project, and a second project has been bid, awarded, and is under construction. The BMAP projects undertaken by the Town of Orange Park constitute the town's largest capital improvement project in its history. The project costs for the two projects are \$7,890,756.55 for the Ash Street WWTF Phase 1 Improvements (OP-1) and \$2,088,000.00 for the Phase 2 Improvements (OP-2) for a total cost of \$9,978,756.55. The funding sources include the Town of Orange Park's net assets (reserves) of \$8,427,306.55, FDEP grant for \$924,164.00, and a SJRWMD grant for \$627,286.00. In November 2010, the Town Council raised wastewater rates in order to rebuild wastewater reserves spent on the BMAP projects.

2.5 SUMMARY OF ACCOMPLISHMENTS

The table and figures below illustrate the load reductions made by the stakeholders in the LSJR Basin and the remainder of the nutrient loading in each segment of the river to achieve the TMDLs.

TABLE 15: PROGRESS TOWARDS THE TP TMDL IN THE FRESHWATER SECTION

SOURCE	% OF CONTROLLABLE LOAD	STARTING LOAD (KG/YR)	2010 LOAD (KG/YR)	ALLOCATION (KG/YR)	REMAINING REDUCTIONS (KG/YR)	% COMPLETE
WWTF	45%	81,015	45,141	41,066	4,075	90%
MS4	1%	1,500	1,256	1,256	0	100%
Non-MS4	7%	12,358	10,352	9,408	944	68%
Agriculture*	47%	83,455	83,455	70,974	12,481	0%
Total	100%	178,329	140,205	122,705	17,500	69%

*Note: Reductions associated with BMPs implemented by producers has not yet been estimated.

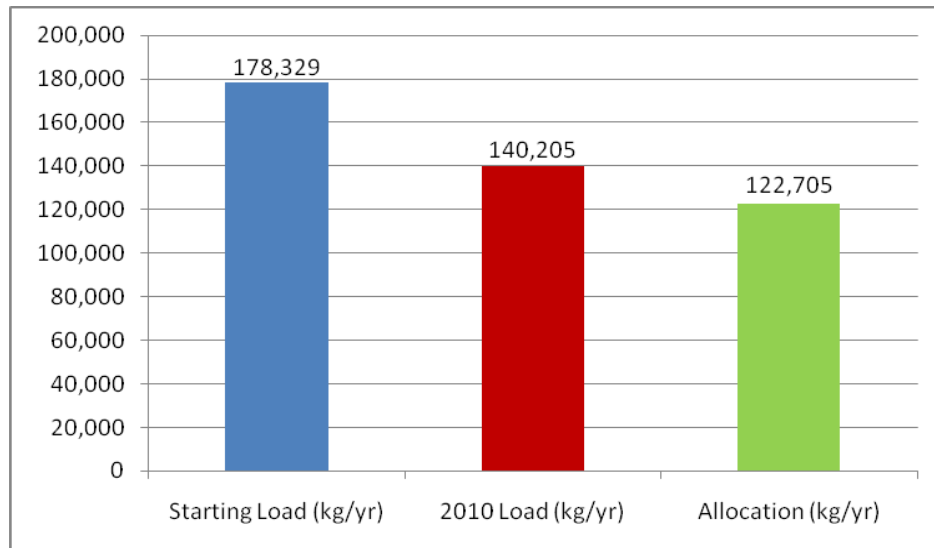


FIGURE 29: PROGRESS TOWARDS THE TP TMDL IN THE FRESHWATER SECTION

TABLE 16: PROGRESS TOWARDS THE TN TMDL IN THE FRESHWATER SECTION

SOURCE	% OF CONTROLLABLE LOAD	STARTING LOAD (KG/YR)	2010 LOAD (KG/YR)	ALLOCATION (KG/YR)	REMAINING REDUCTIONS (KG/YR)	% COMPLETE
WWTF	47%	364,650	227,045	227,239	-194	100%
MS4	1%	9,731	8,685	8,685	0	100%
Non-MS4	17%	88,705	77,317	74,119	3,198	78%
Agriculture*	40%	310,700	310,700	194,336	116,364	0%
Total	100%	773,786	623,747	504,378	119,369	56%

*Note: Reductions associated with BMPs implemented by producers has not yet been estimated.

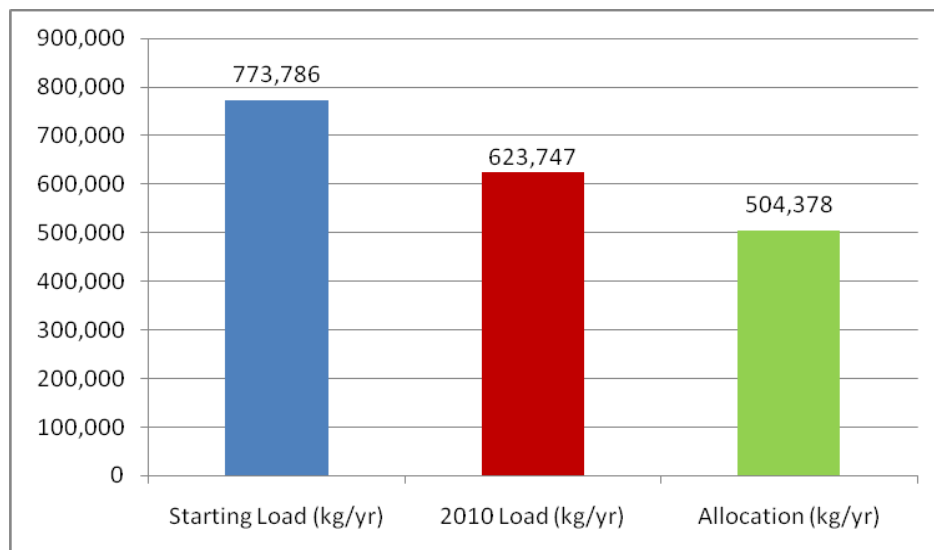


FIGURE 30: PROGRESS TOWARDS THE TN TMDL IN THE FRESHWATER SECTION

TABLE 17: PROGRESS TOWARDS THE TN TMDL IN THE MARINE SECTION

SOURCE	% OF CONTROLLABLE LOAD	STARTING LOAD (KG/YR)	2010 LOAD (KG/YR)	ALLOCATION (KG/YR)	REMAINING REDUCTIONS (KG/YR)	% COMPLETE
WWTF	84%	1,786,542	1,108,756	873,347	235,409	74%
MS4	14%	291,657	253,607	136,422	117,185	25%
Non-MS4	1%	24,767	22,726	17,192	5,534	27%
Agriculture*	1%	12,800	12,800	4,170	8,630	0%
Total	100%	2,115,766	1,397,889	1,031,131	366,758	66%

*Note: Reductions associated with BMPs implemented by producers has not yet been estimated.

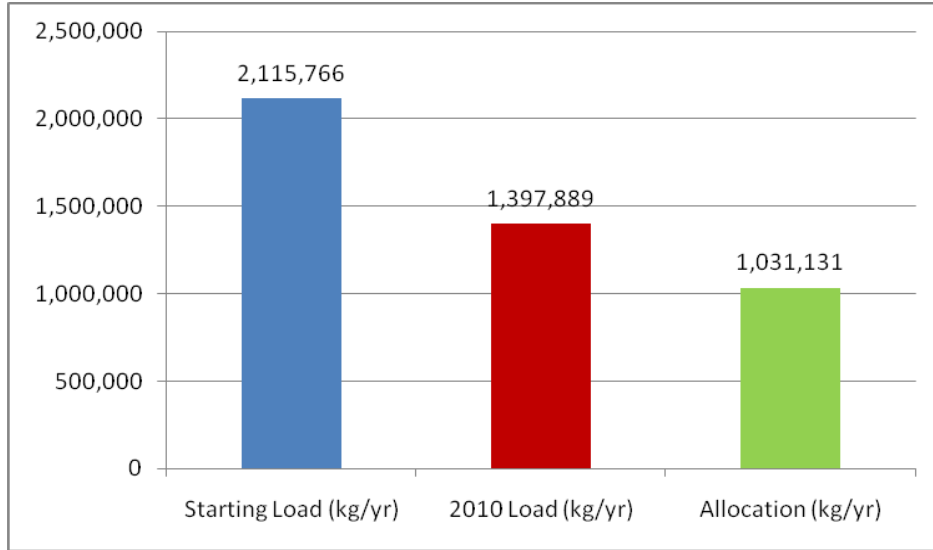


FIGURE 31: PROGRESS TOWARDS THE TN TMDL IN THE MARINE SECTION

SECTION 3: MAJOR ISSUES

3.1 SUMMARY OF ISSUES

The major issue in BMAP implementation this past year has been securing funding for projects. For local governments and water management districts, the economic downturn and subsequent decreases in *ad valorem* taxes and development fees has made it difficult to obtain the funding necessary to implement the BMAP projects. While funding continues to be an issue, this limitation has not caused major delays in implementation of BMAP projects scheduled to be completed during this reporting period. Another major concern for the stakeholders is the potential impact of the U.S. Environmental Protection Agency's numeric nutrient criteria (NNC) for lakes, springs, and flowing freshwaters. The criteria were promulgated on December 6, 2010, and the details of how the criteria will be implemented have not been fully determined. Additional federal NNC for estuarine and marine waters are expected by August 2012. There are concerns that these federal standards could undermine ongoing BMAP efforts by establishing standards (other than the TMDLs) that could result in different reduction requirements than are required in the BMAP. Additional details the issues encountered this past year are described in **Section 3.2**. The issues associated the BMAP monitoring plan are described in **Section 3.3**.

3.2 ISSUES BY SOURCE TYPE

3.2.1 WASTEWATER TREATMENT FACILITIES

3.2.1.1 Freshwater

City of Green Cove Springs

The major issue for the City of Green Cove Springs is funding for BMAP project implementation. In addition to funding concerns, a change in ownership of the Magnolia Point Golf Course several months ago has slowed down the city's coordination with them. It has also resulted in significantly reduced reuse consumption at the Magnolia Point Golf Course, and has also caused a more complex scope and costly improvements to the South WWTF in order to still meet the TN and TP discharge limits.

Funding issues have resulted in a huge economic impact to the citizens and ratepayers. The city is looking at a \$6,200,000 project at the South WWTF. The engineering is already encumbered at more than \$300,000. This has placed a huge negative impact on the city's reserves. The USDA loan will be financed for 40 years at an anticipated rate of 3.25%. However, unless almost 50% of the funds are from grants, the taxpayers will face a significant rate increase after an increased rate 6 months ago. The biggest concern on the minds of the City Council and staff is that this loan for improvements is stretching the city's financial capacity to the absolute limits. Our concern with this financial burden is that FDEP or EPA (with NNC) will continue to impose stricter limits that will not only be unfunded mandates, but un-fundable mandates.

The city feels that FDEP should take the lead in submitting the LSJR Main Stem TMDL as a SSAC.

City of Palatka

The City of Palatka WWTF project has been delayed due to nominal permitting requirements as well as the city evaluating other treatment options including ultraviolet treatment in lieu of a chlorine contact chamber. However, as noted earlier, this last phase of the WWTF project provides additional credit beyond BMAP reduction requirements. Therefore, the City of Palatka is still in compliance with the BMAP load reductions and schedule to date.

3.2.1.2 Marine

City of Neptune Beach

The main issue that the City of Neptune Beach had to address during the last year was scheduling construction efforts in a manner that would maintain permit conditions and address Administrative Order and Consent Order constraints during construction. The city was successful in these efforts and the WWTF project remains ahead of schedule.

Clay County Utility Authority

The major issue that CCUA has is trying to understand how the EPA NNC rule will impact the efforts that have made toward implementing BMAP projects. CCUA is uncertain whether or not additional money will need to be expended to meet the NNC rule and how FDEP will implement the rule. In addition, project CCUA-2 has been divided into 2 phases. The first phase was completed according to the BMAP schedule, but the second phase will not be completed until September 30, 2011. Since this project provides credit beyond BMAP reduction requirements, CCUA is still in compliance with the BMAP.

JEA

The ongoing issues surrounding prospective NNC requirements, as well as any potential impacts on the LSJR TMDL, have injected a degree of uncertainty to the planning process moving forward. Nevertheless, JEA anticipates no difficulties meeting the TMDL permit limits.

Town of Orange Park

Although BMAP implementation in the Town of Orange Park has been relatively free of issues, it has not been free of economic impact. The town has stretched its financial capacity to the limits to achieve good results, as have other utilities and MS4s in the LSJR Basin. This has occurred to the exclusion of expenditures on other important wastewater and stormwater functions that exist outside the realm of nutrient removal. The elected officials and senior staff in the town would like stronger assurances from the regulatory agencies, such as FDEP, that the money they are spending on BMAP will meet the water quality needs for years to come.

The confidence of local officials has been shaken by EPA's promulgation of NNC and uncertainty related to the adequacy of the TMDL and BMAP to protect surface waters. The confidence of the town is also shaken by EPA's rejection of the Doctor's Lake TMDL, which provided some assurance that the town's nutrient reductions to the LSJR would be counted as protective to the water quality of Doctor's Lake (based on the Buckman Dye Study). If EPA NNC rules become inevitable, the Town of Orange Park believes that FDEP should be the lead agency in filing for, and supporting the Main Stem TMDL as a SSAC. The Town further believes that FDEP should also file to have the Doctor's Lake TMDL (approved by FDEP in September 2009) included as a SSAC.

