

2015 PROGRESS REPORT

for the St. Lucie River and Estuary Basin Management Action Plan

**prepared by the
Division of Environmental Assessment and Restoration
Water Quality Restoration Program
Florida Department of Environmental Protection
Tallahassee, FL 32399**

**in cooperation with the
St. Lucie River and Estuary
Technical Stakeholders**

December 2015

ACKNOWLEDGMENTS

This 2015 Progress Report for the St. Lucie River and Estuary Basin Management Action Plan was prepared as part of a statewide watershed management approach to restore and protect Florida’s water quality. It was prepared by the Florida Department of Environmental Protection in cooperation with the St. Lucie River and Estuary stakeholders.



North St. Lucie River Water Control District
Hobe St. Lucie Conservancy District
Pal Mar Water Control District
Troup Indiantown Water Control District
Copper Creek Community Development District
Tradition Community Development District
Verano Community Development District

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LIST OF ACRONYMS AND ABBREVIATIONS

ArcNLET	ArcGIS-Based Nitrate Load Estimation Toolkit (model)
AGM	Annual Geometric Mean
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CDD	Community Development District
CDS	Continuous Deflective Separation
CERP	Comprehensive Everglades Restoration Plan
Department	Florida Department of Environmental Protection
EMC	Event Mean Concentration
EPA	United States Environmental Protection Agency
EWIP	Eastern Watershed Improvement Project
FDACS	Florida Department of Agriculture and Consumer Services
FDOT	Florida Department of Transportation
F.S.	Florida Statue
FYN	Florida Yards and Neighborhoods
HWTT	Hybrid Wetland Treatment Technology
IRL-S	Indian River Lagoon-South
lbs	Pounds
lbs/yr	Pounds Per Year
LID	Low-Impact Development
MDL	Minimum Detection Limit
mg/L	Milligrams Per Liter
MS4	Municipal Separate Storm Sewer System
NNC	Numeric Nutrient Criteria
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSLRWCD	North St. Lucie River Water Control District
NTU	Nephelometric Turbidity Units
PQL	Practical Quantitation Limit
PSA	Public Service Announcement
PUD	Planned Unit Development
SFWMD	South Florida Water Management District
SLRIT	St. Lucie River Issues Team
STA	Stormwater Treatment Area
STORET	STORAge and RETrieval
SU	Standard Units
TMDL	Total Maximum Daily Load
TKN	Total Kjeldahl Nitrogen
TN	Total Nitrogen
TP	Total Phosphorus
USGS	United States Geological Survey
WBID	Waterbody Identification

WaSh Watershed (model)
WCD Water Control District
WCS Water Control Structure

SUMMARY

PROGRESS TOWARDS TOTAL MAXIMUM DAILY LOADS

The St. Lucie River and Estuary Basin Management Action Plan (BMAP) was adopted in June 2013 to implement the nutrient Total Maximum Daily Loads (TMDLs) in the basin. The BMAP and this report focus on the efforts in the St. Lucie Basin, as the upstream loads from Lake Okeechobee are being addressed separately via the Lake Okeechobee BMAP, adopted in December 2014. The St. Lucie River and Estuary BMAP includes basin stormwater management strategies and projects that have been put in place since 2000 or will be implemented by the responsible entities during the first five years of implementation (July 2013–June 2018). This 2015 progress report is the second annual progress report for the St. Lucie River and Estuary BMAP, and it describes the implementation activities that occurred during the reporting period from July 1, 2014, through June 30, 2015.

During the reporting period, the city of Fort Pierce, St. Lucie County, and the town of Sewall’s Point each completed one project; Martin County completed three projects; and the city of Port St. Lucie and Florida Department of Transportation (FDOT) District 4 each completed five projects. The total nitrogen (TN) reductions associated with the 2013 to 2015 septic tank phaseouts in the city of Port St. Lucie were quantified during the reporting period. In addition, the reductions associated with the Florida Department of Agriculture and Consumer Services’ (FDACS) enrollment of agricultural producers in best management practices (BMPs) were quantified.

The projects completed during this second annual BMAP reporting period resulted in an estimated reduction of 11,444 pounds per year (lbs/yr) of TN and 2,510 lbs/yr of total phosphorus (TP). The total estimated reductions to date, including those quantified prior to BMAP adoption and during the first reporting period, are 491,281 lbs/yr of TN and 133,050 lbs/yr of TP. This total is greater than the reductions required in the first BMAP phase.

Figure ES-1 and **Figure ES-2** show the progress towards the load reductions for the TN and TP TMDLs in the St. Lucie River and Estuary Basin. The first bar in these figures shows the baseline load. The second bar shows the current estimated loading with the implementation of projects. The third bar shows the total allocation to meet the TMDLs. The horizontal line shows the target for the first BMAP phase.

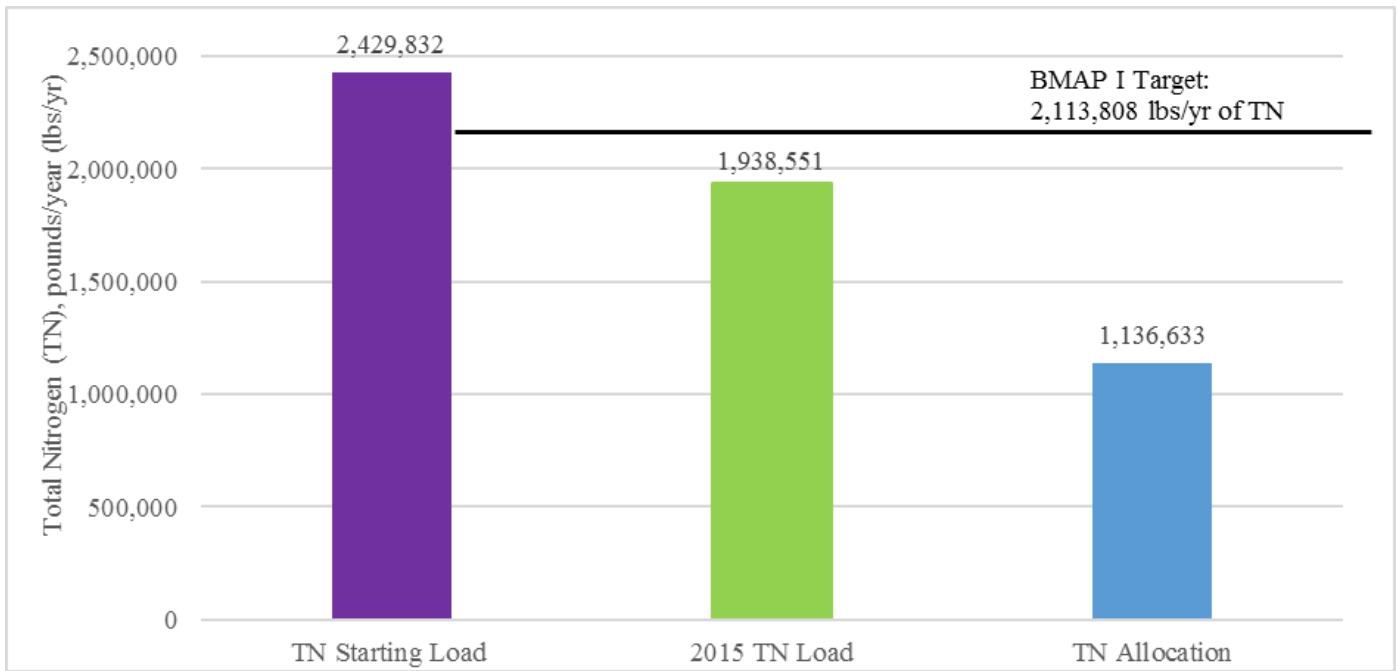


FIGURE ES-1: PROGRESS TOWARDS THE ST. LUCIE RIVER AND ESTUARY TN TMDL THROUGH JUNE 30, 2015

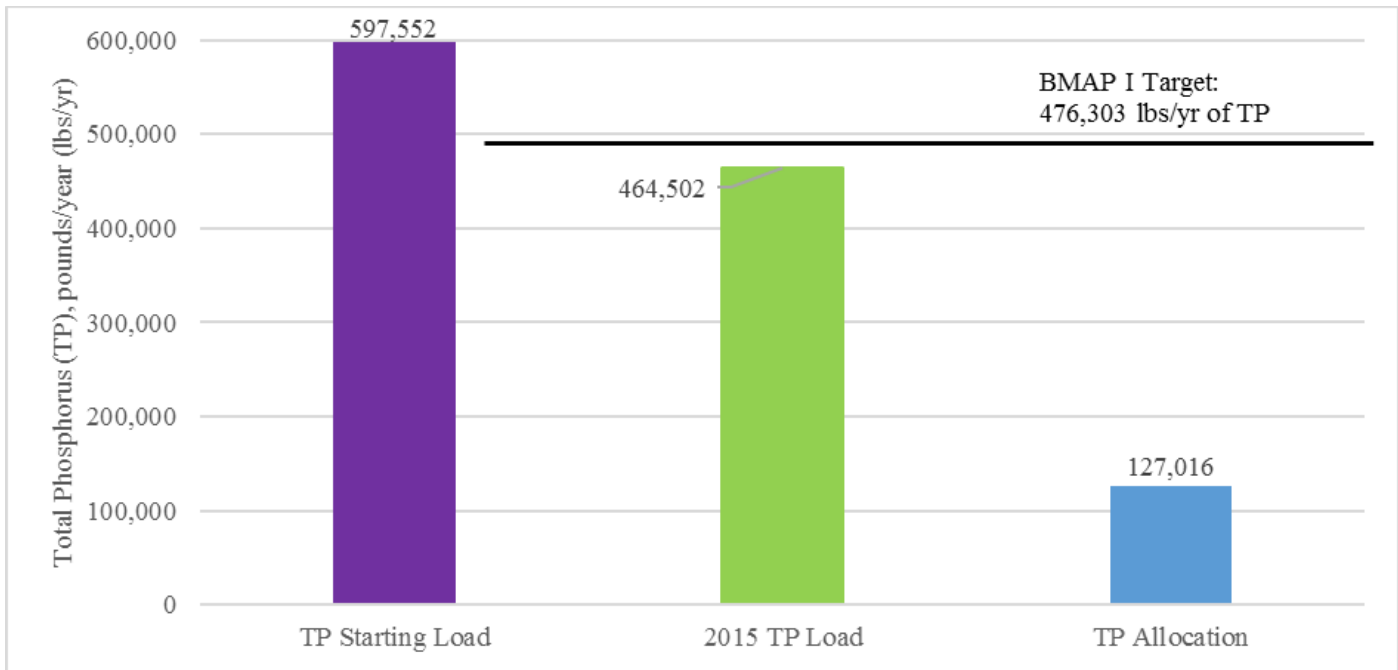


FIGURE ES-2: PROGRESS TOWARDS THE ST. LUCIE RIVER AND ESTUARY TP TMDL THROUGH JUNE 30, 2015

WATER QUALITY EVALUATION

The water quality section of this report will address the methodology used to analyze the station at Roosevelt Bridge and the other stations in the BMAP monitoring network. The adopted BMAP outlines the monitoring network, which includes monitoring efforts from stakeholders such as the South Florida Water Management District (SFWMD), Port St. Lucie, North St. Lucie Water Control District (WCD), United States Geological Survey (USGS), and others. The adopted BMAP calls for a more detailed water quality analysis to be included as part of the fourth annual progress report (to be released in 2017). At this time, the Florida Department of Environmental Protection (Department) is initiating the discussion of the water quality evaluation, beginning the process of developing the method of analysis and receiving feedback from stakeholders. At a minimum, the Department will examine the Roosevelt Bridge station data (Station SE 03, which is also the TMDL compliance point) and will work with stakeholders to identify other locations for future analysis. Beginning the process now, in advance of the 2017 date, will provide a more useful and complete water quality analysis, as required in the adopted BMAP.