3.2.2 MS4s

3.2.2.1 Marine

Florida Department of Transportation

FDOT's Beach Boulevard improvement project, COJ-94, has been delayed until August 2011 due to weather and construction delays. FDEP is coordinating with FDOT on this project to determine a new compliance schedule.

St. Johns County

For St. Johns County, the tight fiscal environment will prove challenging to secure the full funding needed for project implementation.

3.2.3 URBAN STORMWATER

3.2.3.1 Freshwater

Putnam County

The completion date for the East Putnam County Regional WWTF has been delayed until December 31, 2012. This will also delay the completion of the septic tank phase-out project (PUT-3) until this date. However, during the 2009 annual progress report, Putnam County added the septic tank phase-out project to replace the Trade with Port Buena Vista WWTF project, which was scheduled to be completed on March 1, 2014. Therefore, the BMAP load reduction timeline will still be met. The delay in the regional WWTF will also delay the trade with Hiawatha WWTF (PUT-2) until December 31, 2012 instead of August 31, 2010. FDEP is coordinating with Putnam County on this project to determine a new compliance schedule. In addition, major funding issues still remain for the completion of the Algal Initiative projects.

3.2.4 AGRICULTURE

Because of concerns (primarily on the part of chip potato growers) that the University of Florida – Institute of Food and Agricultural Services (IFAS) recommended rates are insufficient to sustain economically viable yields, growers have been reluctant to sign and submit an NOI. However, the vegetable and agronomic crop BMP manual gives some flexibility in implementing fertilization management/application, and specifically provides the following option: *“Use IFAS published fertilizer application recommendations as a general starting point, and if these rates are exceeded, growers are expected to employ additional nutrient and irrigation BMPs to negate possible environmental impacts.”*

In order to provide guidance to growers on which BMPs they should implement in this case, representatives of FDACS, SJRWMD, and IFAS Extension developed a “mitigating BMP table,” which was adopted as part of the BMAP. Because of the short timeframe for developing the table and the fact that growers were not included in the process, the following qualifying note was placed in the BMAP:

This table provides guidance for growers in the LSJR Basin to implement fertilization BMPs contained in the 2005 FDACS Water Quality/Quantity Best Management Practices for Florida Vegetable and Agronomic Crops (VAC) manual, for mitigating impacts when exceeding IFAS-recommended fertilizer application rates. The table will be ground-tested and is subject to modification based on practical and technical considerations. Revisions to the 2005 VAC manual, which will contain similar

guidance, will take precedence over this table once the revisions are adopted by rule.

Representatives of FDACS, SJRWMD, and IFAS have been working with growers in the TCAA during the past year to modify the table to be more relevant to the particular circumstances in that region. Growers have been fully engaged in these discussions, and have indicated a willingness to enroll in the FDACS BMP program upon resolution of the table. They support new research to determine a range of nitrogen and phosphorus applications adequate for the region and the potato varieties that are grown. The discussions have been somewhat extended as a result of a shift in focus from nitrogen to phosphorus as the nutrient of concern. However, resolution of this guidance document appears to be imminent.

State-level cost-share funding was not available for the BMAP reporting year, and fiscal projections indicate the same for the upcoming year. However, FDACS has proposed that the agencies, the growers, and IFAS jointly develop a 5-year research and extension plan for the TCAA, and seek the means to fund it. The immediate emphasis should be on assisting the growers (through IFAS Extension) in applying relevant research results and developing nutrient and irrigation management schemes for their individual operations that will reduce their fertilizer use to the maximum extent practicable to maintain production. This may involve the need for cost-share for high cost items such as banding equipment. Managing fertilizer and reducing inputs will continue to be an important component of nutrient reductions in the TCAA; however, water management may be the key to fully achieving the agricultural allocation in the BMAP. Therefore, the 5-year plan should provide for evaluating the technological and economic feasibility of on-site and regional water management options to prevent the movement of nutrient-laden stormwater to the river, and for implementing those options deemed feasible by the affected interests.

3.3 WATER QUALITY MONITORING ISSUES

When sampling the freshwater section using the fluorometer, FDEP encountered issues with the equipment and was unable to collect fluorescence data for the entire period of April through August. Fluorescence data are available from the first sampling event in April 2010 through August 18, 2010. FDEP is determining whether the additional fluorescence data are needed for future sampling events or if the transect sampling and ambient monitoring in the freshwater section is sufficient to determine compliance with the TMDLs.

In the marine section, the Fulton Point DO station went down in November 2009 when the sondes were lost. It should be noted that the Clapboard Creek station sondes were lost in October 2009, so both new stations were disabled starting in late 2009. FDEP was able to set up both stations again in July 2010 with new equipment and the assistance of FDOT divers. However, the loss of both new DO stations meant that data were only collected at these sites for 6 months during the reporting period. It appears that the new sondes are working well and have been correctly verified.

For the high-flow event sampling, most of the monitoring occurred as outlined in the BMAP. The City of Jacksonville was unable to obtain any storm event samples at their Ribault River station; however, they will try to collect data from this site in the upcoming year. In addition, the City of Jacksonville lost some of their data due to a computer crash. The available information was provided as shown in **Appendix B**. Overall, the entities were able to collect sufficient data although there was some difficulty in going out to sample quickly enough after an appropriate rain event.

SECTION 4: UPCOMING YEAR ACTIVITIES

4.1 SUMMARY OF EFFORTS FOR THE UPCOMING YEAR

The third annual BMAP progress report will encompass the period of January 1, 2011 through December 31, 2011. During this time, the City of Green Cove Springs should complete their WWTF project in the freshwater section. The City of Neptune Beach, CCUA, and Town of Orange Park will complete WWTF projects in the marine section. The City of Jacksonville will continue to phase-out septic tanks and design stormwater projects to meet their MS4 allocation, and FDOT will complete one stormwater improvement project. For non-MS4 reductions, Camp Blanding will continue the maintenance and repair of their swales in the marine section. FDACS should have all vegetable and container nursery, sod, and cow/calf operations enrolled in BMPs next year. In addition, all components of the monitoring plan should continue. Additional details are included in **Section 4.2** and **Section 4.3**.

4.2 UPCOMING EFFORTS BY SOURCE TYPE

4.2.1 WASTEWATER TREATMENT FACILITIES

4.2.1.1 Freshwater

City of Green Cove Springs

The City of Green Cove Springs will complete the project to send reuse to the golf course (GSC-1). This project will result in a reduction of 2,743 kg/yr of TP and 8,647 kg/yr of TN. In addition, construction will begin on the project to update the South WWTF (GCS-2).

4.2.1.2 Marine

City of Neptune Beach

The project to upgrade the Neptune Beach WWTF is anticipated to be completed by July 14, 2011 for a total reduction in TN of 7,322 kg/yr.

Clay County Utility Authority

CCUA will complete the second phase of the reuse water upgrades for a total reduction in TN of 16,209 kg/yr.

Town of Orange Park

The Town of Orange Park will complete the Ash Street WWTF Phase Two improvements for a total reduction in TN of 5,690 kg/yr.

4.2.2 MS4s

4.2.2.1 Marine

City of Jacksonville

The City of Jacksonville will continue with the septic tank-phase out project and the design of the master stormwater projects.

Florida Department of Transportation

FDOT will complete the Beach Boulevard improvements project (COJ-94) for a total TN reduction of 60 kg/yr.

4.2.3 URBAN STORMWATER

4.2.3.1 Marine

Camp Blanding

Camp Blanding will complete the maintenance/repair of the next set of swales (approximately one-fifth of the total swales) by December 31, 2011.

4.2.4 AGRICULTURE

The target date for enrolling all vegetable and container nursery operations is July 2011. The target date for enrolling all sod and cow/calf operations is October 2011. In early 2010, FDACS lost the contractor that was working on enrollments in the LSJR, and has had limited resources for that area. The FDACS Office of Agricultural Water Policy will attempt to focus additional staff resources temporarily in that area to increase enrollment. During 2011, FDACS BMAP manuals addressing equine operations, in-ground nurseries, and specialty fruit and nut crops are scheduled to be adopted.

4.3 WATER QUALITY MONITORING

For the freshwater sampling, SJRWMD will continue to monitor at their ambient stations and FDEP will collect the river transect samples from April 2010 through October 2010. FDEP will also make a determination as to what sampling, if any, is needed to replace the fluorescence data. JEA will continue to operate and maintain the DO stations at Fulton Point and Clapboard Creek for the marine section monitoring. SJRWMD and JEA will continue the ambient water quality sampling in the tributaries, and CCUA, SJRWMD, and the City of Jacksonville will continue their high-flow event sampling. The City of Jacksonville will try to collect samples at the Ribault River site, which did not have any previous storm event data.

APPENDIX A: BMAP PROJECTS

The BMAP project tables below show the status of the projects as of December 31, 2010. These tables provide information on the nutrient reduction attributed to each individual project and the remaining nutrient load after each project is implemented, shown in both kilograms per year (kg/yr) and pounds per year (lbs/yr). The expected load reductions are subtracted from the entity's starting point load. The remaining nutrient balance once all projects have been implemented by an entity should be equal to or exceed the allocation for that entity's facility or facilities. The schedule to implement each of the projects is also included in the tables.

FRESHWATER PHOSPHORUS ALLOCATION

Name of Facility

**Wasteload
Allocation (kg/yr)**

Clay County MS4212.6
FLR04E045

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
CC MS4 FLR04E045	N/A	Total Reduction Required	N/A	N/A	N/A	191.9	422.2
CC MS4 FLR04E045	CC-1	Education Program	N/A	N/A	Ongoing	16.2	35.6
CC MS4 FLR04E045	CC-2	FDOT SR 21 Widening from SR 215 to CR 220	Dry retention (1")	12	Completed	2.3	5.1
CC MS4 FLR04E045	CC-3	Trade with CCUA	N/A	N/A	Completed	173.4	381.5
CC MS4 FLR04E045	N/A	Total Project Reductions	N/A	N/A	N/A	191.9	442.2
CC MS4 FLR04E045	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

City of Green Cove Springs Aggregate.....1,929.2
FL0635618

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Green Cove Total (Aggregate)	N/A	Total Reduction Required	N/A	1,935.8	4,258.8
GCS – Harbor Road FL0020915	GGs-1	Reuse to golf course	05/01/2011	2,743	6,034.6
GCS – South FL0030210	GCS-2	Convert to Modified Ludzack-Ettinger and alum feed	10/01/2012	466	1,025.2
Green Cove Total (Aggregate)	N/A	Total Project Reductions	N/A	3,209	7,059.8
Green Cove Total (Aggregate)	N/A	Credit/(Deficit)	N/A	1,273.2	2,801.0
Green Cove Total (Aggregate)			Implementation Schedule		
Phase One – Initial Nutrient Removal Phase					
a. Preliminary Plans Complete			Completed - 09/30/2010		
b. Final Plans and Specifications Complete			01/30/2011		
c. Begin Construction			04/01/2011		
d. End Construction			04/01/2012		
e. Begin Operation			05/01/2012		
f. Operational Level Attained			10/01/2012		

City of Green Cove Springs MS4.....1,043.7
FLR04E103

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Green Cove MS4	N/A	Total Reduction Required	N/A	N/A	N/A	52	114
GCS MS4 FLR04E103	GCS-3	SW Drainage System Improvements	Wet Detention (1", 21 day)	54.6	Completed	15	33
GCS MS4 FLR04E103	GCS-4	Cypress Baffle Box	Baffle Box	125	Completed	6	13
GCS MS4 FLR04E103	GCS-5	Green Cove Springs Industrial Park	Wet Detention (2.5", 21 day)	91.6	Completed	31	68
GCS MS4 FLR04E103	GCS-6	Vystar Credit Union	Dry Detention	1.8	Completed	0	0
Green Cove MS4	N/A	Total Project Reductions	N/A	N/A	N/A	52	114
Green Cove MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

City of Palatka WWTF.....5,954.7
FL0040061

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Palatka WWTF	N/A	Total Reduction Required	N/A	4,000.3	8,800.7
Palatka WWTF FL0040061	PAL-1	Reuse to golf course	Completed	1,730	3,806
Palatka WWTF FL0040061	PAL-2	Reuse to ball fields	Completed	691	1,520
Palatka WWTF FL0040061	PAL-3	Reuse to cemeteries	Completed	1,205	2,651
Palatka WWTF FL0040061	PAL-4	Reuse at WTP	Completed	1,555	3,421
Palatka WWTF FL0040061	PAL-5	Zero discharge	03/30/2012	4,774	10,503
Palatka WWTF	N/A	Total Project Reductions	N/A	9,955	21,901
Palatka WWTF	N/A	Credit/(Deficit)	N/A	5,954.7	13,100.3
Palatka WWTF Total			Implementation Schedule		
Zero Discharge					
a. Preliminary Plans Complete			01/31/2008		
b. Final Plans and Specifications Complete			Completed - 10/31/2008		
c. Begin Construction			Completed - 11/01/2008		
d. End Construction			03/30/2012		
e. Begin Operation			03/30/2012		
f. Operational Level Attained			03/30/2012		

Georgia-Pacific.....33,182
FL0002763

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Georgia-Pacific	N/A	Total Reduction Required	N/A	30,693	67,525
Georgia-Pacific	GP-1	Complete Process Improvements	Completed	30,693	67,525
Georgia-Pacific	N/A	Total Project Reductions	N/A	30,693	67,525
Georgia-Pacific	N/A	Credit/(Deficit)	N/A	0	0

Name of Facility.....Load Allocation (kg/yr)

City of Palatka Non-MS41,507.8

FACILITY NAME	DESCRIPTION	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Palatka Non-MS4	Total Reduction Required	0	0
Palatka Non-MS4	Total Project Reductions	0	0
Palatka Non-MS4	Credit/(Deficit)	0	0

Clay County Non-MS4499.4

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
CC Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	267.9	589.4
CC Non-MS4	CC-4	Education Program	N/A	N/A	Ongoing	30.7	67.5
CC Non-MS4	CC-5	FDOT construction of 7 new wet ponds on SR15 from Putnam County line to SR16	Wet pond (1", 14 days)	281	Completed	89.5	196.9
CC Non-MS4	CC-6	Trade with CCUA	N/A	N/A	Completed	147.7	324.9
CC Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	267.9	589.4
CC Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

Hastings Non-MS449.3

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Hastings Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	43.6	95.9
Hastings Non-MS4	HAS-1	WWTP Chemical Feed Systems	N/A	N/A	Completed	249.1	548.0
Hastings Non-MS4	HAS-2	FDOT 4 laning of SR 207	Wet Pond (1", 14 days)	12	Completed	3.6	7.9
Hastings Non-MS4	HAS-3	FDOT 4 laning of SR207 from CR305 to Cypress Link Blvd	Wet Pond (1", 14 days)	106	Completed	33.6	73.9
Hastings Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	286.3	629.9
Hastings Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	242.7	533.9

Putnam County Non-MS4.....3,964.9

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Putnam Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	2,025.5	4,456.1
Putnam Non-MS4	PUT-1	Trade with Putnam Lanes WWTF	N/A	N/A	Completed	12.5	27.5
Putnam Non-MS4	PUT-2	Trade with Hiawatha WWTF	N/A	N/A	12/31/2012	49.8	109.6
Putnam Non-MS4	PUT-3	Septic Tank Phase-Out	N/A	N/A	12/30/2012	298.0	656.0
Putnam Non-MS4	PUT-4	Edgefield RST O&M Value	N/A	N/A	Completed - 10/01/2010	269.1	592.0
Putnam Non-MS4	PUT-5	FDOT construction of 7 new wet ponds on SR15 from Clay County line to south of Gordon Wilkins Rd	Wet pond (1", 14 days)	1,181	Completed	376.8	829.0
Putnam non-MS4	PUT-6	Algal Initiative	N/A	N/A	10/31/2017	1,019.3	2,242.5
Putnam Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	2,025.5	4,456.1
Putnam Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0
Putnam County Non-MS4 Total			Implementation Schedule				
Trade with Hiawatha WWTF							
a. Start Date of Project			04/01/2008				
b. Completion Date - Design			Completed - 02/01/2009				
c. Completion Date - Construction			The line is constructed but need the East Putnam County Regional WWTF to be completed for regional tie in. Estimated completion is 12/31/2012.				
d. Completion Date – Completion of Project			12/31/2012				
Septic Tank Phase-Out US 17 – tie into EPCR WWTF							
a. Start Date of Project			01/01/2009				
b. Completion Date - Design			Completed - 02/02/2009				
c. Completion Date - Construction			12/30/2012				
d. Completion Date – Completion of Project			12/30/2012				
Algal Initiative							
a. Start Date of Project			10/01/2008				
b. Completion Date – Project Assessment			Completed - 10/31/2010				
c. Completion Date – Project Fundraising			10/31/2012				
d. Completion Date – Construction			10/31/2017				

St. Johns County Non-MS4.....3,296.6

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
SJC Non-MS4	N/A	Total Reduction Required	N/A	430.8	947.8
SJC Non-MS4	SJC-3	Stormwater Education	Ongoing	186.4	410.1
SJC Non-MS4	SJC-4	Low-impact development	Ongoing	Not quantified	0
SJC Non-MS4	SJC-5	Slow release fertilizer ordinance	Completed - 06/10/2010	Not quantified	0
SJC Non-MS4	SJC-6	Deep Creek RST O&M value	Completed - 09/21/2010	255.9	563.0
SJC Non-MS4	SJC-7	Purchase Hastings WWTF reduction credits	Completed - 09/01/2009	198.2	436.0
SJC Non-MS4	N/A	Total Project Reductions	N/A	640.5	1,409.1
SJC Non-MS4	N/A	Credit/(Deficit)	N/A	209.7	461.3

Welaka Non-MS490.4

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TP REDUCTION (KG/YR)	PROJECT TP REDUCTION (LBS/YR)
Welaka Non-MS4	N/A	Total Reduction Required	N/A	81.6	179.5
Welaka Non-MS4	WEL-1	Septic Tank Phase-Out	Completed	153.0	336.6
Welaka Non-MS4	N/A	Total Project Reductions	N/A	153.0	336.6
Welaka Non-MS4	N/A	Credit/(Deficit)	N/A	71.4	157.1

POINT SOURCE – FRESHWATER NITROGEN ALLOCATION

Name of Facility

**Wasteload
Allocation (kg/yr)**

**Clay County MS42,418
FLR04E045**

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
CC MS4 FLR04E045	N/A	Total Reduction Required	N/A	N/A	N/A	352	774
CC MS4 FLR04E045	CC-1	Education Program	N/A	N/A	Ongoing	111	244
CC MS4 FLR04E045	CC-2	FDOT SR 21 Widening from SR 215 to CR 220	Dry retention (1")	12	Completed	5	11
CC MS4 FLR04E045	CC-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	236	519
CC MS4 FLR04E045	N/A	Total Project Reductions	N/A	N/A	N/A	352	774
CC MS4 FLR04E045	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

City of Green Cove Springs Aggregate..... 7,752.5
FL0635618

Facility Name	Project Number	Description	Deadline	Project TN Reduction (kg/yr)	Project TN Reduction (lbs/yr)
Green Cove Total (Aggregate)	N/A	Total Reduction Required	N/A	6,847.5	15,064.5
GCS – Harbor Road FL0020915	GCS-1	Reuse to golf course	05/01/2011	8,647	19,023
GCS – South FL0030210	GCS-2	Convert to Modified Ludzack-Ettinger and alum feed	10/01/2012	1,003	2,207
Green Cove Total (Aggregate)	N/A	Total Project Reductions	N/A	9,650	21,230
Green Cove Total (Aggregate)	N/A	Credit/(Deficit)	N/A	2,802.5	6,165.5
Green Cove Total (Aggregate)			Implementation Schedule		
Nutrient Removal Phase					
a. Preliminary Plans Complete			Completed - 09/30/2010		
b. Final Plans and Specifications Complete			01/30/2011		
c. Begin Construction			04/01/2011		
d. End Construction			04/01/2012		
e. Begin Operation			05/01/2012		
f. Operational Level Attained			10/01/2012		

City of Green Cove Springs MS4..... 6,266.5
FLR04E103

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP (S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Green Cove MS4	N/A	Total Reduction Required	N/A	N/A	N/A	694.5	1,528
GCS MS4 FLR04E103	GCS-3	SW Drainage System Improvements	Wet Detention (1", 21 day)	54.6	Completed	28	62
GCS MS4 FLR04E103	GCS-4	Cypress Baffle Box	Baffle Box	125	Completed	15	33
GCS MS4 FLR04E103	GCS-5	Green Cove Springs Industrial Park	Wet Detention (2.5", 21 day)	91.6	Completed	58	128
GCS MS4 FLR04E103	GCS-6	Vystar Credit Union	Dry Detention	1.8	Completed	0.5	1
GCS MS4 FLR04E103	GCS-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	593	1,305
Green Cove MS4	N/A	Total Project Reductions	N/A	N/A	N/A	694.5	1,528
Green Cove MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

City of Palatka WWTF.....38,845
FL0040061

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Palatka WWTF	N/A	Total Reduction Required	N/A	22,044	48,497
Palatka WWTF FL0040061	PAL-1	Reuse to golf course	Completed	13,000	28,600
Palatka WWTF FL0040061	PAL-2	Reuse to ball fields	Completed	5,227	11,499
Palatka WWTF FL0040061	PAL-3	Reuse to cemeteries	Completed	9,091	20,000
Palatka WWTF FL0040061	PAL-4	Reuse at WTP	Completed	11,727	25,799
Palatka WWTF FL0040061	PAL-5	Zero discharge	03/30/2012	21,844	48,057
Palatka WWTF	N/A	Total Project Reductions	N/A	60,889	133,956
Palatka WWTF	N/A	Credit/(Deficit)	N/A	38,845	85,459
Palatka WWTF Total			Implementation Schedule		
Zero Discharge					
a. Preliminary Plans Complete			Completed - 01/31/2008		
b. Final Plans and Specifications Complete			Completed - 10/31/2008		
c. Begin Construction			Completed - 11/01/2008		
d. End Construction			03/30/2012		
e. Begin Operation			03/30/2012		
f. Operational Level Attained			03/30/2012		

Georgia-Pacific WWTF.....165,909
FL0002763

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Georgia-Pacific	N/A	Total Reduction Required	N/A	92,246	202,941
Georgia-Pacific	GP-1	Complete Process Improvements	Completed	92,246	202,941
Georgia-Pacific	N/A	Total Project Reductions	N/A	92,246	202,941
Georgia-Pacific	N/A	Credit/(Deficit)	N/A	0	0

Seminole Electric.....14,732
FL0036498

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Seminole Electric Total	N/A	Total Reduction Required	N/A	6,314	13,891
Seminole Electric FL0036498	SE-1	SCR Upgrade	Completed – 12/31/2009	6,314	13,891
Seminole Electric Total	N/A	Total Project Reductions	N/A	6,314	13,891
Seminole Electric Total	N/A	Credit/(Deficit)	N/A	0	0

Name of Facility**Load Allocation (kg/yr)****City of Palatka Non-MS48,858**

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Palatka Non-MS4	N/A	Total Reduction Required	N/A	825	1,815
Palatka Non-MS4	PAL-6	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed – 12/31/2009	825	1,815
Palatka Non-MS4	N/A	Total Project Reductions	N/A	825	1,815
Palatka Non-MS4	N/A	Credit/(Deficit)	N/A	0	0

Clay County Non-MS44,659

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
CC Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	920	2,024
CC Non-MS4	CC-3	Education Program	N/A	N/A	Ongoing	223	491
CC Non-MS4	CC-4	FDOT Construction of 7 new Wet Ponds on SR 15 from Putnam County Line to SR 16	Wet pond (1", 14 days)	281	Completed	172	378
CC Non-MS4	CC-8	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	525	1,155
CC Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	920	2,024
CC Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

Hastings Non-MS4.....448

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Hastings Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	177	389
Hastings Non-MS4	HAS-1	WWTP Chemical Feed Systems	N/A	N/A	Completed	176	388
Hastings Non-MS4	HAS-2	FDOT 4 laning of SR 207	Wet Pond (1", 14 days)	12	Completed	7	15
Hastings Non-MS4	HAS-3	FDOT 4 laning of SR207 from CR305 to Cypress Link Blvd	Wet Pond (1", 14 days)	106	Completed	65	143
Hastings Non-MS4	HAS-4	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	54	119
Hastings Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	302	664
Hastings Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	125	275

Putnam County Non-MS4.....33,976

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Putnam Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	9,639	21,206
Putnam Non-MS4	PUT-1	Trade with Putnam Lanes WWTF	N/A	N/A	Completed	50	110
Putnam Non-MS4	PUT-2	Trade with Hiawatha WWTF	N/A	N/A	12/31/2012	150	330
Putnam Non-MS4	PUT-3	Septic Tank Phase-Out	N/A	N/A	12/30/2012	1,097	2,414
Putnam Non-MS4	PUT-4	Edgefield RST O&M Value	N/A	N/A	Completed - 10/01/2010	594	1,307
Putnam Non-MS4	PUT-5	FDOT construction of 7 new wet ponds on SR15 from Clay County line to south of Gordon Wilkins Rd	Wet pond (1", 14 days)	1,181	Completed	723	1,591
Putnam Non-MS4	PUT-6	Algal Initiative	N/A	N/A	10/31/2017	2,969	6,532
Putnam Non-MS4	PUT-7	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	4,056	8,923
Putnam Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	9,639	21,206
Putnam Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0
Putnam County Non-MS4 Total			Implementation Schedule				
Trade with Hiawatha WWTF							
a. Start Date of Project			04/01/2008				
b. Completion Date - Design			02/01/2009 – Completed				
c. Completion Date - Construction			Completed – 12/31/2010				
d. Completion Date – Completion of Project			12/31/2012				
Septic Tank Phase-Out US 17 – tie into EPCR WWTF							
a. Start Date of Project			01/01/2009				
b. Completion Date - Design			Completed - 02/02/2009				
c. Completion Date - Construction			12/30/2012				
d. Completion Date – Completion of Project			12/30/2012				
Algal Initiative							
a. Start Date of Project			10/01/2008				
b. Completion Date – Project Assessment			Completed - 10/31/2010				
c. Completion Date – Project Fundraising			10/31/2012				
d. Completion Date – Construction			10/31/2017				