Section 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

This is the second annual progress report for the St. Lucie River and Estuary Basin Management Action Plan. The BMAP and this report focus on the efforts in the St. Lucie Basin, as the upstream loads from Lake Okeechobee are being addressed separately in the Lake Okeechobee BMAP, adopted in December 2014. **Section 2** summarizes the evaluation of progress towards the achievement of the Total Maximum Daily Load. **Section 3** describes the accomplishments during the period from July 1, 2014, through June 30, 2015. **Section 4** includes a summary of planned efforts for the upcoming year (July 1, 2015–June 30, 2016) and management strategies for the first BMAP iteration.

1.2 TMDLS FOR THE ST. LUCIE BASIN

In March 2009, the Department adopted the St. Lucie Basin TMDL for total phosphorus (TP), total nitrogen (TN), and biochemical oxygen demand (BOD). TMDLs and pollutant load allocations adopted by rule for the watershed are available on [the Department's Final TMDL web page](#).

1.3 ST. LUCIE RIVER AND ESTUARY BASIN

The St. Lucie River and Estuary Basin is located in southeast Florida in Martin, St. Lucie, and Okeechobee Counties (**Figure 1**). The St. Lucie Estuary is a major tributary to the southern Indian River Lagoon.

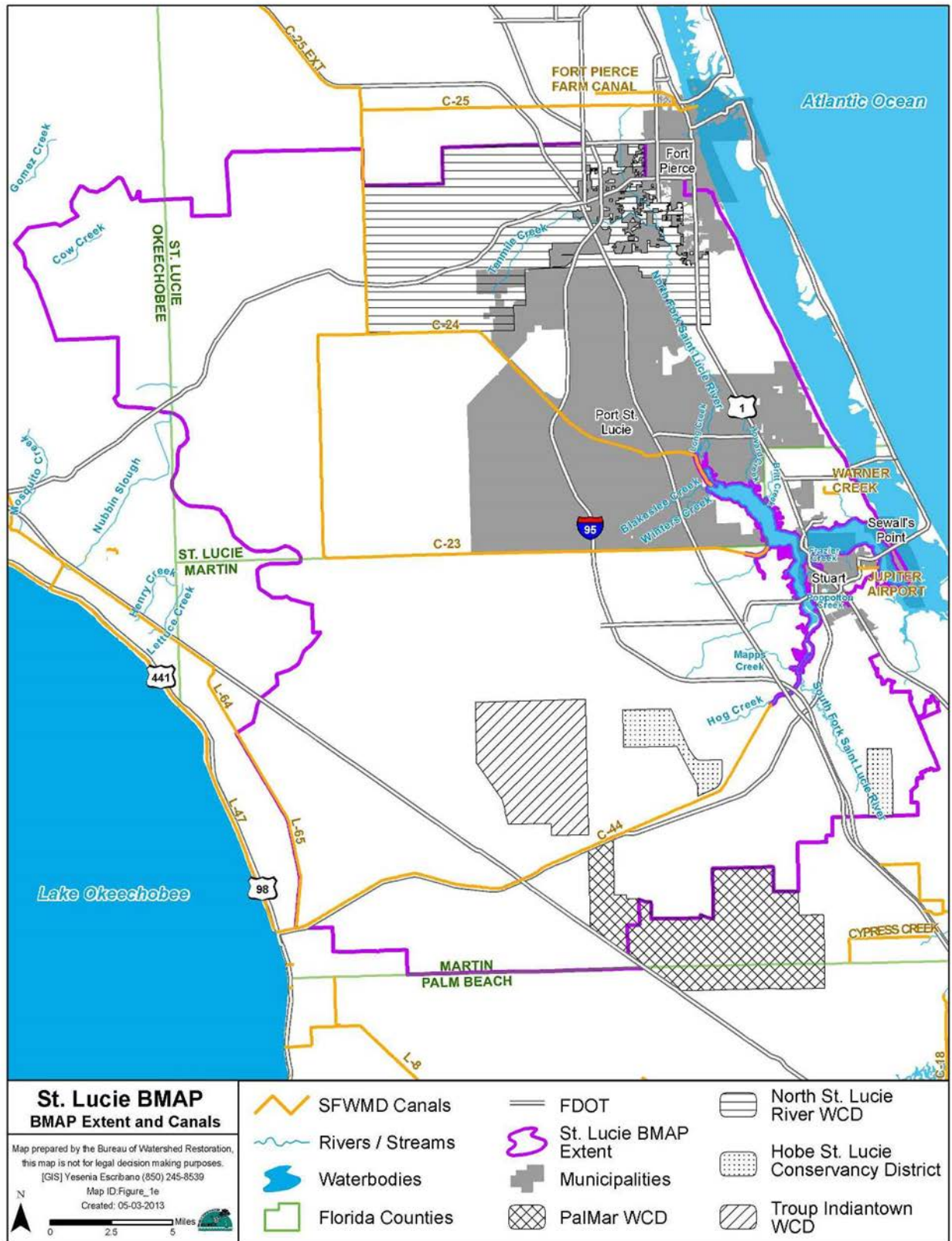


FIGURE 1: ST. LUCIE RIVER AND ESTUARY BASIN

Section 2: WATER QUALITY EVALUATION

The South Florida Water Management District (SFWMD) and numerous stakeholders monitor water quality throughout the St. Lucie River and Estuary Basin. The SFWMD monitors water quality data at Roosevelt Bridge (Station SE 03) for TN and TP; this is the agreed compliance point for the TMDL. The adopted BMAP outlines the monitoring efforts (including the SE 03 station) from stakeholders such as Port St. Lucie, North St. Lucie Water Control District (WCD), United States Geological Survey (USGS), and others. All nonfederal entities outlined in the BMAP monitoring network, with the exception of the SFWMD, are required to upload their data to the Department’s STORage and RETrieval (STORET) database. The SFWMD uploads all data from its listed BMAP monitoring stations data to its water quality database, DBHYDRO.

Figure 2 and **Figure 3** show the TN and TP water quality data from Station SE 03 for the period of record for the TMDL (January 1996) to the most recent available monitoring event (September 1, 2015). While the yearly averages for both TN and TP display some reductions, it should be noted that these data are not being used for compliance assessment at this time. A compliance methodology will be agreed upon before the fourth annual update, in accordance with the timeline established in the adopted BMAP. **Appendix B: Water Quality Data Evaluation Methodology** contains additional information describing the methodology used for this data analysis.

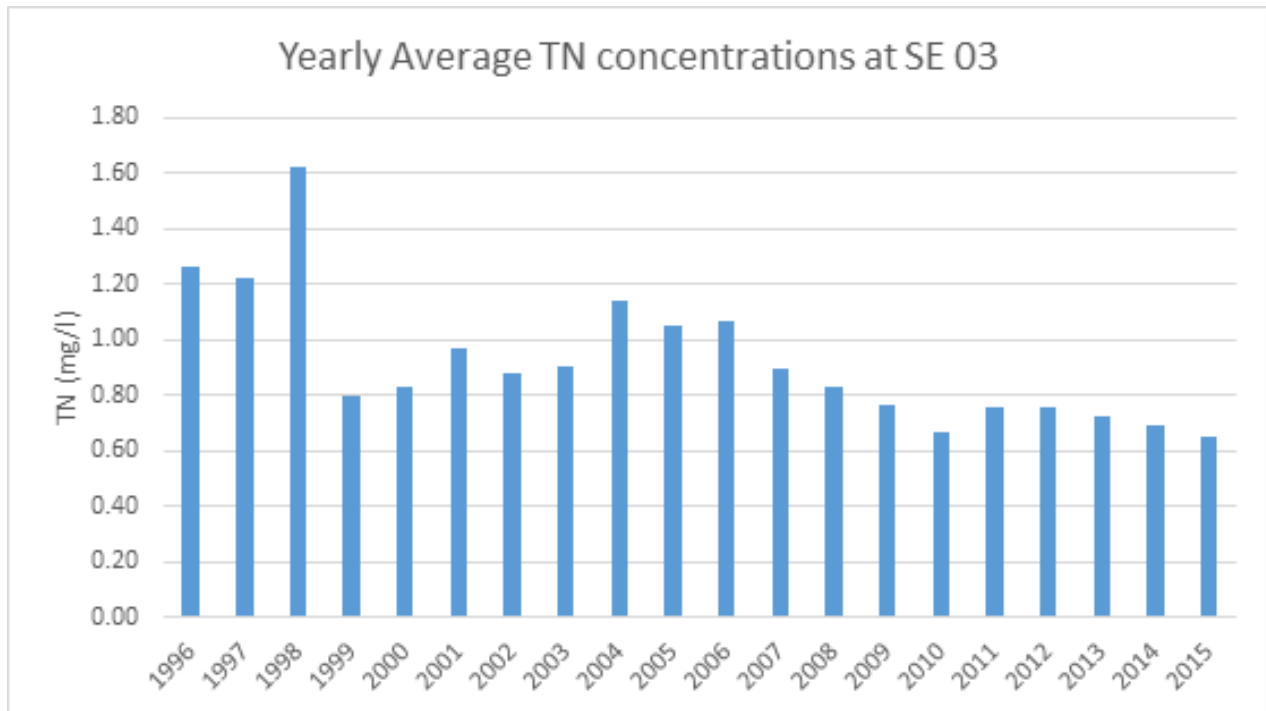


FIGURE 2: YEARLY AVERAGE TN CONCENTRATION AT ROOSEVELT BRIDGE (STATION SE 03)