St. Johns County Non-MS4.....25,340

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
SJC Non-MS4	N/A	Total Required Reduction	N/A	1,850	4,070
SJC Non-MS4	SJC-3	Stormwater Education	Ongoing	1,078	2,372
SJC Non-MS4	SJC-4	Low-impact development	Ongoing	Not quantified	Not quantified
SJC Non-MS4	SJC-5	Slow release fertilizer ordinance	Completed - 06/10/2010	Not quantified	Not quantified
SJC Non-MS4	SJC-6	Deep Creek RST O&M value	Completed - 09/21/2010	313	689
SJC Non-MS4	SJC-8	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed - 12/31/2009	1,937	4,261
SJC Non-MS4	SJC-27	Application of freshwater non-MS4 TN credits to the marine non-MS4 section	Completed	-1,391	-3,060
SJC Non-MS4	N/A	Total Project Reductions	N/A	1,937	4,261
SJC Non-MS4	N/A	Credit/(Deficit)	N/A	87	191

Welaka Non-MS4838

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Welaka Non-MS4	N/A	Total Reduction Required	N/A	337.0	741.4
Welaka Non-MS4	WEL-1	Septic Tank Phase-Out	Completed	490.0	1,078.0
Welaka Non-MS4	WEL-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed – 12/31/2009	100.0	220.0
Welaka Non-MS4	N/A	Total Project Reductions	N/A	590.0	1,298.0
Welaka Non-MS4	N/A	Credit/(Deficit)	N/A	253.0	556.6

POINT SOURCE – MARINE NITROGEN ALLOCATION

Name of Facility

**Wasteload
Allocation (kg/yr)**

**Anheuser Busch – Main Street.....12,418
FL0041530**

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Anheuser Busch – Main Street	N/A	Total Reduction Required	N/A	11,981	26,358
Anheuser Busch – Main Street	ANB-1	Complete Process Improvements	Completed	11,981	26,358
Anheuser Busch – Main Street	N/A	Total Project Reductions	N/A	11,981	26,358
Anheuser Busch – Main Street	N/A	Credit/(Deficit)	N/A	0	0

City of Atlantic Beach Aggregate21,188
FL0626881

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Atlantic Bch Total (Aggregate)	N/A	Total Reduction Required	N/A	28,087	61,791
Buccaneer WWTP FL0023248	AB-1	Complete Upgrade to Sequencing Batch Reactor	Completed	9,985	21,967
Main WWTP FL0038776	AB-2	Upgrade to Biological Nutrient Removal and Flow Transfer from Buccaneer WWTF	10/01/2013	22,119	48,661
Atlantic Bch Total (Aggregate)	N/A	Total Project Reductions	N/A	32,104	70,628
Atlantic Bch Total (Aggregate)	N/A	Credit/(Deficit)	N/A	4,017	8,837
Atlantic Beach Total (Aggregate)			Implementation Schedule		
Main WWTF Nutrient Removal Phase					
a. Preliminary Plans Complete			Completed - 03/30/2009		
b. Final Plans and Specifications Complete			Completed - 10/01/2010		
c. Begin Construction (Construction Contracts Awarded)			Completed - 12/13/2010		
d. End Construction			12/31/2012		
e. Begin Operation of Main WWTF Upgrade			03/31/2013		
f. Abandon Buccaneer WWTF			07/31/2013		
g. Operational Level Attained			10/01/2013		

City of Atlantic Beach MS41,651
FLS000012

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Atlantic Bch MS4	N/A	Total Reduction Required	N/A	N/A	N/A	823	1,811
Atlantic Bch MS4 FLS000012	AB-4	Core City Capital Improvement Project: stormwater, sanitary sewer and water systems upgrades	Second Generation Baffle Box	180	Completed	659	1,450
Atlantic Bch MS4 FLS000012	AB-5	Hopkins Creek Stormwater Treatment System	Wet Detention	53	Completed	12	26
Atlantic Bch MS4 FLS000012	AB-6	FDOT Widening of SR 10 (Atlantic Blvd) roadway & bridge upgrade	Wet Pond (1", 14 days)	152	Completed	50	110
Atlantic Bch MS4 FLS000012	AB-7	FDOT Atlantic Blvd and Mayport Rd Interchange	Wet Pond (1", 14 days)	50	Completed	18	40
Atlantic Bch MS4 FLS000012	AB-8	FDOT Wonderwood Connector Segment 1 – Girvin to Sandcastle	Wet Pond (1", 14 days)	70	Completed	6	13
Atlantic Bch MS4 FLS000012	AB-9	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	78	172
Atlantic Bch MS4	N/A	Total Project Reductions	N/A	N/A	N/A	823	1,811
Atlantic Bch MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

City of Jacksonville/Florida Department of Transportation MS4 96,016
FLS000012

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	N/A	Total Reduction Required	N/A	N/A	N/A	147,422	324,328
COJ MS4 FLS000012	COJ-1	Big Fishweir Creek-Murray Hill Phase I- Drainage improvements	Second generation baffle box	219	Completed	80	176
COJ MS4 FLS000012	COJ-2	Sixmile Creek-West 1st Street/Melson Avenue-Drainage improvements	Wet detention	254	Completed	470	1,034
COJ MS4 FLS000012	COJ-3	McCoys Creek Pond A & B	Wet detention	680	Completed	750	1,650
COJ MS4 FLS000012	COJ-4	McCoys Creek Pond F	Wet detention	11	Completed	10	22
COJ MS4 FLS000012	COJ-5	Riverside Ave-baffle boxes	Second generation baffle box	70	Completed	40	88
COJ MS4 FLS000012	COJ-6	St Augustine Rd (Emerson to US 1)- Regional pond facilities	Wet detention	167	Completed	200	440
COJ MS4 FLS000012	COJ-7	Powers Avenue/Old Kings Rd-Regional pond facilities	Wet detention	520	Completed	620	1,364
COJ MS4 FLS000012	COJ-8	Fouraker Rd- from Old Middleburg Rd. to Normandy Blvd. regional pond facilities	Wet detention	32	Completed	40	88
COJ MS4 FLS000012	COJ-9	Greenland Road-from St. Augustine Rd to Coastal Lane- detention pond facilities	Wet detention	33	Completed	30	66
COJ MS4 FLS000012	COJ-10	Barnes Rd-from University Blvd. to Parental Home Rd.- detention pond facilities	Wet detention	97	Completed	20	44
COJ MS4 FLS000012	COJ-11	Emerson St.-from Emerson St. Expwy. to Spring Glenn Rd - detention pond facility	Wet detention	17	Completed	20	44
COJ MS4 FLS000012	COJ-12	Bowden Rd-from U.S.# 1 to Salisbury Rd. - detention pond facilities	Wet detention	98	Completed	130	286
COJ MS4 FLS000012	COJ-13	Parental Home Rd Phase I (Bowden Rd from Salisbury Rd to Dean Rd) - detention pond facility	Wet detention	28	Completed	20	44
COJ MS4 FLS000012	COJ-14	Parental Home Rd Phase II (Beach Blvd to Ibach Rd) detention pond facility	Wet detention	82	Completed	10	22
COJ MS4 FLS000012	COJ-15	Lorretto Rd from S.R. 13 to Old St. Augustine Road - detention pond facilities	Wet detention	55	Completed	50	110
COJ MS4 FLS000012	COJ-16	Belford Rd-Pottsburg Ck. to Touchton Rd. detention pond facilities	Wet detention	20	Completed	10	22
COJ MS4 FLS000012	COJ-17	Royal Terrace phases A+B+C+D+E+1+2+3+4 - master pond facility	Wet detention	332	Completed	410	902

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-18	University Pointe regional pond facility	Wet detention	102	Completed	150	330
COJ MS4 FLS000012	COJ-19	Cleveland Road-Phase I-B wet detention pond	Wet detention	269	Completed	150	330
COJ MS4 FLS000012	COJ-20	Hogan Creek	Wet detention	48	Completed	50	110
COJ MS4 FLS000012	COJ-21	McCoy Creek Pond D	Wet detention	27	Completed	30	66
COJ MS4 FLS000012	COJ-22	Upper Deer Creek Regional Stormwater Facility	Wet detention	537	Completed	840	1,848
COJ MS4 FLS000012	COJ-23	Hugh Edwards Canal	Wet detention	329	Completed	760	1,672
COJ MS4 FLS000012	COJ-24	Cedar River Outfall Improvements	Wet detention	1,452	Completed	530	1,166
COJ MS4 FLS000012	COJ-25	Sandalwood Canal	Wet detention	3,118	Completed	880	1,936
COJ MS4 FLS000012	COJ-26	Moncrief Creek	Wet detention	619	Completed	650	1,430
COJ MS4 FLS000012	COJ-27	Lincoln Villas-East Side-regional pond facility	Wet detention	185	Completed	100	220
COJ MS4 FLS000012	COJ-28	Old Middleburg Rd from Wilson Blvd to 103rd St-regional pond facilities	Wet detention	192	Completed	210	462
COJ MS4 FLS000012	COJ-29	Lakeshore Woodcrest Drainage Improvement	Wet detention	296	Completed	440	968
COJ MS4 FLS000012	COJ-30	Townsend Rd drainage improvements	Wet detention	151	Completed	60	132
COJ MS4 FLS000012	COJ-31	Lenox Ave (Highway to McDuff)	Wet detention	108	Completed	180	396
COJ MS4 FLS000012	COJ-32	Wesconnett Blvd (Blanding to Blanding)	Wet detention	396	Completed	40	88
COJ MS4 FLS000012	COJ-33	Durkeeville West	Wet detention	106	Completed	160	352
COJ MS4 FLS000012	COJ-34	Huffman Boulevard	Wet detention	16	Completed	20	44
COJ MS4 FLS000012	COJ-35	Spring Park Rd/Emerson to University	Wet detention	36	Completed	50	110
COJ MS4 FLS000012	COJ-36	Barnes Rd/Kennerly to University	Wet detention	418	Completed	720	1,584
COJ MS4 FLS000012	COJ-37	Pritchard Rd (Jones to I-295)	Wet detention	116	Completed	0	0

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-38	Lenox, Lane to Normandy	Wet detention	47	Completed	30	66
COJ MS4 FLS000012	COJ-39	Cahoon Rd, Phase I	Wet detention	23	Completed	20	44
COJ MS4 FLS000012	COJ-40	Pulaski Road (Eastport Dr to New Berlin Rd)	Wet detention	19	Completed	20	44
COJ MS4 FLS000012	COJ-41	Lamoya Roadway Project	Wet detention	17	Completed	0	0
COJ MS4 FLS000012	COJ-42	LSJR upstream of Trout River	Wet detention ¹	3,141	12/31/2023	2,500	5,500
COJ MS4 FLS000012	COJ-43	Ortega River	Wet detention ¹	7,169	12/31/2023	4,600	10,120
COJ MS4 FLS000012	COJ-44	Arlington River	Wet detention ¹	3,352	12/31/2023	2,500	5,500
COJ MS4 FLS000012	COJ-45	LSJR Downstream of Trout River	Wet detention ¹	514	12/31/2023	200	440
COJ MS4 FLS000012	COJ-46	Intracoastal Waterway	Wet detention ¹	7,646	12/31/2023	4,600	10,120
COJ MS4 FLS000012	COJ-47	Julington Creek	Wet detention ¹	4,404	12/31/2023	2,600	5,720
COJ MS4 FLS000012	COJ-48	Trout River	Wet detention ¹	5,329	12/31/2023	2,100	4,620
COJ MS4 FLS000012	COJ-49	Broward River	Wet detention ¹	837	12/31/2023	700	1,540
COJ MS4 FLS000012	COJ-50	Dunn Creek	Wet detention ¹	1,300	12/31/2023	600	1,320
COJ MS4 FLS000012	COJ-51	Public Education Activities	N/A	N/A	Ongoing	9,859	21,690
COJ MS4 FLS000012	COJ-52	Septic Tank Phase-Out Projects ²	N/A	N/A	12/31/2023 ³	103,619	227,962
COJ MS4 FLS000012	COJ-53	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	6,926	15,237
COJ MS4 FLS000012	N/A	City of Jacksonville Projects Subtotal	N/A	N/A	N/A	149,804	329,569
COJ MS4 FLS000012	COJ-54	FDOT Urban Office Reconstruction	Dry retention w/ underdrain	7	Completed	9	20
COJ MS4 FLS000012	COJ-55	FDOT Fort George Inlet Bridge	Wet pond (1", 14 days)	18	Completed	6	13
COJ MS4 FLS000012	COJ-56	FDOT Widening of Riverside Area	Wet pond (1", 14 days)	14	Completed	5	11