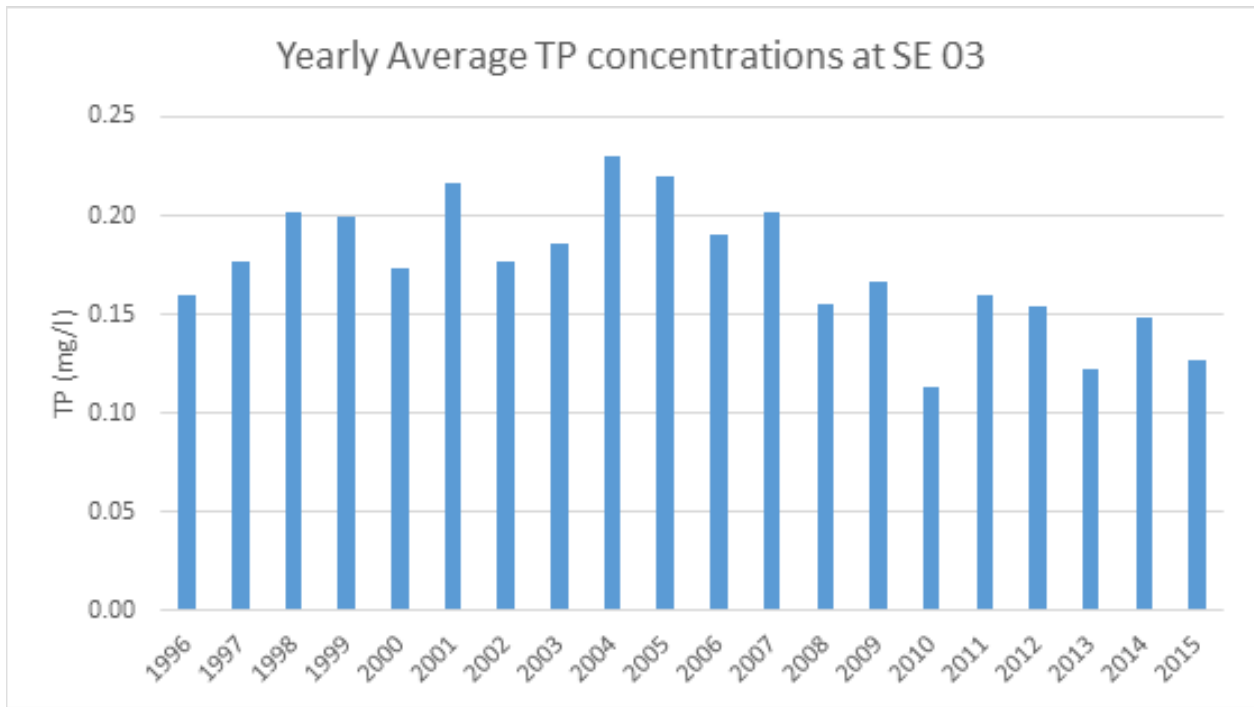


FIGURE 3: YEARLY AVERAGE TP CONCENTRATION AT ROOSEVELT BRIDGE (STATION SE 03)

Section 3: ACCOMPLISHMENTS DURING THE REPORTING PERIOD

During the reporting period, the city of Fort Pierce, St. Lucie County, and town of Sewall’s Point each completed one project; Martin County completed three projects; and the city of Port St. Lucie and Florida Department of Transportation (FDOT) District 4 each completed five projects. The TN reductions associated with the 2013–2015 septic tank phaseouts in the city of Port St. Lucie were quantified during the reporting period. In addition, the reductions associated with the Florida Department of Consumer Services’ (FDACS) enrollment of agricultural producers in best management practices (BMPs) were quantified. **Section 3.1** and **Section 3.2** describe the accomplishments over the past year, and **Appendix A** includes the individual project tables.

3.1 ACTIVITIES BY ENTITY

3.1.1 AGRICULTURE

FDACS currently has six field staff in the SFWMD region who work with producers on BMP enrollment and implementation. Some of FDACS’ activities include initial enrollment, follow-up to provide technical assistance, BMP cost-share, BMP implementation assurance visits, management of water quality– and water supply–related projects and contracts, and coordination with the SFWMD on agriculture-related permitting questions. These staff also participate in the development of the various BMPs in the SFWMD region.

The statewide nursery manual revision was adopted in June 2014 and includes practices related to in-ground and cut foliage production methods, in addition to container operations. Revisions to the vegetable/row crop manual were adopted in summer 2015. A dairy manual is under development, with adoption slated for late 2015. Eligible operations located in the BMAP basin will be enrolled in these manuals.

Landowners who sign Notices of Intent (NOIs) are agreeing to implement applicable BMPs on their enrolled properties. In the St. Lucie River and Estuary Basin, FDACS has a five-year enrollment goal of 193,304 acres (90%), which includes acreage in the agricultural areas of the Hobe St. Lucie Conservancy District, North St. Lucie River WCD, Pal Mar WCD, and Troup-Indiantown WCD. In the North St. Lucie River WCD, FDACS enrolled 1,491 acres during the reporting period.

As of March 31, 2015, producers throughout the basin have submitted 247 NOIs representing 133,448 acres, or 69% of the adjusted agricultural acreage (**Table 1** and **Table 2**). The implementation of these

BMPs will result in an estimated reduction of 25,283 lbs/yr of TP and 111,151 lbs/yr of TN. FDACS' staff will work to enroll the remaining 59,837 acres in the next few years to meet the 90% goal (**Table 2**). However, errors in land use data, changes in land use over time from agriculture to urban, agricultural lands not in production, and other factors may affect enrollment acreage. For example, citrus enrollment in the basin decreased by 10,856 acres during the first year of BMAP implementation, due to the loss of citrus production acreage. A decrease of 921 acres in Lake Okeechobee Protection Program enrollment resulted when these acres were reenrolled under the appropriate BMP manuals (*e.g.*, cow/calf manuals), which had not been adopted at the time of the initial enrollments. As reenrollment continues, acreages will shift from the Lake Okeechobee Protection Program category to commodity-specific BMP programs.

While the period of record for projects in this BMAP ended on June 30, enrollment data for the entire reporting period were not available in time to include the calculated reductions in this report. **Table 2** includes enrollment data through March 31, 2015. Since that time, FDACS has enrolled an additional 11,893 acres from April 1 to June 30, 2015, and this will be included in the agricultural nutrient reduction calculations in the next annual report.

It is also important to note that more acres are enrolled in FDACS' agricultural BMPs than the number of agricultural acres reported in the model. A significant number of enrolled acres (about 20,000) are not classified as agricultural land use, even though they are part of an agricultural operation (*e.g.*, lands classified as wetlands that are part of a ranch). Only enrolled lands that fall within the mapped areas of agricultural land uses are included in the BMAP reduction calculations.

FDACS also worked with Martin County to obtain the permits and provide the funding for the Danforth Creek and Bessey Creek hybrid wetland treatment technology (HWTT) systems.

TABLE 1: AGRICULTURAL ACREAGE AND BMP ENROLLMENT AS OF MARCH 31, 2015 FOR THE ST. LUCIE RIVER AND ESTUARY BMAP AREA

N/A = Not applicable

¹ FDACS staff-adjusted acreage for purposes of enrollment is based on a review of more recent aerial imagery in the basin and local staff observations.

² Some properties include pasture and other agricultural lands outside the operation footprint, on which BMPs are implemented—hence, the additional enrolled acres.

2004 SFWMD LAND USE	2004 ACRES	FDACS-ADJUSTED ACRES ¹	RELATED FDACS' BMP PROGRAMS	ACREAGE ENROLLED	RELATED NOIS
Pasture and Mixed Rangeland	152,299	151,232	Cow/Calf; Future (hay)	68,610	62
Row/Field/Mixed Crops	16,368	16,219	Vegetable/Agronomic Crops	7,657	12
Sod Farms	294	294	Statewide Sod	54	3
Horse Farm	784	814	Equine	28	1
Citrus	113,672	43,694	Ridge Citrus; Flatwoods Citrus ²	56,498	108
Fruit Orchards/Other Groves	60	51	Specialty Fruit and Nut	17	1
Tree Nurseries	480	480	Future Nursery; Specialty Fruit and Nut	38	N/A
Ornamentals	1,252	1,251	Container Nursery	183	44
Specialty Farms	132	132	Conservation Plan Rule	1	N/A
Dairies	404	404	Lake Okeechobee Protection Program	381	2
Cattle Feeding Operations	100	100	Conservation Plan Rule	N/A	N/A
Poultry Feeding Operations	106	106	Conservation Plan Rule	N/A	N/A

TABLE 2: AGRICULTURAL FUTURE ENROLLMENT GOALS FOR THE ST. LUCIE RIVER AND ESTUARY BMAP AREA

¹ See the discussion on BMP enrollment goals in Section 3.1.1.

CATEGORY	ACRES
Total Adjusted Acres	214,777
Five-Year Enrollment Goal (90%)	193,304
Acreage Enrolled (as of March 31, 2015)	133,467
Remaining Acres To Enroll ¹	59,837

3.1.2 CITY OF FORT PIERCE

The city of Fort Pierce finished the construction of the Heathcote Botanical Gardens Treatment Train, also known as the Indian Hills Recreation Area Stormwater Improvements Project (Project FP-1), during the reporting period. These improvements included the expansion of the lake and the construction of a stabilized coquina shell walking trail, bioswale, timber pedestrian bridge, and lake-outfall structure. A floating littoral island and an alum treatment plant were also installed. Project construction began in April 2014 and was completed in June 2015. The construction cost approximately \$2,787,588. Fort Pierce received \$900,000 in TMDL grant money and \$510,000 in United States Environmental Protection Agency (EPA) Section 319(h) grant money to help fund the project.

3.1.3 CITY OF PORT ST. LUCIE

The city of Port St. Lucie phased out 299 septic tanks from July 1, 2013, through June 30, 2014, and 272 septic tanks from July 1, 2014, through June 30, 2015 (Project PSL-9). The removal of these 571 septic tanks resulted in a TN reduction of 3,492 lbs/yr. Previously, the city of Port St. Lucie phased out approximately 5,600 septic tanks, with an associated TN reduction of 34,207 lbs/yr. The TN reduction estimates were determined using the ArcGIS-Based Nitrate Load Estimation Toolkit (ArcNLET) model developed by Florida State University for the Department. As a result of the septic tank phaseouts, the city has met its allocation for TN.

The city also completed the installation of five second-generation baffle boxes (Projects PSL-25 through PSL-29) in October 2014.

The St. Lucie West Services District, located within Port St. Lucie's city limits, plans to improve a wet detention pond to increase retention time, which will increase nutrient reductions (Project PSL-30). Construction began in June 2015, and completion is anticipated in November 2015. Nutrient reductions associated with this project will be calculated and provided in a future annual progress report.

Tests were performed to quantify the loading rate reduction for the St. Lucie West Services District Aquatic Harvesting Project (Project PSL-23). Samples were taken and analyzed for TN and TP reductions. The results showed that on average 2.4 lbs of TN and 0.3 lbs of TP were removed for every 1,000 lbs of aquatic material removed. The city has decided to discontinue the project due to the negligible reductions.

3.1.4 CITY OF STUART

The city of Stuart continued its educational efforts (Project S-7) and worked on a draft scope of work for the second phase of the Heart of Haney Creek wetland restoration project (Project S-17).

3.1.5 FDOT DISTRICT 4

FDOT District 4 continued its street sweeping activities (Project FDOT-18) and educational efforts (Project FDOT-19), and completed the construction of five projects (**Table 3**). The projects included the construction of four dry detention ponds, one dry retention pond, and one wet detention pond. FDOT calculated the total credits for Project FDOT-45 (four wet detention ponds) using the St. Lucie River and Estuary model and then split the credits, 40% to the St. Lucie River and Estuary Basin and 60% to the Indian River Lagoon Basin, based on the area of each basin within the boundary of the project. FDOT District 4 also coordinated with St. Lucie County and agreed to split the credits for the project listed as FDOT-44. The entities agreed to split the credits, with 25% to FDOT and 75% to St. Lucie County based on the respective areas of responsibility.