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-57	FDOT Widening of Merrill Road between Wompi Drive and Milcoe road	Wet pond (1", 14 days)	58	Completed	21	46
COJ MS4 FLS000012	COJ-58	FDOT Widening of Merrill Road between 9A and Wompi Drive	Wet pond (1", 14 days)	69	Completed	25	55
COJ MS4 FLS000012	COJ-59	FDOT Widening of SR 13 to six lane divided highway	Wet pond (1", 14 days)	174	Completed	63	139
COJ MS4 FLS000012	COJ-60	FDOT Bch Blvd Widening from ICWW to E. of Penman	Wet pond (1", 14 days)	25	Completed	9	20
COJ MS4 FLS000012	COJ-61	FDOT I-295 and SR 21 (Blanding) interchange upgrade	Wet pond (1", 14 days)	42	Completed	15	33
COJ MS4 FLS000012	COJ-62	FDOT I-295 and SR 17 (Blanding) interchange expansion	Wet pond (1", 14 days)	96	Completed	35	77
COJ MS4 FLS000012	COJ-63	FDOT JTB/Belfort Road Interchange	Wet pond (1", 14 days)	155	Completed	56	123
COJ MS4 FLS000012	COJ-64	FDOT Pine Avenue Sidewalk	Dry retention (1")	7	Completed	9	20
COJ MS4 FLS000012	COJ-65	FDOT 9A from Baymeadows Road to I-95	Wet pond (1", 14 days)	550	Completed	200	440
COJ MS4 FLS000012	COJ-66	FDOT Widening of I-95 from St. Johns County line to 9A/I-295	Wet pond (1", 14 days)	175	Completed	64	141
COJ MS4 FLS000012	COJ-67	FDOT Widening of I-95 from I-295 to south of JTB	Wet pond (1", 14 days)	441	Completed	160	352
COJ MS4 FLS000012	COJ-68	FDOT Widening of SR 10 (Atlantic Blvd from St. Johns Bluff to San Pablo)	Wet pond (1", 14 days)	1096	Completed	397	873
COJ MS4 FLS000012	COJ-69	FDOT Widening of Southside Blvd	Dry retention	146	Completed	53	117
COJ MS4 FLS000012	COJ-70	FDOT New JTB/9A Interchange	Detention/retention (1")	339	Completed	442	972
COJ MS4 FLS000012	COJ-71	FDOT Southside (SR 115) frontage road	Wet pond (1", 14 days)	8	Completed	3	7
COJ MS4 FLS000012	COJ-72	FDOT I-95 Improvement - from I-295 to Nassau County Line South Project	Wet pond (1", 14 days)	291	Completed	105	231
COJ MS4 FLS000012	COJ-73	FDOT I-95 Improvement - S. of Clarke rd to I-295	Wet pond (1", 14 days)	94	Completed	34	75
COJ MS4 FLS000012	COJ-74	FDOT 9A Improvement - South Project	Wet pond (1", 14 days)	176	Completed	64	141
COJ MS4 FLS000012	COJ-75	FDOT 9A from South of Atlantic to Beach Blvd	Wet pond (1", 14 days)	124	Completed	45	99
COJ MS4 FLS000012	COJ-76	FDOT I-295/I-95/9A Interchange	Wet pond (1", 14 days)	580	Completed	200	440

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-77	FDOT Branan Field Chafee roadway project	Wet pond (1", 14 days)	187	Completed	115	253
COJ MS4 FLS000012	COJ-78	FDOT Wonderwood Connector Segment 1 project Girvin to Sandcastle	Wet pond (1", 14 days)	70	Completed	19	42
COJ MS4 FLS000012	COJ-79	FDOT JIA South Access Connector project	Dry detention	63	Completed	82	180
COJ MS4 FLS000012	COJ-80	FDOT I-95 Widening from Lem Turner to I-295 project	Wet pond (1", 14 days)	117	Completed	42	92
COJ MS4 FLS000012	COJ-81	FDOT 4 laning of SR 13	Wet pond (1", 14 days)	105	Completed	38	84
COJ MS4 FLS000012	COJ-82	FDOT SR21 Widening from S. of Cedar River to E. of Cassat	Wet pond (1", 14 days)	19	Completed	7	15
COJ MS4 FLS000012	COJ-83	FDOT Arlington Expressway Project	Unknown	27	Completed	10	22
COJ MS4 FLS000012	COJ-84	FDOT Merrill Rd Southside Blvd Interchange Project	Wet pond (1", 14 days)	15	Completed	5	11
COJ MS4 FLS000012	COJ-85	FDOT Baymeadows Project from East of US 1 to SR 13	Wet pond (1", 14 days)	35	Completed	9	20
COJ MS4 FLS000012	COJ-86	FDOT SR 115/8th St Project	Wet pond (1", 14 days)	31	Completed	11	24
COJ MS4 FLS000012	COJ-87	FDOT SR 115/8th St Project	Wet pond (1", 14 days)	4	Completed	1	2
COJ MS4 FLS000012	COJ-88	FDOT JTB from I-95 to Gate Parkway Project	Wet pond (1", 14 days)	58	Completed	21	46
COJ MS4 FLS000012	COJ-89	FDOT I-295 from West of Duval to Biscayne Blvd	Wet pond (1", 14 days)	20	Completed	7	15
COJ MS4 FLS000012	COJ-90	FDOT Beaver Street (US 90) Project from Stockton to Tyler	Wet pond (1", 14 days)	7	Completed	3	7
COJ MS4 FLS000012	COJ-91	FDOT 9A from Baymeadows to JTB Project	Wet pond (1", 14 days)	195	Completed	71	156
COJ MS4 FLS000012	COJ-92	FDOT JTB/A1A Interchange Project	Wet pond (1", 14 days)	20	Completed	3	7
COJ MS4 FLS000012	COJ-93	FDOT Southside Blvd/I-95 Connector	Dry retention (1")	76	Completed	99	218
COJ MS4 FLS000012	COJ-94	FDOT Beach Blvd improvement from west of FCCJ to East of San Pablo	Wet pond (1", 14 days)	165	08/31/2011	60	132
COJ MS4 FLS000012	COJ-95	FDOT Widening of SR 13	Unknown	227	Completed	82	180
COJ MS4 FLS000012	COJ-96	FDOT Branan Field Chafee roadway project (Argyle Forrest to 103rd)	Wet pond (1", 14 days)	112	Completed	40	88

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-97	FDOT Branan Field Chafee roadway project (103rd to I-10)	Wet pond (1", 14 days)	150	Completed	55	121
COJ MS4 FLS000012	COJ-98	FDOT Southside (SR115) & Bch Blvd (SR202) interchange & rd widening	Wet pond (1", 14 days)	33	Completed	12	26
COJ MS4 FLS000012	COJ-99	FDOT Wonderwood Connector Segment 2	Wet pond (1", 14 days)	58	Completed	21	46
COJ MS4 FLS000012	COJ-100	FDOT JTB/Kernan project	Wet pond (1", 14 days)	65	Completed	24	53
COJ MS4 FLS000012	COJ-101	FDOT I-95 from JTB to Emerson	Dry retention (1")	105	Completed	137	301
COJ MS4 FLS000012	COJ-102	FDOT Heckscher Drive / 9a Interchange-1 DRS	Dry Retention (1")	103	Completed	89	196
COJ MS4 FLS000012	COJ-103	FDOT Heckscher Drive / 9a Interchange-2 WDS	Wet pond (1", 14 days)	68	Completed	25	55
COJ MS4 FLS000012	COJ-104	FDOT Wonderwood Segment 3 Project	Wet pond (1", 14 days)	69	Completed	25	55
COJ MS4 FLS000012	COJ-105	FDOT Collins Rd Collector Distributor	Wet pond (1", 14 days)	142	Completed	51	112
COJ MS4 FLS000012	COJ-106	FDOT JTB / I-95 Ramp project (40-031-18233-6)	Wet pond (1", 14 days)	54	Completed	20	44
COJ MS4 FLS000012	COJ-107	FDOT SR 5 US 1 Project (209516-3-52-01)	Wet pond (1", 14 days)	27	Completed	10	22
COJ MS4 FLS000012	COJ-108	FDOT 4 laning of SR 207	Wet Pond (1", 14 days)	12	Completed	7	15
COJ MS4 FLS000012	COJ-109	FDOT 4 laning of SR207 from CR305 to Cypress Link Blvd	Wet Pond (1", 14 days)	106	Completed	65	143
COJ MS4 FLS000012	COJ-110	FDOT 4 laning of SR207 from SR15 (US 17) to CR207	Wet Pond (1", 14 days)	538	Completed	330	726
COJ MS4 FLS000012	COJ-111	FDOT Six laning of I-95 from Flagler County Line to SR 16	Wet pond (1", 14 days)	800	Completed	255	561
COJ MS4 FLS000012	COJ-112	FDOT I-95 Rest Area Reconstruction	Wet pond (1", 14 days)	52	Completed	17	37
COJ MS4 FLS000012	COJ-113	FDOT Six laning of I-95 from World Golf Village to Duval County line	Wet pond (1", 14 days)	537	Completed	237	521
COJ MS4 FLS000012	COJ-114	FDOT Widening of SR 16	Swale treatment system	68	Completed	22	48
COJ MS4 FLS000012	COJ-115	FDOT SR 207 from I-95 to SR 312	Wet pond (1", 14 days)	102	Completed	33	73
COJ MS4 FLS000012	COJ-116	FDOT SR 207 from SR 312 to US 1	Wet pond (1", 14 days)	536	Completed	171	376

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
COJ MS4 FLS000012	COJ-117	FDOT Stormwater Education Efforts in St. Johns County	N/A	N/A	Ongoing	286	629
COJ MS4 FLS000012	COJ-118	FDOT Education Efforts in City of Jacksonville	N/A	N/A	Ongoing	974	2,143
COJ MS4 FLS000012	COJ-119	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	769	1,692
COJ MS4 FLS000012	COJ-120	FDOT Future Projects and/or Trade ⁴	N/A	N/A	12/31/2014	8,362	18,396
COJ MS4 FLS000012	N/A	FDOT Projects Subtotal	N/A	N/A	N/A	14,742	32,432
COJ MS4 FLS000012	N/A	Total Project Reductions	N/A	N/A	N/A	164,546	362,001
COJ MS4 FLS000012	N/A	Credit/(Deficit)	N/A	N/A	N/A	17,124	37,673
City of Jacksonville MS4 Total			Implementation Schedule				
Future COJ Stormwater Projects							
a. Start Date of Project			01/01/2009				
b. Completion Date – Attain 50% of required reduction			07/31/2015				
c. Completion Date – Completion of Project			12/31/2023				
Septic Tank Phase-Out Projects							
a. Start Date of Project			10/31/2008				
b. Completion Date - Phase-out 50% of Septic Tanks			07/31/2015				
c. Completion Date – Completion of Project			12/31/2023				
FDOT Future Projects and/or Trade							
a. Submittal Date – Project List and/or Plan for Trade			06/30/2009				
b. Completion Date – Future Project(s) and/or Trade			12/31/2014				

¹ The estimated reductions are based on the treatment expected for wet detention ponds. The City has committed to provide a detailed implementation plan and schedule for the stormwater projects by 2010 as part of the Master Stormwater Management Plan update. In addition, the City has committed to accomplish, at a minimum, a 50% implementation of the future stormwater projects by the mid-point of the 15-year timeline shown.

² Significant reductions in nitrogen loading from septic tank phase-out projects are included. The City commits to re-evaluating the load reductions associated with septic tank phase-out based on the study results. In the event that the expected reductions, which must be agreed to by the Department, are less than projected in the City's current submittal, the City commits to either submitting plans for an alternative project(s), potentially including additional septic tank phase-outs, or a contract to purchase the amount of credits needed within six months of completion of the study. If additional projects are required, they must be completed by the due date for the septic tank phase-out project, which is December 31, 2023.

³ The schedule broadly outlines the project milestones for septic tank phase outs. While the general schedule depicts implementation over a 15-year time frame, the City will continuously implement projects throughout the implementation period. At a minimum, the City will accomplish a 50% implementation of the septic tank phase out projects by the mid-point of the 15-year implementation timeline shown. This schedule will be replaced with project specific dates and milestones within six months of completion of the septic tank study.

⁴ FDOT submitted a plan to FDEP in February 2010 to meet these reductions through changes in fertilizer practices. Initial estimates show that the full TN reductions can be met through fertilizer reductions. The University of Central Florida is conducting a study to verify the removal associated with the change in fertilizer practices and this study should be completed in spring 2011. At this time, FDOT will provide updated TN reduction estimates to FDEP along with any additional projects, if needed to meet the reductions. Any additional projects must be implemented by the BMAP deadline of December 31, 2014.

City of Jacksonville Beach WWTF21,015
FL002031

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Jax Bch WWTF	N/A	Total Reduction Required	N/A	19,135	42,097
Jax Bch WWTF FL0020231	JB-1	Upgrade WWTF to Advance Wastewater Treatment for TN removal	12/31/2013	21,555	47,421
Jax Bch WWTF	N/A	Total Project Reductions	N/A	21,555	47,421
Jax Bch WWTF	N/A	Credit/(Deficit)	N/A	2,420	5,324
Jacksonville Beach Total WWTF			Implementation Schedule		
Phase One – Initial Nutrient Removal Phase					
a. Preliminary Plans Complete			Completed – 01/01/2008		
b. Final Plans and Specifications Complete			Completed – 2009		
c. Begin Construction			Completed – 04/06/2009		
d. End Construction			07/01/2013		
e. Begin Operation			08/01/2013		
f. Operational Level Attained			12/31/2013		

City of Jacksonville Beach MS44,804
FLS000013

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Jax Bch MS4	N/A	Total Reduction Required	N/A	N/A	170	374
Jax Bch MS4 FLS000013	JB-2	FDOT Beach Blvd widening (Pond 2)	38.87	Completed - 12/31/2010	14	31
Jax Bch MS4 FLS000013	JB-3	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	Completed - 12/31/0909	156	343
Jax Bch MS4	N/A	Total Project Reductions	N/A	N/A	170	374
Jax Bch MS4	N/A	Credit/(Deficit)	N/A	N/A	0	0

City of Neptune Beach WWTF6,162
FL0020427

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Neptune Beach WWTF FL0020427	N/A	Total Reduction Required	N/A	5,286	11,629
Neptune Beach WWTF FL0020427	NB-1	Complete Process Improvements	10/01/2012	7,322	16,108
Neptune Beach WWTF FL0020427	N/A	Total Project Reductions	N/A	7,322	16,108
Neptune Beach WWTF FL0020427	N/A	Credit/(Deficit)	N/A	2,036	4,479
Neptune Beach Total WWTF			Implementation Schedule		
Phase One – Initial Nutrient Removal Phase					
a. Preliminary Plans Complete			01/01/2009		
b. Final Plans and Specifications Complete			Completed – 05/14/2010		
c. Begin Construction			Completed – 08/03/2010		
d. End Construction			03/01/2012 – projected to be 06/14/2011		
e. Begin Operation			04/01/2012 – projected to be 07/14/2011		
f. Operational Level Attained			10/01/2012 – projected to be 01/15/2012		

City of Neptune Beach MS41,437
FLS000012

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Neptune Beach MS4	N/A	Total Reduction Required	N/A	47	103
Neptune Beach MS4	NB-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed – 12/31/2009	47	103
Neptune MS4	N/A	Total Project Reductions	N/A	47	103
Neptune MS4	N/A	Credit/(Deficit)	N/A	0	0

Clay County MS421,188
FLR04E045

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
CC MS4 FLR04E045	N/A	Total Reduction Required	N/A	N/A	N/A	4,061	8,934
CC MS4 FLR04E045	CC-9	Wells Road Improvements	Wet Detention Pond	120	Completed	9	20
CC MS4 FLR04E045	CC-10	County Road 224 Phase I	Wet Detention Pond	70	Completed	38	84
CC MS4 FLR04E045	CC-11	County Road 224 Phase II	Wet Detention Pond	140	Completed	68	150
CC MS4 FLR04E045	CC-12	Education Program	N/A	N/A	Ongoing	1,010	2,222
CC MS4 FLR04E045	CC-13	FDOT Construction of Stormwater Management Systems for Clay County Recreational Trail on SR15	Retention/ Detention (1")	69	Completed	90	198
CC MS4 FLR04E045	CC-14	FDOT SR 15 Widening @ Fleming Island	Retention/ Detention (1")	606	Completed	1,336	2,939
CC MS4 FLR04E045	CC-15	FDOT SR 15 Widening @ Fleming Island from Village Sq Park Rd to South of Margarets Walk Rd	Retention/ Detention (1")	301	Completed	664	1,461
CC MS4 FLR04E045	CC-16	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	846	1,861
CC MS4 FLR04E045	N/A	Total Project Reductions	N/A	N/A	N/A	4,061	8,934
CC MS4 FLR04E045	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

Clay County Utility Authority Aggregate.....63,963
FL0629006

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
CCUA Total Facilities	N/A	Total Reduction Required	N/A	-2,394	-5,267
Fleming Island WWTF FL0043834	CCUA-1	Upgrade to APRICOT and Reuse	Completed	18,195	40,029
Miller Street WWTF FL0025151	CCUA-2	Reuse Water upgrades including Spencer WWTP	09/30/2011	16,209	35,670
Miller Street WWTF FL0025151	CCUA-3	WWTF Improvements to meet APRICOT standards	Completed	10,335	22,737
CCUA Total Facilities	N/A	Total Project Reductions	N/A	44,739	98,426
CCUA Total Facilities	N/A	Credit/(Deficit)	N/A	47,133	103,693
CCUA Total WWTF			Implementation Schedule		
Miller Street WWTF Reuse Upgrades					
a. Start Date of Project			08/01/2006		
b. Completion Date – Design			Completed - 04/01/2009		
c. Completion Date – Construction			Completed - 10/01/2010		
d. Completion Date – Project			09/30/2011		

JEA Aggregate.....654,672
FL0620564

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	CONSTRUCTION COMPLETE	ACHIEVE OPERATIONAL EFFECTIVENESS	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
JEA Total Facilities	N/A	Total Reduction Required	N/A	N/A	741,951	1,632,292
JEA Julington Creek FL0043591	JEA-1	Complete Process Improvements	Completed	N/A	5,909	13,000
JEA Arlington East FL0026441	JEA-2	Complete Process Improvements	Completed	N/A	92,727	204,000
JEA District II FL0026450	JEA-3	Complete Process Improvements	Completed	N/A	140,000	308,000
JEA Southwest FL0026468	JEA-4	Complete Process Improvements	Completed	N/A	45,909	101,000
JEA Buckman FL0026000	JEA-5	Complete Process Improvements	Completed	N/A	50,455	111,000
JEA Monterey FL00230604	JEA-6	Complete Process Improvements	Completed	N/A	35,455	78,001
JEA Mandarin FL0023493	JEA-7	Complete Process Improvements	Completed	N/A	12,726	27,997
JEA San Pablo FL0024767	JEA-8	Complete Phase Out	Completed	N/A	6,364	14,001
JEA Woodmere FL0026786	JEA-9	Complete Phase Out	Completed	N/A	10,000	22,000
JEA Beacon Hills FL0026778	JEA-10	Complete Phase Out	Completed –09/04/2010	Completed – 09/04/2010	5,700	12,540
JEA Royal Lakes FL0026751	JEA-11	Complete Phase Out	06/30/2012	06/30/2012	0	0
JEA Jax Heights FL0023671	JEA-12	Complete Phase Out	08/14/2014	08/14/2014	0	0
JEA Arlington East FL0026441	JEA-13	Complete Process Improvements	Completed – 5/12/2010	09/30/2011	118,172	259,978
JEA District II FL0026450	JEA-14	Complete Process Improvements	09/30/2012	09/30/2014	0	0
JEA San Jose FL0023663	JEA-15	Complete Phase Out	09/30/2013	09/30/2013	0	0
JEA Buckman FL0026000	JEA-16	Complete Process Improvements	03/30/2013	09/30/2013	191,183	420,603
JEA Facilities	JEA-17	Reuse expansion (approx 10 mgd) at Arlington East, Mandarin and District II	09/30/2012	09/30/2013	59,090	129,998
JEA Total Facilities	N/A	Total Project Reductions	N/A	N/A	773,690	1,702,118
JEA Total Facilities	N/A	Credit/(Deficit)	N/A	N/A	31,739	69,826
JEA WWTF Total			Implementation Schedule			
Phased WWTF Nutrient Removal						
a. Preliminary Plans Complete			09/30/2008			
b. Final Plans and Specifications Complete			Completed - 01/30/2009			
c. Begin Construction			Completed - 06/30/2009			
d. Interim Progress Report Due			Completed - 12/01/2009			
e. Interim Progress Report Due			Completed - 06/30/2010			
f. Interim Progress Report Due			Completed - 12/01/2010			
g. Interim Progress Report Due			06/30/2011			
h. Interim Progress Report Due			12/01/2011			
i. End Construction			09/30/2012			
j. Begin Operations			10/01/2012			
k. Interim Progress Report Due			03/31/2013			
l. Operational Level Attained			09/30/2014			

Smurfit-Stone Container 74,305
FL0000400

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Smurfit-Stone	N/A	Total Reduction Required	N/A	71,684	157,705
Smurfit-Stone	SS-1	Complete Process Improvements	Completed	71,684	157,705
Smurfit-Stone	N/A	Total Project Reductions	N/A	71,684	157,705
Smurfit-Stone	N/A	Credit/(Deficit)	N/A	0	0

St. Johns County MS4.....746
FLR04E025

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
SJC MS4 FLR04E025	N/A	Starting Load	N/A	N/A	N/A	2,311	5,084
SJC MS4 FLR04E025	SJC-11	Stormwater Education	Education	N/A	Ongoing	153	337
SJC MS4 FLR04E025	SJC-12	Low-impact development	N/A	N/A	Ongoing	Not quantified	Not quantified
SJC MS4 FLR04E025	SJC-13	Slow release fertilizer ordinance	N/A	N/A	Completed - 06/10/2010	Not quantified	Not quantified
SJC MS4 FLR04E025	SJC-14	FDOT 4 laning of SR 312	Wet Pond (1", 14 days)	38	Completed	14	31
SJC MS4 FLR04E025	SJC-15	FDOT A1A Stormwater retrofit from Duval County line to Thousand Oaks lane	Dry detention	98	Completed	216	475
SJC MS4 FLR04E025	SJC-16	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed - 12/31/2009	60	132
SJC MS4 FLR04E025	SJC-17	Algal Initiative – Masters Tract RST Facility*	Wet pond, treatment wetland	N/A	10/31/2017	1,868	4,109
SJC MS4 FLR04E025	N/A	Total Project Reductions	N/A	N/A	N/A	2,311	5,084
SJC MS4 FLR04E025	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0
St. Johns County M N/A S4 Total			Implementation Schedule				
Algal Initiative							
a. Start Date of Project			10/01/2008				
b. Completion Date – Project Assessment			Completed - 10/31/2010				
c. Completion Date – Project Fundraising			10/31/2012				
d. Completion Date – Construction			10/31/2017				

*Note: This project is located in the freshwater reach. The trading ratio from the freshwater reach to marine reach is 1:1.

Town of Orange Park WWTF.....7,940
FL0023922

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Orange Park WWTF	N/A	Total Reduction Required	N/A	16,946	37,281
Ash Street WWTF FL0023922	OP-1	Phase 1 Improvements	Completed - 10/15/2010	15,953	35,097
Ash Street WWTF FL0023922	OP-2	Phase 2 Improvements	03/30/2012	5,690	12,518
Orange Park WWTF	N/A	Total Project Reductions	N/A	21,643	47,615
Orange Park WWTF	N/A	Credit/(Deficit)	N/A	4,697	10,334
Orange Park Total WWTF			Implementation Schedule		
Phase Two – Additional nutrient removal phase					
a. Preliminary Plans Complete			Completed - 06/30/2009		
b. Final Plans and Specifications Complete			Completed - 11/01/2009		
c. Begin Construction			Completed - 11/01/2010		
d. End Construction			12/30/2011		
e. Begin Operation			01/30/2012		
f. Operational Level Attained			03/30/2012		

Town of Orange Park MS4.....3,348
FLR04E075

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Orange Park MS4	N/A	Total Reduction Required	N/A	103	227
Orange Park MS4	OP-4	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed – 12/31/2009	103	227
Orange Park MS4	N/A	Total Project Reductions	N/A	103	227
Orange Park MS4	N/A	Credit/(Deficit)	N/A	0	0

US Navy Aggregate 11,684
FL0639451

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
USN Total (Aggregate)	N/A	Total Reduction Required	N/A	15,541	34,190
NAS Jax WWTF FL0000957	USN-1	Reuse to Timuquana Country Club	Completed	7,693	16,925
NAS Jax WWTF FL0000957	USN-2	Expand Reuse System	10/01/2013	2,790	6,138
NAS Jax WWTF FL0000957	USN-3	Inflow/infiltration repair projects	Completed	2,790	6,138
NS Mayport WWTF FL0000922	USN-4	Inflow/infiltration repair projects	Completed	5,753	12,657
USN Total (Aggregate)	N/A	Total Project Reductions	N/A	19,026	41,857
USN Total (Aggregate)	N/A	Credit/(Deficit)	N/A	3,485	7,667
US Navy Total (Aggregate)			Implementation Schedule		
Expand Reuse System					
a. Start Date of Project			02/07/2008		
b. Completion Date – Design			Completed - 09/30/2009		
c. Completion Date - Construction			10/01/2013		
d. Completion Date – Project			10/01/2013		

US Navy MS4s 7,232
FLR04E091 and FLR04E056

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
USN MS4s	N/A	Total Reduction Required	N/A	298	656
USN MS4	USN-6	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	Completed – 12/31/2009	298	656
USN MS4	N/A	Total Project Reductions	N/A	298	656
USN MS4	N/A	Credit/(Deficit)	N/A	0	0

Name of Facility

Load Allocation (kg/yr)

Camp Blanding Non-MS4.....1,220

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
Camp Blanding	N/A	Total Reduction Required	N/A	N/A	N/A	1,650	3,630
Camp Blanding	CB-1	Re-grade existing swale system	Swales	2,220	12/31/2013	1,999	4,398
Camp Blanding	CB-2	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	98	216
Camp Blanding	N/A	Total Project Reductions	N/A	N/A	N/A	2,097	4,613
Camp Blanding	N/A	Credit/(Deficit)	N/A	N/A	N/A	447	983
Camp Blanding Non-MS4 Total			Implementation Schedule				
Re-grade existing swale system							
a. Start Date of Project			Completed - 01/01/2009				
b. Completion Date – Re-grade 1 st set of swales			Completed - 12/31/2009				
c. Completion Date – Re-grade 2 nd set of swales			Completed - 12/31/2010				
d. Completion Date – Re-grade 3 rd set of swales			12/31/2011				
e. Completion Date – Re-grade 4 th set of swales			12/31/2012				
f. Completion Date – Re-grade 5 th set of swales			12/31/2013				
g. Completion Date – Completion of Project			12/31/2013				