3.1.6 HOBE ST. LUCIE CONSERVANCY DISTRICT

No changes were reported for the Hobe St. Lucie Conservancy District during this reporting period.

3.1.7 MARTIN COUNTY

Martin County, in conjunction with FDACS and Watershed Technologies, Inc., completed the construction of the Bessey Creek HWTT facility (Project MC-31). Martin County is also constructing a second HWTT facility at Danforth Creek. The construction of the Bessey Creek HWTT facility began in November 2014 and was completed in May 2015. The initial few months of inflow-outflow data show TP level reductions from a mean inflow of 0.214 milligrams per liter (mg/L) to a mean outflow of 0.042 mg/L. For TN, mean inflow levels of 1.50 mg/L are being reduced to a mean outflow of 0.79 mg/L. It is anticipated that once full vegetation growth has occurred, the current percentage removal rates (80% for TP; 47% for TN) will increase by about 5% to 10%.

The construction of the Danforth Creek wet detention (Project MC-17) began in March 2015 and will be complete in November 2015, pending the approval of a span bridge from Martin County. Funding to operate the facility will not be available until the next fiscal year, and so the project is not expected to operate until the next reporting period. Danforth is anticipated to have an annual "treatable" flow of 897 million gallons per year. Although no performance data are available yet for this system, assuming a comparable TN and TP inflow concentrations as seen at the Bessey Creek facility (and comparable

treatment performance for the two HWTT systems), then the anticipated mass removal rates will be 1,288 lbs/yr for TP and 5,315 lbs/yr for TN.

Martin County also revised its existing fertilizer ordinance (Project MC-20), which already contained a summertime fertilizer application ban, to be consistent with other stricter ordinances along the Indian River Lagoon. The ordinance now includes the following: (1) a requirement for 50% slow-release nitrogen; (2) a requirement for 0% phosphorus fertilizer; (3) a summertime application ban between June 1 and September 30; and (4) a requirement for an increased setback to 25 feet for fertilizer application adjacent to waterbodies.

Martin County also implemented Be Floridian Now, a summertime fertilizer application ban media educational campaign. The program will educate residents and property owners about the impacts of freshwater and stormwater discharges on the St. Lucie River and Indian River Lagoon and what they can do to reduce these impacts. A [Be Floridian Now website](#) has been developed, and billboards and media print ads are being distributed throughout the St. Lucie River Estuary watershed region. Signs are being distributed to retail stores to educate residents that a summertime application ban for TN and TP fertilizers is in place in unincorporated Martin County.

Martin County constructed two rain garden demonstration projects, one at the Hoke Library (Project MC-33) and another at Halpatokee Park (Project MC-34). A stormwater education program has been implemented in conjunction with the Florida Yards and Neighborhoods (FYN) Program to encourage residents to build rain gardens in their own landscapes.

Martin County held two stormwater education and rain barrel workshops in July and August 2014. Forty rain barrels were distributed to the public. Participants had to attend the stormwater education portion of the workshop to receive a “free” rain barrel.

3.1.8 NORTH ST. LUCIE RIVER WCD (NSLRWCD)

Up to March 31, 2015, 9,083 acres of agricultural lands were enrolled in FDACS’ BMPs. The enrollments resulted in a TN reduction of 2,993 lbs/yr and a TP reduction of 795 lbs/yr. The NSLRWCD also continued to collect water quality data quarterly, as outlined in the BMAP.

3.1.9 PAL MAR WCD

No changes were reported for the Pal Mar WCD during this reporting period.

3.1.10 ST. LUCIE COUNTY

St. Lucie County is currently constructing the White City–Citrus Seager stormwater improvement project (Project SLC-9). The project includes the construction of a 4.01-acre detention lake and the installation of mechanisms (a Pond Doctor™ type of BMP) to pump water through polyacrylamide “floc logs” that will be used to reduce erosion and nutrient loads. The stormwater conveyance system will also be upgraded. The project will be completed in December 2015 and is expected to cost \$1,862,859. The Department awarded \$500,000 towards the project through an EPA Section 319(h) grant.

In July 2015, in cooperation with the city of Port Saint Lucie, St. Lucie County completed the Platt’s Creek compensatory mitigation (Project SLC-14). This is the final phase of the Platt’s Creek stormwater treatment facility (Project SLC-1) which began with the construction of a stormwater pump station, including alum injection systems, and wet detention pond. With this final phase complete, pretreated stormwater from the station can now rehydrate over 80 acres of restored wetlands and hammock directly adjacent to the North Fork of the St. Lucie River. The wetlands will also increase both the existing pollutant efficiencies and stormwater storage for the basin.

During the reporting period, St. Lucie County also completed the Indian Hills Recreation Area Project, Phase I (Project FP-1). In partnership with the city of Fort Pierce and many other entities, this project merges stormwater treatment design, low-impact development (LID), and recreational opportunities for residents. The project uses six different BMPs and provides treatment and storage for over 1,200 acres. St. Lucie County also invested in an upgraded street sweeper.

3.1.11 TOWN OF SEWALL’S POINT

The town of Sewall’s Point installed inlets, pipes, and a baffle box along with an exfiltration trench to provide additional water quality treatment in the Quail Run Basin (Project SP-31). The work was completed in April 2015. The town also completed the design work for baffle boxes (Project SP-29). The project includes the construction of nine area outfalls: six new and three retrofit baffle boxes. The town of Sewall’s Point received a Departmental grant to fund 50% of the construction cost.

3.1.12 TROUP-INDIANTOWN WCD

No changes were reported for the Troup-Indiantown WCD.

3.2 SUMMARY OF ACCOMPLISHMENTS

Table 3 summarizes the projects completed during the second annual BMAP reporting period. These resulted in an estimated reduction of 11,437 lbs/yr of TN and 2,505 lbs/yr of TP. The reductions are in addition to those projects given credit before BMAP adoption. Therefore, the total reductions to date are 491,281 lbs/yr of TN and 133,050 lbs/yr of TP; these are greater than the required reductions in the first BMAP phase of 316,025 lbs/yr of TN and 121,250 lbs/yr of TP.

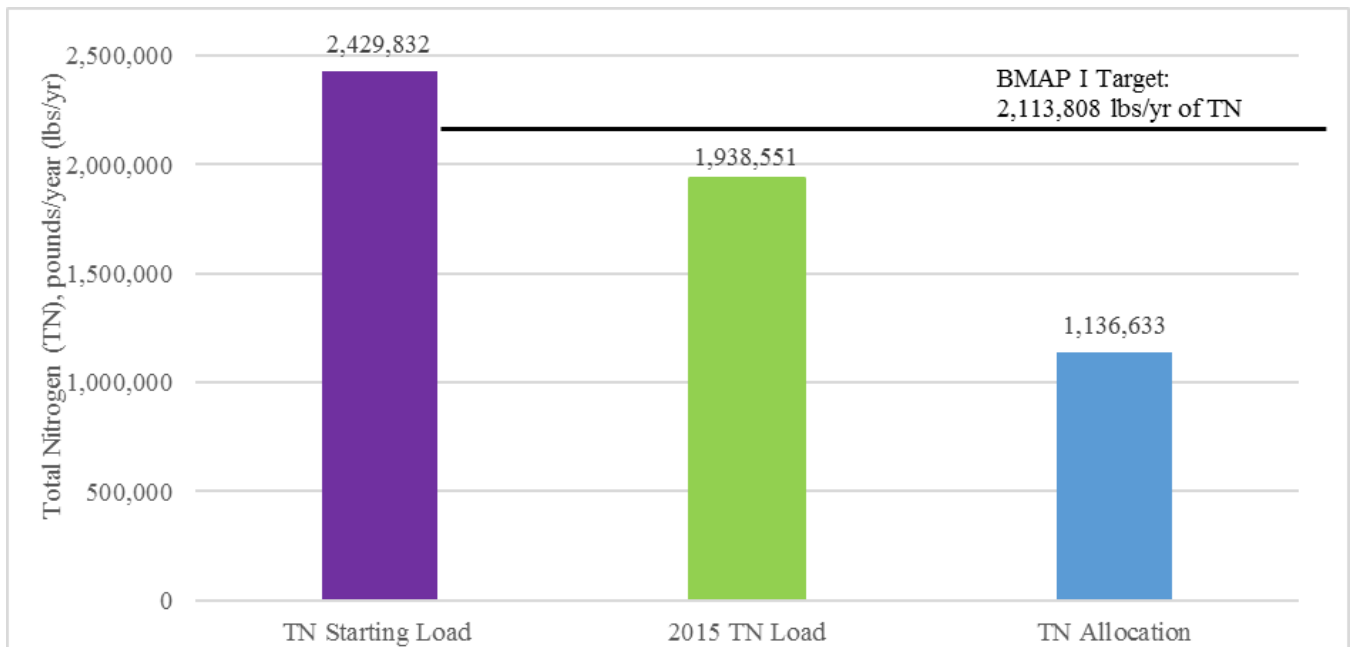


Figure 4 and **Figure 5** show the progress towards the TMDL TN and TP load reductions, respectively, in the St. Lucie River and Estuary Basin. The first bar in these figures shows the baseline load. The second bar shows the current estimated loading with the implementation of projects. The third bar shows the total allocation to meet the TMDLs. The horizontal line shows the target for the first BMAP iteration.

TABLE 3: SUMMARY OF PROJECTS COMPLETED IN THE REPORTING PERIOD (JULY 1, 2014–JUNE 30, 2015) IN THE ST. LUCIE RIVER AND ESTUARY BASIN

- = Empty cell/no data

¹ Includes enrollments and reductions in the NSLRWCD

ENTITY	PROJECT NUMBER	PROJECT NAME	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Agriculture	N/A	Agricultural BMP Enrollment through March 31, 2015 ¹	2,992	794
City of Fort Pierce	FP-1	Heathcote Botanical Gardens Treatment Train, also known as Indian Hills Recreation Area Stormwater Improvements	232	98
City of Port St. Lucie	PSL-9	Water and Wastewater Expansion	1,440	Not quantified
City of Port St. Lucie	PSL-25	Atlantis Basin	91	16
City of Port St. Lucie	PSL-26	Evergreen Basin	189	34
City of Port St. Lucie	PSL-27	Lansdown Basin	89	16
City of Port St. Lucie	PSL-28	Streamlet/Manth Basin	32	6
City of Port St. Lucie	PSL-29	Walters Basin	140	25
Martin County	MC-31	Bessey Creek HWTT	6,038	1,466
Martin County	MC-33	Hoke Library Rain Garden	Not quantified	Not quantified
Martin County	MC-34	Halpatiokee Park Rain Garden	Not quantified	Not quantified
Town of Sewall's Point	SP-31	Quail Run Subdivision	To be quantified	To be quantified
St. Lucie County	SLC-14	Platt's Creek Compensatory Mitigation Project	Not quantified	Not quantified
FDOT District 4	FDOT-6	FM# 230262-2	109	35
FDOT District 4	FDOT-41	FM# 419250-2 State Road 710 Bridge Replacement – 100A, 100B, and 200	3	0
FDOT District 4	FDOT-42	FM# 419250-2 State Road 710 Bridge Replacement – 300 and 500	7	1
FDOT District 4	FDOT-43	FM# 413046-1 State Road 9 Widening	75	14
FDOT District 4	FDOT-44	FM# 423022-1 CR 68 Orange Avenue	Not quantified	Not quantified
-	-	TOTAL REDUCTIONS IN REPORTING PERIOD	11,437	2,505

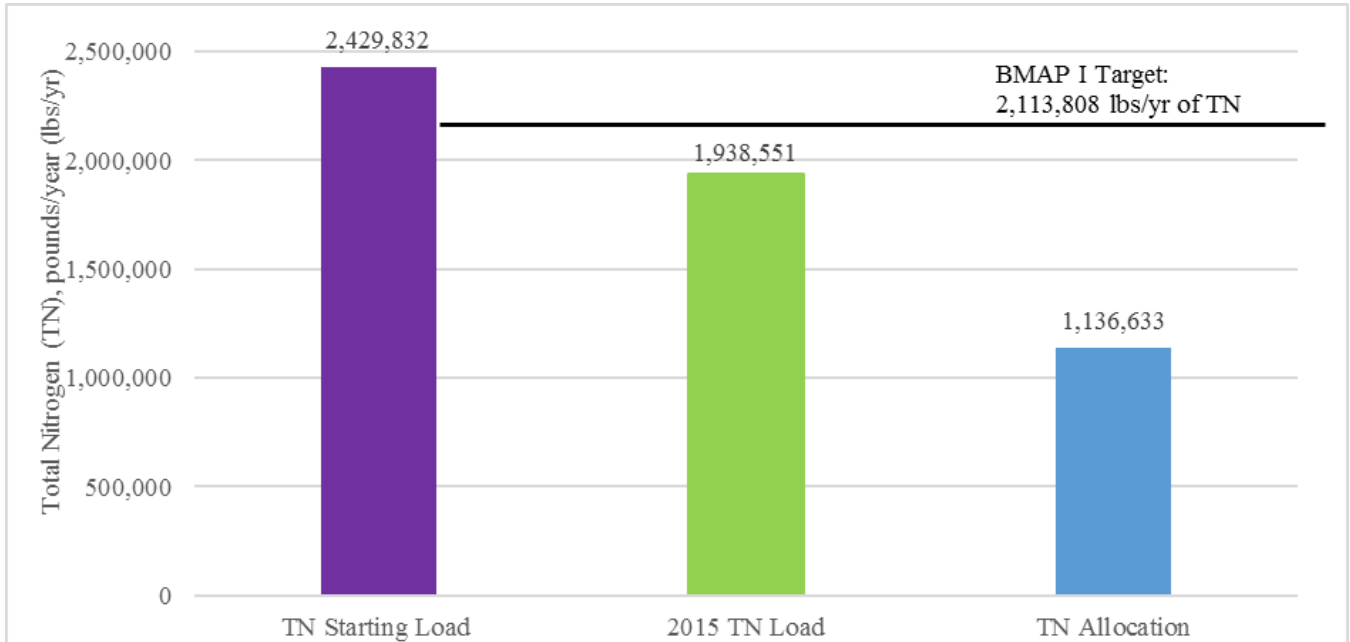


FIGURE 4: PROGRESS TOWARDS THE ST. LUCIE RIVER AND ESTUARY TN TMDL THROUGH JUNE 30, 2015

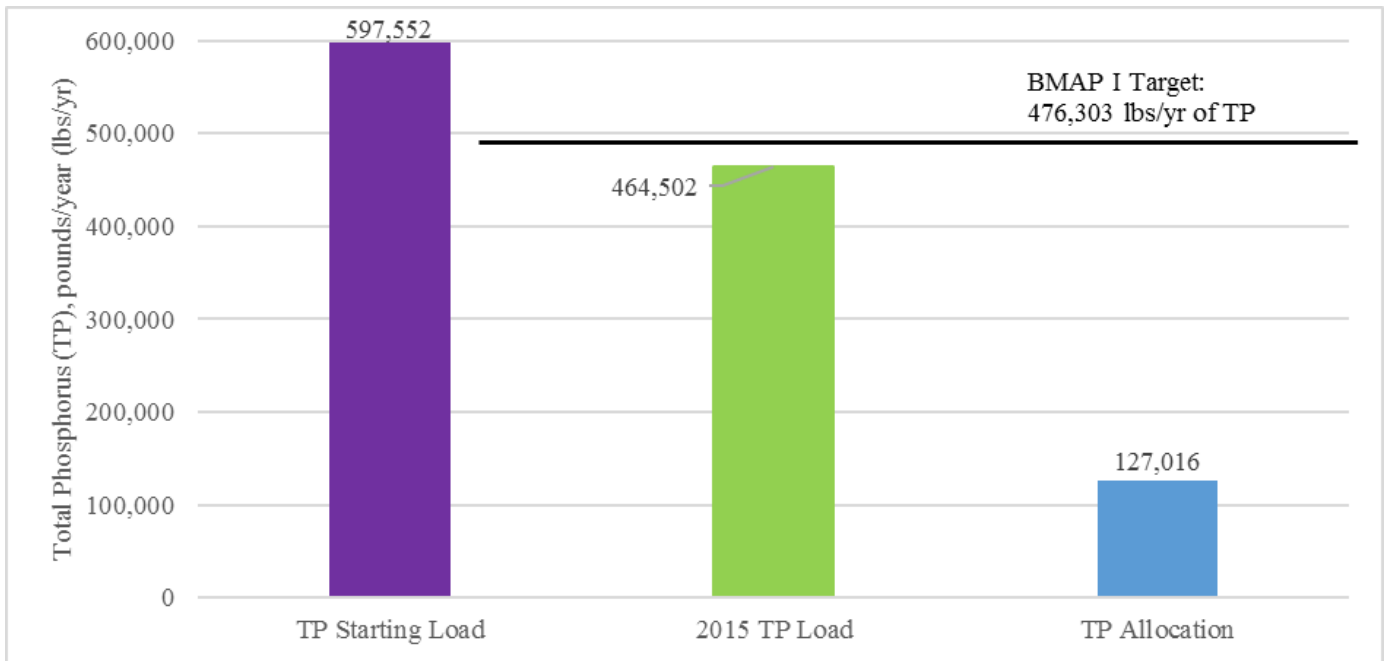


FIGURE 5: PROGRESS TOWARDS THE ST. LUCIE RIVER AND ESTUARY TP TMDL THROUGH JUNE 30, 2015

Section 4 : UPCOMING ACTIVITIES

4.1 ACTIVITIES IN THE UPCOMING REPORTING PERIOD AND FUTURE PLANNING

The third annual progress report will encompass the period from July 1, 2015, through June 30, 2016. Examples of some activities that will occur during this time are summarized below. Any new projects or activities not summarized below, but implemented during the next reporting period, will be included in the 2016 report.

Local BMAP stakeholders are continuing the design and implementation of projects to reduce nutrient loading into the St. Lucie River and Estuary Basin and planning for the second phase of the BMAP. Frequent meetings will be held over the next several years to keep stakeholders apprised of the Department's efforts and to coordinate with stakeholders on activities regarding the St. Lucie River and Estuary BMAP.

In addition, stakeholders have identified opportunities to revise the BMAP, including updating land uses, revising basin boundaries, updating jurisdictional boundaries, verifying community development district (CDD) responsibilities, updating event mean concentration (EMC) and runoff coefficients, evaluating legacy loads, and determining what percentage of the C-23 and C-24 subbasin runoff affects the river and estuary. In particular, the Department is working with the SFWMD to use the St. Lucie Estuary watershed model, known as the WaSh Model, to address some of the suggested revisions identified in the BMAP. This model is thought to be best suited for use in the BMAP.

4.1.1 AGRICULTURE

FDACS will continue to enroll landowners in applicable BMP programs to meet the 90% enrollment goal. While commercial growers are required to enroll in BMPs or perform water quality monitoring in BMAP areas, the enrollment outreach by FDACS promotes awareness of the BMP requirements and assists growers in the enrollment process. The Department will continue to monitor the BMP enrollment levels in the basin; enforcement provisions are available to the Department, but FDACS' outreach is the most successful method for enrolling commercial operations.

4.1.2 CITY OF FORT PIERCE

The city of Fort Pierce started the alum plant associated with the Heathcote Botanical Gardens treatment train project, also known as the Indian Hills Recreation Area Stormwater Improvements Project (Project FP-1), in July 2015. The project will be fully operational when the alum plant is placed in service, with estimated reductions of 232 lbs/yr of TN and 98 lbs/yr of TP.

4.1.3 CITY OF PORT ST. LUCIE

The city of Port St. Lucie will continue septic tank phaseout activities (Project PSL-9) and plans to complete its Water Management Improvement Project (Project PSL-30) towards the end of 2015.

4.1.4 MARTIN COUNTY

Martin County, in conjunction with FDACS and Watershed Technologies, Inc., plans to complete the construction of a second HWTT facility at Danforth Creek (Project MC-32). Construction began in March 2015 and is expected to be completed in December 2015. Other projects for the next year include the construction of baffle boxes in the Manatee Pocket Southwest Prong, expected to be completed by December 2015; the construction of a stormwater retrofit at the Martin County golf course; and the construction of the All American ditch stormwater treatment area (STA) beginning in March 2016.

4.1.5 ST. LUCIE COUNTY

St. Lucie County will continue the construction of the White City–Citrus Seager project, expected to be completed in December 2015, and is currently in the planning stages for the construction of a new restoration project called the Teague Preserve Re-watering Project (SLC-15). It will be located adjacent to the proposed Indian River Lagoon-South (IRL-S) C-23/24 Comprehensive Everglades Restoration Plan (CERP) Reservoir Project.

The restoration project will provide an additional 300 acres of ground water recharge, restore the hydroperiod of freshwater wetlands, and reduce state and local invasive and exotic management costs. The project will directly benefit the future adjacent CERP reservoir project by reclaiming and holding agricultural water before it reaches the C-24 drainage basin. The project will restore wetlands and surface waters impacted by historical agricultural operations in the tributaries of the St. Lucie River Estuary and IRL-S Estuary. Benefits include reducing nutrient concentrations to receiving downstream waterbodies, attenuating flood waters, recharging ground water, and providing improved wetland habitat for fish and wildlife. The restoration project will also enhance recreational opportunities and increase ecotourism in the county’s parks and preserves systems. The estimated completion date for the project is April 2017.

4.1.6 TOWN OF SEWALL’S POINT

The town of Sewall’s Point plans to complete the construction of nine area outfalls (Project SP-29)—six new and three retrofit baffle boxes—prior to 2018.

APPENDICES

Appendix A: BMAP Projects

The BMAP project tables below show the implementation status of the BMAP projects as of June 30, 2015. The tables provide information on the nutrient reduction attributed to each individual project, listed in lbs/yr. These projects were submitted to provide reasonable assurance to the Department that each entity has a plan on how to meet its allocation; however, this list of projects is meant to be flexible enough to allow for changes that may occur over time, provided that the reduction is still achieved within the specified period.