Clay County Non-MS4.....11,107

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
CC Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	944	2,077
CC Non-MS4	CC-17	Education Program	N/A	N/A	Ongoing	482	1,060
CC Non-MS4	CC-18	FDOT SR 23 improvement from Kindlewood Rd to Duval County line - 5 systems	Wet pond (1", 14 days)	112	Completed	69	152
CC Non-MS4	CC-19	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed – 12/31/2009	393	865
CC Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	944	2,077
CC Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0

St. Johns County Non-MS4.....4,865

FACILITY NAME	PROJECT NUMBER	DESCRIPTION	TYPE(S) OF BMP(S) IMPLEMENTED	ACRES TREATED	DEADLINE	PROJECT TN REDUCTION (KG/YR)	PROJECT TN REDUCTION (LBS/YR)
SJC Non-MS4	N/A	Total Reduction Required	N/A	N/A	N/A	4,981	10,958
SJC Non-MS4	SJC-17	Algal Initiative – Masters Tract RST Facility*	Wet pond, treatment wetland	N/A	10/31/2017	277	609
SJC Non-MS4	SJC-18	Greenbriar Road Paving/Improvements - 4 Stormwater Treatment Ponds	N/A	40	Completed	33	73
SJC Non-MS4	SJC-21	Stormwater Education	Education	N/A	Ongoing	492	1,082
SJC Non-MS4	SJC-22	Low-impact development	N/A	N/A	Ongoing	Not quantified	Not quantified
SJC Non-MS4	SJC-23	Slow release fertilizer ordinance	N/A	N/A	Completed - 06/10/2010	Not quantified	Not quantified
SJC Non-MS4	SJC-24	FDOT SR 312 from US 1 to SR 3	N/A	38	Completed	84	185
SJC Non-MS4	SJC-25	Atmospheric deposition load reduction – Seminole Electric SCR upgrade	N/A	N/A	Completed - 12/31/2009	390	858
SJC Non-MS4	SJC-26	Algal Initiative	N/A	N/A	10/31/2017	2,314	5,091
SJC Non-MS4	SJC-27	Application of freshwater non-MS4 credits	N/A	N/A	Completed	1,391	3,060
SJC Non-MS4	N/A	Total Project Reductions	N/A	N/A	N/A	4,981	10,958
SJC Non-MS4	N/A	Credit/(Deficit)	N/A	N/A	N/A	0	0
St. Johns County Non-MS4 Total			Implementation Schedule				
Algal Initiative							
a. Start Date of Project			10/01/2008				
b. Completion Date – Project Assessment			Completed - 10/31/2010				
c. Completion Date – Project Fundraising			10/31/2012				
d. Completion Date – Construction			10/31/2017				

*Note: This project is located in the freshwater reach. The trading ratio from the freshwater reach to marine reach is 1:1.

APPENDIX B: WATER QUALITY DATA

The following tables show the data collected by CCUA, City of Jacksonville, and SJRWMD as part of the high-flow event sampling of the tributaries monitoring.

TABLE B-1: CCUA HIGH-FLOW EVENT SAMPLING RESULTS

STATION	DATE	DO (MG/L)	TURBIDITY (NTU)	TEMP (°C)	PH	SPECIFIC CONDUCTANCE (UMHO/CM)	SECCHI DEPTH (IN)	TOTAL STREAM DEPTH (FEET)	NITRITE + NITRATE (MG/L)
Peters Creek	December 2009	4.5	2.1	10.9	6	165	16.8	18.8	0.007
Governors Creek	December 2009	5.9	2.4	3.1	6.6	267	12	19.3	0.174
North Fork Black Creek	December 2009	7	2.8	9	6	130	20.4	19.2	0.004
South Fork Black Creek	December 2009	6.6	2.8	13.3	6.3	110	15.6	19.4	0.013
Little Black Creek	December 2009	5.1	2.7	9.15	5.8	206	25.2	18.8	<0.003
North Fork Black Creek	February 2010	7.6	15.7	14.2	7.5	161	25.2	8.05	0.006
Little Black Creek	February 2010	6.2	15.3	14.6	6.9	190	28.8	19.2	<0.003
Peters Creek	March 2010	7.3	2.8	10	6.5	128	33.6	13.3	0.121
Governors Creek	March 2010	6.9	15.1	3.4	6.7	132	15.6	15.3	0.263
South Fork Black Creek	March 2010	7.9	11.3	13.9	6.5	78	18	13.5	0.039
Peters Creek	May 2010	4.9	5.5	25.6	7	153	26.4	10.2	0.057
Governors Creek	May 2010	5.8	3	23	6.8	201	6	6.1	0.4
North Fork Black Creek	May 2010	4.6	6.2	25.3	6.2	104	30	17.1	0.082
South Fork Black Creek	May 2010	6.2	5.8	24.5	6.5	75	27.6	12.8	0.094
Little Black Creek	May 2010	5.4	6.7	23.8	6.4	168	28.8	9.53	0.085
Peters Creek	June 2010	4.2	3.9	29	6.7	273	16	10	0.052
Governors Creek	June 2010	5.5	11.6	27.1	6.9	162	14.4	10.3	0.234
North Fork Black Creek	July 2010	4.9	6.5	26.7	6.3	156	20.2	16.3	0.055
South Fork Black Creek	July 2010	4.4	3.3	26.1	5.8	89	16	32.1	0.021
Little Black Creek	August 2010	5	15.9	28.4	6.8	227	23	17.7	0.024
Peters Creek	September 2010	3.2	4.1	26.3	6.6	236	38.4	9.1	0.033
Governors Creek	September 2010	4.3	6.1	26.2	6.7	339	30	3.8	0.186
North Fork Black Creek	September 2010	4.4	8.4	26.7	6.7	340	28.8	6.5	0.075
South Fork Black Creek	September 2010	5.3	5.4	26.5	6.1	540	28.8	9.1	2.62
Little Black Creek	September 2010	3.1	4.6	26.1	7.4	155	28.8	8.6	0.027

TABLE B-2: CUA HIGH-FLOW EVENT SAMPLING RESULTS (CONTINUED)

STATION	DATE	AMMONIA (MG/L)	TKN (MG/L)	ORTHO- PHOSPHATE (MG/L)	TP (MG/L)	COLOR (PT-CO)	SAMPLE DEPTH (FT)	TOC (MG/L)	BOD (MG/L)
Peters Creek	December 2009	0.063	0.68	0.058	0.086	180	5.5	19	<2.0
Governors Creek	December 2009	0.162	0.96	0.14	0.174	150	1.5	18	<2.0
North Fork Black Creek	December 2009	0.087	0.7	0.036	0.04	220	4.5	26	<2.0
South Fork Black Creek	December 2009	0.061	0.65	0.11	0.13	180	6.5	17	<2.0
Little Black Creek	December 2009	0.084	0.82	<0.019	0.035	180	4	21	<2.0
North Fork Black Creek	February 2010	0.094	0.71	<0.019	0.09	220	4	22	<2.0
Little Black Creek	February 2010	0.039	0.57	<0.019	0.031	120	6	15	<2.0
Peters Creek	March 2010	0.122	<0.8	0.83	0.045	100	6	13	<2.0
Governors Creek	March 2010	0.109	1.12	0.11	0.152	150	6	18	<2.0
South Fork Black Creek	March 2010	0.01	0.49	0.078	0.104	150	7	19	<2.0
Peters Creek	May 2010	0.172	0.72	0.063	0.116	120	5	9.5	<2.0
Governors Creek	May 2010	0.377	0.72	0.12	0.444	120	3	1.2	<2.0
North Fork Black Creek	May 2010	0.266	0.83	0.046	0.082	200	8.5	14	<2.0
South Fork Black Creek	May 2010	0.126	0.52	0.14	0.082	100	4.5	8.4	<2.0
Little Black Creek	May 2010	0.167	0.75	<0.019	0.09	90	4.25	11	<2.0
Peters Creek	June 2010	0.133	0.61	0.083	0.13	150	6	14	<2.0
Governors Creek	June 2010	0.085	1.01	0.099	0.228	150	5	15	<2.0
North Fork Black Creek	July 2010	0.109	0.58	<0.019	0.047	150	8.5	14	<2.0
South Fork Black Creek	July 2010	0.117	0.82	0.074	0.047	300	16	24	<2.0
Little Black Creek	August 2010	0.147	0.98	<0.019	0.04	150	3.5	17	8.6
Peters Creek	September 2010	0.266	0.99	0.084	0.062	150	4.5	14	<2.0
Governors Creek	September 2010	0.271	0.86	0.13	0.124	100	2	8.6	<2.0
North Fork Black Creek	September 2010	0.167	0.46	0.079	0.15	75	3	8.5	<2.0
South Fork Black Creek	September 2010	0.112	0.52	0.15	0.15	100	4.5	7.6	<2.0
Little Black Creek	September 2010	0.159	0.75	0.084	0.052	150	2.6	16	<2.0

TABLE B-2: CITY OF JACKSONVILLE HIGH-FLOW EVENT SAMPLING RESULTS

STATION	DATE	SECCHI DEPTH (M)	TEMP (°C)	CONDUCTIVITY (US/CM)	SALINITY (PPT)	DO SATURATION (%)	DO (MG/L)	pH	SAMPLE DEPTH (M)	AMMONIA (MG/L)	CBOD (MG/L)
Arlington River	3/2/2010	-	-	7360	4.1	95	9.7	7.49	-	-	-
Cedar River	3/2/2010	-	-	-	-	-	-		-	0.049	2.76
Arlington River	3/2/2010	-	-	-	-	-	-		3	0.058	<2
Pablo Creek	3/2/2010	-	-	26700	16	95.3	8.95	7.47	-	-	-
Julington Creek	5/17/2010	-	23.1	305	0.15	87.4	7.5	7.11	1.7	0.033	-
Durbin Creek	5/17/2010	-	22.26	181	0.09	62.4	5.43	7.16	0.75	0.066	-
Pablo Creek	5/18/2010	0.82	26.88	45144	29.16	62.8	4.26	6.71	-	-	-
Julington Creek	6/28/2010	-	25.49	234	0.11	59.1	4.84	7.05	0.5	0.062	2.95
Durbin Creek	6/28/2010	-	27.23	260	0.12	33.3	2.64	7.86	0.5	0.116	2
Ortega River	6/28/2010	1.3	26.3	169	0.08	45.4	3.66	6.78	2.2	0.05	-
Ortega River	9/28/2010	1.25	24.59	286	0.14	22.1	1.84	6.77	1.5	0.016	<2
Arlington River	9/29/2010	0.84	26.27	16935	9.93	48.2	3.68	7.28	0.6	0.078	<2
Julington Creek	9/29/2010	1.68	23.49	275	0.13	36.4	3.09	7.1	1.7	0.012	<2
Arlington River	11/3/2010	0.7	-	21700	13.2	75.3	6.01	7.05	0.8	0.032	2.18
Julington Creek	11/3/2010	1.48	-	2031	1.04	9.7	0.87	6.76	1.5	<0.01	2.94
Ortega River	11/3/2010	1.5	-	13699	7.93	19.7	1.63	6.48	1.4	<0.01	3.23
Durbin Creek	11/3/2010	-	19.81	289	0.14	26.3	2.4	7.03	1	<0.010	<2.0
Pablo Creek	11/3/2010	-	22.88	46000	29.86	71.9	5.2	7.01	1	0.102	<2.0

Note: “-” means no data are available. The City of Jacksonville lost some of the data they collected due to a computer crash.

TABLE B-2: CITY OF JACKSONVILLE HIGH-FLOW EVENT SAMPLING RESULTS (CONTINUED)

STATION	DATE	CHLORIDE (MG/L)	COLOR (PCU)	NITRITE + NITRATE (MG/L)	ORTHO- PHOSPHATE (MG/L)	TP (MG/L)	TKN (MG/L)	TSS (MG/L)	TURBIDITY (NTU)	TOC (MG/L)	VSS (MG/L)
Arlington River	3/2/2010	-	-	-	-	-	-	-	-	-	-
Cedar River	3/2/2010	110	60	0.24	0.019	0.118	0.962	20	15	9.4	<5
Arlington River	3/2/2010	1380	60	0.268	0.045	0.073	0.794	11	9.3	11	6
Pablo Creek	3/2/2010	-	-	-	-	-	-	-	-	-	-
Julington Creek	5/17/2010	-	40	0.15	0.049	-	-	14	-	8.7	<20
Durbin Creek	5/17/2010	-	80	0.104	0.047	-	-	9	-	13.4	<20
Pablo Creek	5/18/2010	-	-	-	-	-	-	-	-	-	-
Julington Creek	6/28/2010	-	-	0.138	0.057	-	-	-	-	8.7	<10
Durbin Creek	6/28/2010	-	-	0.134	0.112	-	-	-	-	13.4	<10
Ortega River	6/28/2010	<5	-	0.092	0.025	-	-	-	-	11	<20
Ortega River	9/28/2010	<5	60	0.015	0.033	0.078	0.658	2	2.4	12.3	<20
Arlington River	9/29/2010	5350	40	0.161	0.077	0.127	0.796	10	6.8	9.2	<10
Julington Creek	9/29/2010	<5	80	0.025	0.046	0.087	0.701	2	3	14.1	<20
Arlington River	11/3/2010	7250	30	0.162	0.074	0.147	0.713	16	0.88	8.2	<10
Julington Creek	11/3/2010	500	60	0.04	0.064	0.106	0.716	<2	1.1	15	<10
Ortega River	11/3/2010	9250	60	0.034	0.069	0.145	0.859	<2	0.95	13.2	<10
Durbin Creek	11/3/2010	<5	100	0.019	0.045	0.086	0.906	<2	0.91	19.7	<10
Pablo Creek	11/3/2010	11500	20	0.071	0.066	0.178	1.07	4	3.3	6.4	<10

Note: "-" means no data are available. The City of Jacksonville lost some of the data they collected due to a computer crash.