TABLE A-1: CITY OF FORT PIERCE PROJECTS

N/A = Not applicable
O&M = Operations and maintenance

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FP-1	Heathcote Botanical Gardens Treatment Train, also known as Indian Hills Recreation Area Stormwater Improvements	Treatment train	1,242	\$ 2,787,588	6/2015	Completed	232	98
FP-2	Moore's Creek Retrofit – Phases 3 and 4	Wet detention	71.9	\$825,000	3/2008	Completed	102	38
FP-3	Street Sweeping – 2,433 Cubic Yards	Street sweeping	N/A	N/A	Ongoing	Ongoing	3,141	2,014
FP-4	Inlet Cleaning – 385 Cubic Yards	Inlet cleaning	N/A	N/A	Ongoing	Ongoing	599	368
FP-5	Fertilizer Ordinance, Stormwater Education Shows, Pamphlets, Presentations, Storm Drain Stenciling, Illicit Discharge Program	Education and outreach	N/A	N/A	Ongoing	Ongoing	255	58
FP-6	Virginia Avenue Outfall Canal	Wet detention	161.4	\$3,462,572	02/2008	Completed	233	99

TABLE A-2: CITY OF FORT PIERCE SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	4,562	2,675
Total BMAP I Required Reductions	1,943	807
Credit for Future BMAPs	2,619	1,868

TABLE A-3: CITY OF PORT ST. LUCIE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
PSL-1	Wood Stork Trail Design Districts 7, 8, and 9	First-generation baffle box	228.8	\$3,300,000	7/2007	Completed	3	4
PSL-2	Wood Stork Trail Design District 6	First-generation baffle box	81.0	\$825,500	11/2008	Completed	2	2
PSL-3	Howard Creek STA	Wet detention	435.8	Included in PSL-4	12/2010	Completed	523	212
PSL-4	Eastern Watershed Improvement Project (EWIP)	Wet detention ponds	849.5	\$36,000,000	12/2011	Completed	618	360
PSL-5	B-1 and B-2 Water Control Structures (WCSs)	Water control structure	1,747.5	\$1,800,000	5/2007	Completed	2,526	993
PSL-6	B-3 WCS	Water control structure	1,640.6	Included in PSL-5	5/2007	Completed	2,372	931
PSL-7	E-8 Waterway Phase 1 Water Quality Retrofit	Wet detention – STAs	1,610.2	\$400,000	11/2010	Completed	763	664
PSL-8	E-17 Canal WCS	Water control structure	983.6	\$437,000	7/2008	Completed	181	0
PSL-9	Water and Wastewater Expansion	Septic tank phaseout	N/A	\$91,075,666	Varies	Ongoing	37,698	Not quantified
PSL-10	Street Sweeping	Street sweeping	N/A	N/A	Ongoing	Ongoing	676	434
PSL-11	Swale Maintenance	Sediment removal	N/A	N/A	Ongoing	Ongoing	7,649	3,097
PSL-12	Catch Basin Cleaning	Catch basin cleaning	N/A	N/A	Ongoing	Ongoing	21	13
PSL-13	FYN; Fertilizer, Landscaping, Irrigation, and Pet Waste Ordinances; Public Service Announcements (PSA)s, Stormwater Educational Shows, Website, Outreach Programs, Stencil Program, Stormwater Pollution Hotline	Education and outreach	N/A	N/A	Ongoing	Ongoing	9,388	2,100
PSL-14	Tiffany Channel	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	32	7
PSL-15	Patio STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	11	2
PSL-16	Mary STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	7	1
PSL-17	Leithgow STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	7	1
PSL-18	Cane Slough 1/Elks STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	33	7
PSL-19	Cane Slough 2/Azzi STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	23	5
PSL-20	Loutus STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	22	4
PSL-21	Howard Creek STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	33	7

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
PSL-22	Bur St. STA	Stormwater reuse	N/A	N/A	Ongoing	Ongoing	0	0
PSL-23	St. Lucie West Services District Aquatic Harvesting	Aquatic harvesting	N/A	\$669,600	Discontinued	Discontinued	Not quantified	Not quantified
PSL-24	St. Lucie West Services District Catch Basin Cleaning	Catch basin cleaning	N/A	\$185,600	Ongoing	Ongoing	84	52
PSL-25	Atlantis Basin	Second-generation baffle box	115.8	\$628,000	11/2014	Completed	91	16
PSL-26	Evergreen Basin	Second-generation baffle box	241.4	Included in PSL-25 cost	11/2014	Completed	189	34
PSL-27	Lansdown Basin	Second-generation baffle box	115.2	Included in PSL-25 cost	11/2014	Completed	89	16
PSL-28	Streamlet/Manth Basin	Second-generation baffle box	41.7	Included in PSL-25 cost	11/2014	Completed	32	6
PSL-29	Walters Basin	Second-generation baffle box	179.5	Included in PSL-25 cost	11/2014	Completed	140	25
PSL-30	St. Lucie West Services District Water Management Improvement Project	Wet detention pond	Not quantified	Not quantified	12/2015	Construction started June 2015	454	326

TABLE A-4: CITY OF PORT ST. LUCIE SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	63,667	9,319
Total BMAP I Required Reductions	15,930	7,029
Credit for Future BMAPs	47,737	2,290

TABLE A-5: CITY OF STUART PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
S-1	Poppleton Creek – Phase II and III	Wet detention pond	629.1	\$4,371,250	10/2008	Completed	1,299	575
S-2	Airport Ditch Project	Retention/detention	893.7	\$766,756	8/2003	Completed	899	532
S-3	Crescent Basin Project	Stormwater retention	58.5	\$180,000	3/2003	Completed	197	41
S-4	Krueger Creek Project	First-generation baffle boxes	309.6	\$432,000	11/2001	Completed	7	6
S-5	Street Sweeping – 260 tons/yr	Street sweeping	N/A	N/A	Ongoing	Ongoing	275	176
S-6	Sediment Removal from Storm Systems – 50 tons/year	BMP cleanout	N/A	N/A	Ongoing	Ongoing	54	33
S-7	FYN; Landscaping, Irrigation, Fertilizer, Pet Waste Ordinances; Brochure, Website, Information Inserts, City Calendar, Doggie Pot Stations, Neighborhood Cleanup Program	Education and outreach	N/A	FYN agreement - \$17,028; city stormwater calendars - \$11,530	Ongoing	Ongoing	839	186
S-8	North Point CRA Drainage Basin	First-generation baffle box	1,083.8	N/A	2002	Completed	24	22
S-9	Anchorage Drainage Basin	First-generation baffle box	21.3	N/A	2002	Completed	0	0
S-10	Downtown Drainage Basin	First-generation baffle boxes	116.6	N/A	2002	Completed	2	2
S-11	Hildebrad Basin	Continuous Deflective Separation (CDS) unit	66.9	N/A	2009	Completed	0	6
S-12	Landfill Basin	Closed basin	71.0	N/A	N/A	Completed	167	25
S-13	South Fork Drainage Basin	First-generation baffle boxes	662.8	N/A	2002	Completed	16	16
S-14	Neighborhood Initiated Sewer Expansion Program	Removal of septic tanks	N/A	\$3,200,000	Ongoing	Ongoing	1,340	Not quantified
S-15	Eldorado Heights	Retention/closed basin	29.8	\$779,000	12/2012	Completed	133	27
S-16	Amerigo Avenue Drainage Improvements	Dry detention	9.9	\$772,000	4/2014	Completed	37	7
S-17	Haney Creek Project	Flow-through marsh, wetlands	626.4	Unknown	Unknown	Under way	513	207
S-18	Nondischarge Areas	Nondischarge (8 areas)	217.6	N/A	N/A	Completed	1,038	233
S-19	Baffle Boxes Throughout City	First-generation baffle boxes (22 total)	474.9	Unknown	Various	Completed	10	10

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
S-20	CDS Units Throughout City	CDS units (12 total)	65.9	Unknown	Various	Completed	0	6

TABLE A-6: CITY OF STUART SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	6,850	2,110
Total BMAP I Required Reductions	1,428	618
Credit for Future BMAPs	5,422	1,492

TABLE A-7: FDOT DISTRICT 4 PROJECTS

N/A = Not applicable

¹ These projects are located in the South Coastal subbasin, which is outside the current BMAP boundary. However, they will be considered for credit in the next BMAP iteration.

² These projects are located in the Mid Coastal subbasin, which is outside the current BMAP boundary. However, they will be considered for credit in the next BMAP iteration.

³ FDOT-44 is a joint project between St Lucie County and FDOT. This portion of 68 (west of Interstate 95) is actually a county road, not state road. The county and FDOT District 4 have agreed to split the credits 25% to FDOT and 75% to the county.

⁴ FDOT calculated the total credits for Project FDOT-45 using the St. Lucie River and Estuary model and then split the credits, 40% to the St. Lucie River and Estuary Basin and 60% to the Indian River Lagoon Basin, based on the area of each basin within the boundary of the project. This project was originally identified as FDOT-1 and FDOT-2, based on the number and location of BMPs; however, upon further review and coordination with the Department, it was determined that a more accurate way of calculating the credit from the project was to look at the area within each basin. Thus FDOT-1 and FDOT-2 have been replaced by FDOT-45.

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FDOT-1⁴	FM# 230108-1 (Pond 3)	Wet detention	2.0	2/2005	Replaced with FDOT-45	2	0
FDOT-2⁴	FM# 230108-1 (Pond 4)	Wet detention	4.0	2/2005	Replaced with FDOT-45	2	4
FDOT-3	FM# 230262-4	Dry detention	102.0	7/2008	Completed	69	18
FDOT-4	FM# 230262-5	Dry detention	123.7	4/2010	Completed	60	15
FDOT-5	FM# 230262-3	Dry detention	195.1	5/2012	Completed	168	37
FDOT-6	FM# 230262-2	Dry detention	238.4	6/2014	Completed	109	35
FDOT-7	FM# 230295-1	Dry detention	17.1	3/2003	Completed	8	1
FDOT-8	SPN 99004-1585	Dry detention	30.8	1/2003	Completed	15	2
FDOT-9	SPN 99004-1585 (Lake 3)	Wet detention	13.1	1/2003	Completed	14	5
FDOT-10	FM# 228819-1 (Basin A and B)	Wet detention	2.0	5/2007	Completed	0	0
FDOT-11	FM# 228821-1 (West 1 A)	Exfiltration trench	2.2	4/2001	Completed	5	1
FDOT-12	FM# 228821-1 (East)	Exfiltration trench	1.0	4/2001	Completed	1	0

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PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FDOT-13	FM# 228831-1	Dry detention	9.1	3/2000	Completed	3	0
FDOT-14	FM# 228801-1	Dry detention	2.0	11/2003	Completed	1	0
FDOT-15	FM# 405504-1	Dry detention	53.6	2/2005	Completed	23	4
FDOT-16	FM# 230288-2	Wet detention	44.4	5/2009	Completed	62	22
FDOT-17	FM# 419890-1	Wet and dry detention	42.0	1/2010	Completed	1	1
FDOT-18	Street Sweeping	Street sweeping	N/A	Ongoing	Ongoing	1,419	910
FDOT-19	Pamphlets	Education	N/A	Ongoing	Ongoing	31	6
FDOT-20	FM# 230978-1 Indian Street Bridge (Pond East)	Dry detention	20.7	1/2014	Completed	1	0
FDOT-21	FM# 230978-1 Indian Street Bridge (Pond West)	Wet detention	33.6	1/2014	Completed	0	0
FDOT-22	State Road 615 Midway Road to Edwards Road (Basin B-1)	Wet detention	7.8	10/2009	Completed	5	1
FDOT-23	State Road 615 Midway Road to Edwards Road (Basin E)	Wet detention	9.3	10/2009	Completed	5	2
FDOT-24	FM# 410717-1 State Road 70 Widening Kings Highway to Jenkins Road (West Basin)	Dry detention	6.2	11/2012	Completed	3	0
FDOT-25	State Road 713 (King's Highway) Turn Lanes	Swales	0.6	Unknown	Completed	0	0
FDOT-26	Johnson Honda of Stuart Turn Lane (Basin A and B)	Exfiltration trench	0.1	10/2010	Completed	0	0
FDOT-27	FM# 228852-1 State Road 76 Drainage Improvements at Cabana Point (Pond 9A)	Wet detention	4.8	1/2006	Completed	9	3
FDOT-28	FM# 228852-1 Osprey Ridge Planned Unit Development (PUD) – State Road 76 Improvements	Exfiltration trench	0.1	2/2007	Completed	0	0
FDOT-29	FM# 228852-1 State Road 76 Improvements – Kanner Professional Center	Exfiltration trench	0.4	3/2009	Completed	0	0
FDOT-30 ¹	FM# 228851-1 (Basin A)	Dry detention	14.12	11/2004	Completed	Not quantified	Not quantified
FDOT-31 ¹	FM# 228851-1	Dry detention	25.72	11/2004	Completed	Not quantified	Not quantified
FDOT-32 ²	FM# 230132-1 (System No. 1)	Dry detention	2.8	5/2001	Completed	Not quantified	Not quantified
FDOT-33 ²	FM# 228758-1	Dry detention	18.55	1/2006	Completed	Not quantified	Not quantified
FDOT-34 ²	FM# 228819-1 (Basin C)	Dry detention	16.2	5/2007	Completed	Not quantified	Not quantified
FDOT-35 ²	FM# 228819-1 (Basin D)	Exfiltration trench	4.41	5/2007	Completed	Not quantified	Not quantified
FDOT-36 ²	FM# 228819-1 (Basin E)	Exfiltration trench	4.79	5/2007	Completed	Not quantified	Not quantified

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FDOT-37 ²	FM# 405167-1	Dry retention	30.07	4/2005	Completed	Not quantified	Not quantified
FDOT-38 ²	FM# 230296-1	Dry swales	88.91	3/2009	Completed	Not quantified	Not quantified
FDOT-39 ²	FM# 230297-1 State Road A1A Roadway Improvements Phase 3	Exfiltration trench	6.38	8/2010	Completed	Not quantified	Not quantified
FDOT-40 ²	FM# 228758-1 State Road 702 Jensen Beach Causeway	Dry detention	33.60	1/2008	Completed	Not quantified	Not quantified
FDOT-41	FM# 419250-2 State Road 710 Bridge Replacement – 100A, 100B, and 200	Dry detention	17.4	7/2014	Completed	3	0
FDOT-42	FM# 419250-2 State Road 710 Bridge Replacement – 300 and 500	Dry detention	28.4	7/2014	Completed	7	1
FDOT-43	FM# 413046-1 State Road 9 Widening	Dry retention	152.0	10/2014	Completed	75	14
FDOT-44 ³	FM# 423022-1 CR 68 Orange Avenue	Dry detention	5.62	2/2015	Completed	Not quantified	Not quantified
FDOT-45 ⁴	FM# 230108-1 SR 68 Orange Ave (40% credit)	Wet detention	17.8	2/2005	Completed	1	0

TABLE A-8: FDOT DISTRICT 4 SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	2,098	1,078
Total BMAP I Required Reductions	1,531	512
Credit for Future BMAPs	567	566

TABLE A-9: TURNPIKE AUTHORITY PROJECTS

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
T-1	Project 420735-1 Port St. Lucie Interchange Pond A	Dry detention	3.6	Completed	1	0
T-2	Project 420735-1 Port St. Lucie Interchange Pond B	Wet retention	20.6	Completed	16	2
T-3	Thomas B. Manuel Bridge North Pond	Dry detention	9.8	Completed	5	1

TABLE A-10: TURNPIKE AUTHORITY SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	22	3
Total BMAP I Required Reductions	0.0	0.0
Credit for Future BMAPs	22	3

TABLE A-11: HOBE ST. LUCIE CONSERVANCY DISTRICT PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
HSL-1	Hobe Sound Polo Club	Wet detention, dry detention	1,736.3	Completed	3,097	1,013
HSL-2	Changes in Agricultural Land Uses	Land use change	N/A	Completed	7,000	2,258
HSL-3	90% Implementation Agricultural BMPs	Agricultural BMPs	N/A	Ongoing	191	29

TABLE A-12: HOBE ST. LUCIE CONSERVANCY DISTRICT SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	10,288	3,300
Total BMAP I Required Reductions	2,838	1,056
Credit for Future BMAPs	7,450	2,244

TABLE A-13: MARTIN COUNTY PROJECTS

N/A = Not applicable

* These projects are located in the South Coastal subbasin, which is outside the current BMAP boundary. However, they will be considered for credit in the next BMAP iteration.

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
MC-1	Cedar Point Water Quality Retrofit	Wet detention and swales	31.4	\$398,027	10/2004	Completed	71	33
MC-2	Indian River Drive Baffle Boxes	Second-generation baffle boxes	39.1	\$741,827	5/2010	Completed	30	5
MC-3	Warner Creek/Leilani Heights Water Quality Retrofit Phase I	Exfiltration trenches and swales	69.8	\$541,854	8/2011	Completed	229	49
MC-4	Warner Creek Phase II	Dry detention	15.1	\$1,750,338	7/2012	Completed	6	1
MC-5	Warner Creek Phase III – Beacon 21	Wet detention	1,353.8	\$2,122,935	7/2012	Completed	1,291	597
MC-6	Manatee Creek Water Quality Retrofit Phases I, II, and III	Wet detention	16.0	\$419,948	7/2012	Completed	6	3
MC-7	Rio/St. Lucie Water Quality Retrofit – Phase 1	Exfiltration trenches and swales	8.1	\$354,161	9/2006	Completed	41	11
MC-8	Rio/St. Lucie Water Quality Retrofit – Phase 2	Wet detention	119.8	\$998,170	9/2008	Completed	190	73
MC-9	Salerno Creek Water Quality Retrofit	Wet detention	207.9	\$4,715,074	6/2003	Completed	407	134
MC-10	Coral Gardens Water Quality Retrofit	Wet detention	2,008.0	\$2,321,860	5/2005	Completed	1,376	936
MC-11	Fern Creek Water Quality Retrofit	Wet detention	607.1	\$2,660,200	4/2005	Completed	684	257
MC-12	Old Palm City Water Quality Retrofit Phases I, II, and III	Wet detention, swales	141.4	\$1,544,600	3/2004	Completed	244	95
MC-13	North River Shores Baffle Boxes	First-generation baffle boxes	187.3	\$1,310,000	3/2002	Completed	3	3
MC-14	Palm Lake Park Water Quality Retrofit	Wet detention	80.1	\$1,741,098	2/2003	Completed	107	41
MC-15	Tropical Farms Water Quality Retrofit	Wet detention	469.8	\$4,045,470	12/2010	Completed	944	308
MC-16	Septic to Central Sewer Conversions	Septic to sewer conversion	N/A	\$28,678,946	Varies	Completed	15,369	Not quantified
MC-17	Danforth Creek – Phase 1	Wet detention	2,459.3	\$1,981,799	4/2013	Completed	2,434	1,010
MC-18	Street Sweeping	Street sweeping	N/A	N/A	Ongoing	Ongoing	108	69
MC-19	Baffle Box and Structure Cleanout	Clean out	N/A	N/A	Ongoing	Ongoing	397	161

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PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
MC-20	FYN; Landscaping, Irrigation, Fertilizer, and Pet Waste Ordinances; PSAs, Pamphlets, Website, Illicit Discharge Program	Education and outreach	N/A	N/A	Ongoing	Ongoing	6,048	1,342
MC-21	FM# 230978-1 Indian Street Bridge (Pond East)	Dry detention	20.7	Unknown	1/2014	Completed	5	1
MC-22	FM# 230978-1 Indian Street Bridge (Pond West)	Wet detention	33.6	Unknown	1/2014	Completed	0	0
MC-23*	Golden Gate Water Quality Retrofit Phases I, II	Dry detention	202	\$2,046,145	10/2003	Completed	Not quantified	Not quantified
MC-24*	Golden Gate Water Quality Retrofit Phase III	Second-generation baffle boxes and wet detention	27	\$584,371	3/2004	Completed	Not quantified	Not quantified
MC-25*	Hibiscus Park Water Quality Retrofit Phases I and II	Wet detention	4.5	\$757,085	7/2007	Completed	Not quantified	Not quantified
MC-26*	Poinciana Gardens Water Quality Retrofit Phases I and II	Wet detention	188	\$2,960,547	7/2003	Completed	Not quantified	Not quantified
MC-27*	Willoughby Creek Muck Dredging	Muck removal	N/A	\$13,200,000	7/2012	Completed	Not quantified	Not quantified
MC-28*	Manatee Pocket Dredging	Muck removal	N/A	\$1,000,000	7/2012	Completed	Not quantified	Not quantified
MC-29	Rio Water Quality Retrofit	Exfiltration and second-generation baffle boxes	45	\$696,800	5/19/14	Completed	162	36
MC-30	Old Palm City Beemats	Floating wetland vegetation islands	N/A	\$21,996	9/26/13	Completed	Not quantified	Not quantified
MC-31	Bessey Creek Hybrid Wetland Treatment Technology	Stormwater treatment	2,675	\$3,000,000	May 2015	Completed	6,085	1,474
MC-32	Danforth Creek Hybrid Wetland Treatment Technology	Stormwater treatment	2,419	\$3,000,000	12/2015	Under construction	5,274	1,281
MC-33	Hoke Library Rain Garden	Rain garden	N/A	\$4,372	9/2014	Completed	Not quantified	Not quantified
MC-34	Halpatiokee Park Rain Garden	Rain garden	N/A	\$1,500	2/2015	Completed	Not quantified	Not quantified

TABLE A-14: MARTIN COUNTY SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	41,511	7,920
Total BMAP I Required Reductions	9,647	4,377
Credit for Future BMAPs	31,864	3,543