TABLE B-3: SJRWMD HIGH-FLOW EVENT SAMPLING RESULTS

STATION	DATE	BOD (MG/L)	CHL-A (MG/L)	COLOR (PCU)	CONDUCTIVITY (US/CM)	DO (MG/L)	STREAM DEPTH (M)	AMMONIA (MG/L)	NITRITE + NITRATE (MG/L)	ORTHO-PHOSPHATE (MG/L)
SMC	11/24/2009	0.6	0.5	250.0	682.0	1.4	6.4	0.0	0.0	0.1
DBR	2/3/2010		4.5	150.0		5.5	1.7	1.3	3.3	0.8
DPB	2/3/2010	2.0	5.0	100.0	818.0	5.4	3.4	1.6	2.2	0.6
RCB	3/12/2010	2.6		400.0		5.2	5.2	0.2	0.1	0.0
DPB	3/12/2010	3.9		80.0		5.5	2.7	0.7	1.4	0.3
SMC	3/30/2010	0.9	1.1	150.0	357.0	4.0	5.0	0.0	0.0	0.1
DBR	4/14/2010		2.1	20.0		17.9	1.2	0.1	0.1	0.1
DPB	4/14/2010	0.7	0.8	40.0	2380.0	15.7	3.0	0.1	0.2	0.1
DPB	5/10/2010		2.8	30.0	2600.0	2.0	3.0	0.1	0.2	0.3
DBR	5/10/2010		4.0	10.0		6.5	1.4	0.1	0.2	0.1
SMC	5/17/2010	1.2		70.0		4.7	4.4	0.0	0.0	0.0
DPB	5/17/2010	1.1		30.0		4.2	3.0	0.1	0.3	0.3
DBR	5/17/2010	3.0		10.0		5.9	1.5	0.4	1.5	0.1
RCB	5/17/2010	8.1		250.0		4.8	5.4	0.2	0.1	0.0
RCB	7/6/2010	2.1	26.7	200.0	709.0	5.0	3.4	0.0	0.0	0.0
SMC	9/15/2010	1.1	13.8	100.0	887.0	3.3	1.8	0.0	0.0	0.0
DPB	9/16/2010	0.2	1.1	80.0	1551.0	2.0	3.3	0.1	0.2	0.4
DBR	9/16/2010		8.4	80.0		2.5	1.5	0.1	0.0	0.2

TABLE B-3: SJRWMD HIGH-FLOW EVENT SAMPLING RESULTS (CONTINUED)

STATION	DATE	SALINITY (PPT)	SECCHI DEPTH (M)	TKN (MG/L)	TOC (MG/L)	TP (MG/L)	TSS (MG/L)	TURBIDITY (NTU)	TEMP (°C)	pH
SMC	11/24/2009	0.3	0.8	1.0	26.2	0.1	1.0	0.7	19.0	6.9
DBR	2/3/2010			2.7	24.3	0.8	8.2	12.6	13.8	6.8
DPB	2/3/2010	0.4		2.9	21.1	0.6	12.0	16.7	13.7	6.9
RCB	3/12/2010	0.2	0.2	1.3	40.9	0.1		10.7	16.2	7.3
DPB	3/12/2010	0.3	0.3	2.1	15.4	0.3		36.5	17.3	7.1
SMC	3/30/2010	0.2	0.8	0.8	27.1	0.1	1.8	1.0	17.2	7.1
DBR	4/14/2010			0.4	5.9	0.1	4.0	4.3	19.6	7.1
DPB	4/14/2010	1.3		0.7	9.9	0.2	3.0	2.6	19.1	7.2
DPB	5/10/2010	1.4		0.7	14.2	0.4	3.0	1.1	25.2	7.0
DBR	5/10/2010			0.3	4.4	0.1	6.5	4.3	22.8	7.3
SMC	5/17/2010	0.4		0.7	17.9	0.1		2.2	26.7	7.3
DPB	5/17/2010	1.6		0.5	8.6	0.3		5.4	23.8	7.2
DBR	5/17/2010	1.6		0.8	8.0	0.1		20.0	23.5	7.2
RCB	5/17/2010	0.6		1.1	32.5	0.0		37.9	28.5	7.8
RCB	7/6/2010	0.3	0.6	0.8	24.8	0.0	9.0	7.7	26.9	7.1
SMC	9/15/2010	0.5	0.8	0.9	23.6	0.0	5.5	2.2	27.7	7.0
DPB	9/16/2010	0.9		1.0	20.2	0.4	3.5	0.8	24.5	6.7
DBR	9/16/2010			0.9	20.4	0.2	4.5	4.3	24.8	6.9

APPENDIX C: ADDITIONAL PROJECT PICTURES

Agriculture



LIQUID FERTILIZER SIDE DRESSING



COVER CROP GROWING



COVER CROP BEING INCORPORATED INTO SOIL



WATER TROUGH

Camp Blanding



EARTH DAY CLEANUP OF BLACK CREEK



AVENUE B BLACK CREEK DRAINAGE (JUNE 2009)



AVENUE B BLACK CREEK DRAINAGE (FEBRUARY 2010)



AVENUE B REPAVING PROJECT (OCTOBER 2010)



AVENUE B REPAVING PROJECT (DECEMBER 2010)



AVENUE B REPAVING PROJECT (DECEMBER 2010)



AVENUE B REPAVING PROJECT (DECEMBER 2010)



AVENUE C SWALE EXCAVATION AND REPAIR (DECEMBER 2010)



PALMETTO STREET SWALE EXCAVATION AND REPAIR (DECEMBER 2010)



AVENUE D SWALE EXCAVATION AND REPAIR (NOVEMBER 2010)



AVENUE D SWALE RECONSTRUCTION WITH NEW CULVERT PIPING (OCTOBER 2010)



AVENUE D SWALE RECONSTRUCTION WITH NEW CULVERT PIPING (NOVEMBER 2010)



VEGETATION CLEARANCE IN PREPARATION OF NEW SWALE SYSTEM (DECEMBER 2010)



CONSTRUCTION OF NEW DRAINAGE SYSTEM ALONG STATE ROAD WEST 16 (DECEMBER 2010)



CONSTRUCTION OF NEW DRAINAGE SYSTEM ALONG STATE ROAD WEST 16 (DECEMBER 2010)

Clay County



WAV BOOTH AT THE CLAY COUNTY FAIR IN GREEN COVE SPRINGS



HYDROLOGY MODEL PREPARED ON A SCHOOL FIELD TRIP TO CAMP CHOWENWAW ALONG BLACK CREEK



CLEAN UP IN THE BLACK CREEK RAVINES PRESERVE



THE FLORIDA YOUTH CHALLENGE ACADEMY CLEAN UP AT CROSBY SANCTUARY IN ORANGE PARK



MONOFILAMENT RECYCLING AT THE EAGLE HARBOR FOOT DOCK ON DOCTOR'S LAKE

HELP PROTECT YOUR WATERSHED

To report an illicit discharge call (904) 284-6310 or (904) 269-6310.

What is illicit discharge?

Illicit discharge is waste and wastewater from sources that enter our surface and groundwater through our storm drains. The storm drain system was designed to handle water to prevent flooding, and not as a place to dump or discharge waste.

What are the costs to our environment?

The result can be high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria in receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic wildlife and human health.

Did you know?

Some people do not realize that many storm sewers carry water to lakes, rivers, and streams. In many communities that were built before the 1980s, these storm inlets drain directly to natural waters without passing through a retention pond. Do you know that excess fertilizers and pest control products end up in the storm sewers? Do you know it is illegal to dispose of oils, chemicals, trash, and yard debris into storm sewers or drainage easements?

Where does illicit discharge come from?

There are two situations that constitute illicit discharges, runoff from contaminated sites and deliberate dumping. Sources of illicit discharge can be residential, commercial and municipal.

Some common practices that can produce illicit discharges are:

- Dumping/spills.
- Poorly maintained septic systems.
- Car washing/oil changing.
- Driveway cleaning.
- Swimming pool discharges.
- Laundry wastewater disposal.
- Power washing buildings and parking lots.
- Vehicle maintenance and repair spills.
- Landscape waste disposal.

Your actions count!

If you see an illicit discharge taking place in your community, please call the numbers provided on the right.



In your yard and community:

- Properly store paint, paint thinner, gasoline and household chemicals. Never pour them onto the ground or into storm drains.
- Eliminate litter by cleaning up yard waste and trash and properly disposing of food wrappers, beverage containers and cigarette butts.
- Pick up pet waste.
- Minimize your fertilizer usage by giving lawns, trees and plants just enough to maintain their health.
- Maintain your septic system with regular professional inspections.
- Recycle your used motor oil and clean up oil spills and leaks on your driveway. Do not dump used oil or antifreeze into the storm drain or street. Recycle them.
- Use a mulching mower and blow clippings back into the lawn.
- Use a commercial car wash, or wash your car on a lawn or other unpaved surface.
- Locate garbage cans away from storm drains.
- Do not pour or place anything in storm drains.
- Do not sweep or wash yard debris into storm drains.
- Do not dump yard debris over your fence into drainage ditches or conservation lands.
- Get involved in your watershed.
- Report illicit discharges.

How to report an illicit discharge

To report an illicit discharge call (904) 284-6310 or (904) 269-6310.

**Help keep Clay County beautiful.
You can make a difference!**

Please go to <http://www.claycountygov.com/streaming/streaming.htm> to view our live streaming videos regarding illicit discharges.



For more information, visit www.epa.gov/npdes/stormwater or www.claycountygov.com.

This is a public service announcement provided in conjunction with the Clay County National Pollutant Discharge Elimination System Program.

FLYER SENT TO CLAY COUNTY RESIDENTS ON HOW TO PROTECT YOUR WATERSHED

City of Jacksonville



INSTALLATION OF HYDRAULIC BARRIER TRENCH SURROUNDING UPPER DEER CREEK POND
EXPANSION USING ONE PASS TRENCHING TECHNOLOGY



PINE FOREST/LARSEN ACRES POND CONSTRUCTION

City of Jacksonville Beach



BEACH BOULEVARD STORMWATER RETENTION POND

CITY OF NEPTUNE BEACH



NEPTUNE BEACH WWTF UPGRADE



NEPTUNE BEACH WWTF UPGRADE

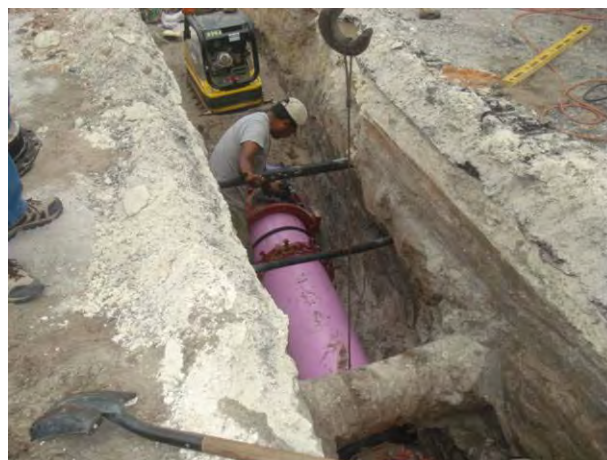
CITY OF PALATKA



DIRECTIONAL BORE ON HIGHWAY 19



CONSTRUCTION FOR RECLAIMED WATER PIPING



INSTALLATION OF RECLAIMED WATER PIPING



PUMP STATION AT THE GOLF COURSE



REUSE TIE-IN AT THE RAVINES



TIE-IN AT THE POND

JEA



UPGRADES AT THE ARLINGTON EAST WWTF



UPGRADES AT THE ARLINGTON EAST WWTF

Town of Orange Park



PLANT #3 PRIOR TO BNR CONVERSION



PLANT #3 AFTER BNR CONVERSION (PLACED INTO SERVICE JULY 31, 2010)



FLOODING FROM STORMWATER POND COMPROMISES EFFLUENT QUALITY



STORMWATER INTRUSION PROBLEM SOLVED



INFLUENT SPLITTER BOX CONSTRUCTED IN 1974



MECHANICAL BARSCREEN AND TRASH COMPACTOR PLACED IN SERVICE ON DECEMBER 7, 2009



PBM CONSTRUCTORS PREPARING TO DRIVE PILES FOR DIGESTER #2



DIGESTER #2 (ON LEFT) AND TERTIARY FILTER #1 (ON RIGHT)



CLARIFIER #4 (INNER RING) AND DIGESTER #1 (OUTER RING)



CHLORINE CONTACT CHAMBERS



1000 kW EMERGENCY GENERATOR



MOTOR CONTROL CENTER



ASH STREET ADVANCED WWTf SITE LOOKING EAST FROM DIGESTER #2



PBM CONSTRUCTORS, INC ERECT NEW STEEL BAFFLE WALLS



DEMOLITION OF EXISTING INTERNAL PIPING IN PLANT #2