TABLE A-15: NORTH ST. LUCIE RIVER WCD PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
NSLRWCD-1	St. Lucie River Issues Team (SLRIT) Grant 2000–01: Vegetation Control & Bank Restoration	Control structures	4,173	\$929,000	05/2003	Completed	982	0
NSLRWCD-2	SLRIT Grant 2007–08: Water Control Structure Retrofits	Control structure	4,701	\$77,000	03/2010	Completed	1,372	0
NSLRWCD-3	Canals 23 and 28 Retrofit for Stormwater Treatment and Attenuation	Control structure	44	Unknown	05/2009	Completed	11	0
NSLRWCD-4	Canal Maintenance Program	Vegetation harvesting	66,225	\$4,200,000	Ongoing	Ongoing	Not quantified	Not quantified
NSLRWCD-5	Changes in Agricultural Land Uses	Land use change	N/A	N/A	N/A	Completed	45,621	14,444
NSLRWCD-6	90% Implementation Agricultural BMPs	Agricultural BMPs	N/A	Unknown	Ongoing	Ongoing	19,972	4,308
NSLRWCD-7	Change from Agricultural to Urban	Land use change	N/A	N/A	N/A	Completed	839	208
NSLRWCD-8	Ideal Grove HWTT	Wetlands, chemical treatment	238	\$217,929	Ongoing	Ongoing	330	127

TABLE A-16: NORTH ST. LUCIE RIVER WCD SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	69,127	19,087
Total BMAP I Required Reductions	26,353	10,090
Credit for Future BMAPs	42,774	8,997

TABLE A-17: PAL MAR WCD PROJECTS

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
PM-1	90% Implementation Agricultural BMPs	Agricultural BMPs	Ongoing	Ongoing	926	91

TABLE A-18: PAL MAR WCD SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	926	91
Total BMAP I Required Reductions	0	0
Credit for Future BMAPs	926	91

TABLE A-19: ST. LUCIE COUNTY MS4 PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SLC-1	Platt's Creek Stormwater Treatment Facility	Wet detention with alum injection	311.0	\$3,539,475	6/2008	Completed	676	306
SLC-2	Indian River Estates Stormwater Improvements (Phase I and II)	Wet detention with alum injection	1,004.4	\$4,471,114	1/2009	Completed	1,841	706
SLC-3	Prima Vista	Second-generation baffle box	96.8	\$323,483	11/2006	Completed	76	13
SLC-4	Bay Street	Second-generation baffle box	44.3	Included in SLC-3	11/2006	Completed	34	6
SLC-5	FYN; Pet Waste, Landscape, Irrigation, and Fertilizer Ordinances; PSAs, Website, Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program	Education and outreach	N/A	N/A	Ongoing	Ongoing	1,086	247
SLC-6	Street Sweeping	Street sweeping	N/A	N/A	Ongoing	Ongoing	210	135
SLC-7	Catch Basin Cleanout	Clean out	N/A	N/A	Ongoing	Ongoing	170	104
SLC-8	Platt's Creek Sump Cleanout	Clean out	N/A	N/A	Ongoing	Ongoing	1,181	511
SLC-14	Platt's Creek Wetland Compensatory Project	Floodplain restoration	311.0	\$2,600,000	7/2015	Completed	Not quantified	Not quantified

TABLE A-20: ST. LUCIE COUNTY MS4 SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	5,274	2,028
Total BMAP I Required Reductions	2,018	854
Credit for Future BMAPs	3,256	1,174

TABLE A-21: ST. LUCIE COUNTY NON-MS4 PROJECTS

N/A = Not applicable
 - = Empty cell/no data

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SLC-1	Platt’s Creek Stormwater Treatment Facility	Wet detention with alum injection	563.5	Included in MS4 table	6/2008	Completed	906	364
SLC-9	White City – Citrus/Seager Stormwater Improvement	Wet detention with polyacrylamide logs	38.9	\$1,862,859	12/2015	Under Construction	71	25
SLC-10	FYN; Pet Waste, Landscape, Irrigation, and Fertilizer Ordinances; PSAs, Website, Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program	Education and outreach	N/A	N/A	Ongoing	Ongoing	1,425	364
SLC-11	Street Sweeping	Street sweeping	N/A	N/A	Ongoing	Ongoing	113	72
SLC-12	Catch Basin Cleanout	Clean out	N/A	N/A	Ongoing	Ongoing	91	56
SLC-13	Platt’s Creek Sump Cleanout	Clean out	N/A	N/A	Ongoing	Ongoing	1,566	600
SLC-15	Indian River Lagoon South C23/ C24 CERP Buffer – Teague Preserve Re-watering Project	Restoration	-	\$400,000	4/2017	Planned	Not quantified	Not quantified

TABLE A-22: ST. LUCIE COUNTY NON-MS4 SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	4,172	1,481
Total BMAP I Required Reductions	2,926	1,350
Credit for Future BMAPs	1,246	131

TABLE A-23: TOWN OF SEWALL’S POINT PROJECTS

N/A = Not applicable

* These projects are located in the Mid Coastal subbasin, which is outside the current BMAP boundary. However, they will be considered for credit in the next BMAP iteration.

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SP-1	Ridgeland Court Retrofit	Baffle box	5.9	10/2002	Completed	0	0
SP-2	Palm Court/Knowles	Baffle box	12.9	9/2000	Completed	0	0
SP-3	Captain Cove	Baffle box	4.9	9/2000	Completed	0	0
SP-4	Quail Run Park	Dry detention	0.4	9/2000	Completed	0	0
SP-5	Heritage Park	Dry retention	5.2	9/2000	Completed	7	1
SP-6	Via Lucindia	Exfiltration	2.7	9/2000	Completed	8	1
SP-7	Rio Vista Park	Baffle box	24.2	1/2002	Completed	0	0
SP-8	Indialucie	Wet retention	31.1	9/2003	Completed	43	17
SP-9	Indialucie	Baffle box	5.6	9/2006	Completed	0	0
SP-10	Periwinkle	Baffle box	15.7	9/2000	Completed	0	0
SP-11	Palm Road	Swales	0.8	12/2008	Completed	0	0
SP-12	Riverview	Baffle box	9.6	1/2002	Completed	0	0
SP-13	Pineapple Lane	Exfiltration	5.5	1/2002	Completed	0	0
SP-14	Copaire	Baffle box	1.8	10/2002	Completed	0	0
SP-15	Homewood Park/Sewall’s Point Road	Retention	13.9	6/2009	Completed	45	10
SP-16	Pedway/Greenway	Exfiltration/pervious paver	1.6	6/2013	Completed	6	1
SP-17	State Road A1A	Exfiltration	12.1	1/2012	Completed	52	10
SP-18	Fertilizer Ordinance	Education	N/A	Ongoing	Ongoing	8	1
SP-19	Street Sweeping – 19 Cubic Yards	Street sweeping	N/A	Ongoing	Ongoing	25	16
SP-20*	Delano Lane	Exfiltration	1.2	8/2000	Completed	Not quantified	Not quantified
SP-21*	Town Commons Park	Dry detention	1.0	1/2002	Completed	Not quantified	Not quantified
SP-22*	Island Road	Baffle box	4.9	1/2002	Completed	Not quantified	Not quantified
SP-23*	Highpoint West	Baffle box	7.9	9/2000	Completed	Not quantified	Not quantified
SP-24*	Mandalay (Marguerita)	Baffle box	15.4	9/2000	Completed	Not quantified	Not quantified
SP-25*	Highpoint East	Baffle box	15.6	9/2000	Completed	Not quantified	Not quantified
SP-26*	High Point Exfiltration	Exfiltration/swales	6.4	4/2014	Completed	Not quantified	Not quantified
SP-27*	Extend Pedway/Greenway	Exfiltration/pervious paver	28.2	Unknown	Planned	Not quantified	Not quantified
SP-28*	Mandalay (Marguerita)	Dry detention	15.4	Unknown	Planned	Not quantified	Not quantified

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SP-29*	Baffle Boxes	First- and second-generation baffle boxes	18.0	Unknown	Design	Not quantified	Not quantified
SP-30	Indialucie	Exfiltration	31.1	2014	Completed	61	7
SP-31	Quail Run Subdivision	Exfiltration and baffle box	3.5	4/2015	Completed	To be quantified	To be quantified

TABLE A-24: TOWN OF SEWALL’S POINT SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	255	64
Total BMAP I Required Reductions	0	0
Credit for Future BMAPs	255	64

TABLE A-25: TROUP-INDIANTOWN WCD PROJECTS

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	ACRES TREATED	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
TI-1	C-44 Conservation Area	Conservation	9,135.1	Completed	23,199	7,496
TI-2	90% Implementation Agricultural BMPs	Agricultural BMPs	N/A	Ongoing	1,856	445

TABLE A-26: TROUP-INDIANTOWN WCD SUMMARY OF REDUCTIONS

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	25,055	7,941
Total BMAP I Required Reductions	7,528	2,435
Credit for Future BMAPs	17,527	5,506

Appendix B: Water Quality Data Evaluation Methodology

The following outlines the data evaluation methodology conducted for the SE 03 monitoring station. This methodology may be the basis for future monitoring data evaluations at other stations in the basin. A data request from DBHYDRO was initiated for Station SE 03 to cover the period from January 1, 1996, to September 1, 2015. The analyte parameters used from DBHYDRO were as follows:

- Total Kjeldahl nitrogen (TKN).
- Nitrite+nitrate-N.
- TN.
- TP.

The three parameters of nitrogen analyte are necessary to capture the available data through the time series needed. The most current method of nitrogen analysis stored in DBHYDRO is TN. For earlier data periods where TN values were not directly reported in DBHYDRO, TN was calculated by adding the concentrations of TKN and nitrite + nitrate. For water quality samples where TN, TKN, and/or nitrite + nitrate were all reported, the TN value was used to represent TN. For the TP analysis, all the available data for the period used the same analysis method over the period of record, and so the reported TP concentration was used.

Data uploaded from stations to DBHYDRO are processed through a quality control and quality assurance method before use by the SFWMD. The analyte-specific samples can be flagged with qualifiers to denote data that should be further examined before use in the analysis. The list of qualifiers can be found on the [DBHYDRO web page](#). This data analysis method for Station SE 03 follows a similar method of dealing with these qualifiers as the SFWMD and the Department's Impaired Surface Waters Rule (IWR). Data with no qualifiers were included in the analysis. Data were also included if they were tagged with the following qualifiers: !, A, D, PMF, PMR, T, and/or U. All other qualified data were excluded from this analysis.

The DBHYDRO qualifiers T and U denote that the measured analyte was below the laboratory method detection limit (MDL) or was analyzed for but not detected, respectively. For results that included these two qualifiers, the analysis used the MDL and practical quantitation limit (PQL) values provided by the SFWMD. Historical MDL and PQL values were provided by the SFWMD historical lab records

methodology. Utilizing a method from the SFWMD and the IWR analysis that is a widely accepted scientific practice for values below the MDL or PQL, the Department divided the values by two and used that value for this statistical analysis. Roughly 12% of the TN data used in this analysis, and less than 1% of the TP data, had a T or U qualifier.

As stated above, the adopted BMAP calls for a more detailed water quality analysis to be included as part of the fourth annual progress report (to be completed in 2017). A meeting with data providers will be scheduled before the third annual update report to discuss further water quality analysis and methods. The results from this future discussion will help to shape the methodology used for the water quality analysis and compliance point assessment in the fourth-year report.