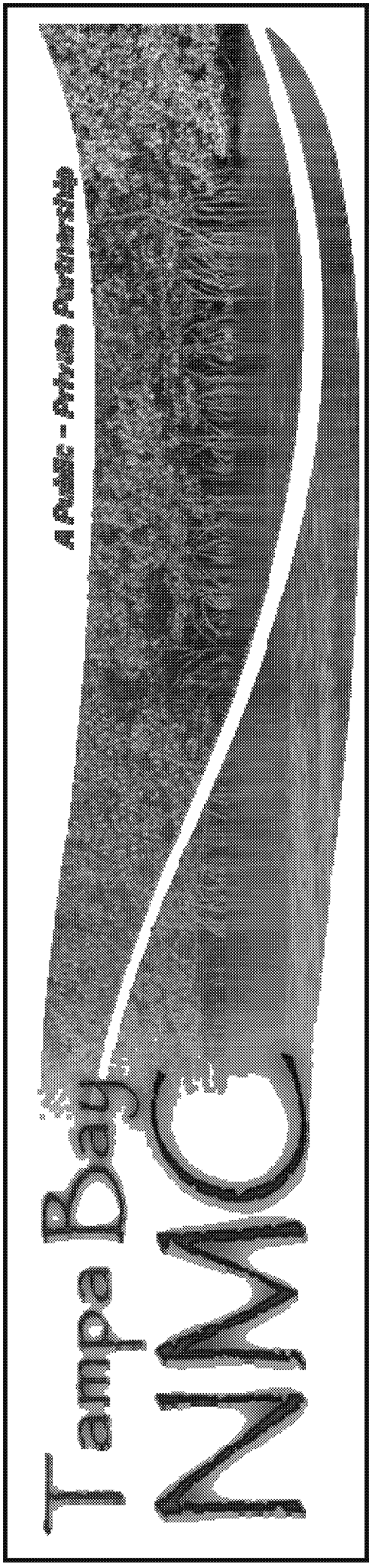

TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM

PARTNERSHIP FOR PROGRESS

Tampa Bay NMC

FINAL

2009 Reasonable Assurance Addendum: Allocation & Assessment Report

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EXECUTIVE SUMMARY

A. Background

- In 1998, USEPA approved a Total Maximum Daily Load (TMDL) for nitrogen for Tampa Bay required by Section 303(d) of the federal Clean Water Act, based on management targets developed by TBEP partners to support seagrass recovery.

- In 2007, USEPA and FDEP advised the Nitrogen Management Consortium that existing and future surface water discharge permit limits for entities discharging to Tampa Bay must not cumulatively exceed the federally-recognized TMDL for nitrogen loading, and that no new or renewed permits would be approved until facility-specific allocations consistent with the TMDL were developed.

- In December 2007, the Nitrogen Management Consortium proactively committed to develop an equitable process and define suggested allocations to all sources through the 2009 Tampa Bay Reasonable Assurance Addendum.

- The Consortium participants developed a set of nitrogen wasteload allocations that attempts to equitably distribute the burden of nitrogen management across all sectors and sources of nitrogen loading within the basin, as well as the total maximum loading of nitrogen to each major bay segment.

B. Summary Points

1. **ALLOCATIONS ARE REQUIRED** consistent with the federally-recognized nitrogen TMDLs for existing NPDES permits to be renewed or new permits to be issued.

2. **SOUND TECHNICAL BASIS** is consistent with meeting water quality (FDEP-approved chlorophyll-*a* thresholds) to support seagrass recovery in Tampa Bay.

3. **STANDARDIZED EQUITABLE ALLOCATIONS** have been developed for all entities and major sources within the Tampa Bay watershed.

4. **PROCESS AND ALLOCATIONS WERE DEVELOPED BY CONSORTIUM PARTICIPANTS** proactively, thus precluding the need for FDEP or EPA to do so. EPA and FDEP have concurred with the Consortium's approach at each step of the process.

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5. **COLLECTIVE COST-EFFECTIVE** analyses and allocations, at a much reduced cost per entity than if conducted individually, reflect consensus of over 50 participants.

6. **PROVEN RESULTS.** Since 1996 when the Consortium was initiated, annual water quality targets (FDEP-approved chlorophyll-*a* thresholds) have been met 86.5% of the time. During this same period, seagrass coverage expanded by almost 10% (2,730 acres) to a baywide total of 29,647 acres.

C. Key Elements of Proposed Allocations

The Consortium participants developed the following standard allocation protocol:

- All major nitrogen sources, permitted and unpermitted, receive nitrogen load allocations. The cumulative allocated load is equal to the 1998 federally-recognized TMDL load for each segment.

- The five-year (2008-2012) average annual RA allocation for each source is equal to the 5-year annual average nitrogen load estimated for the years 2003-2007. Any exception to the standard allocation protocol is documented in the RA Addendum.

- The 2008-2012 RA nitrogen load allocation for each bay segment is completely distributed to existing sources. In the future new or expanded sources will be required to offset additional nitrogen loads, through documented load reduction actions, projects, or transfers.

- For the purpose of assessing the RA allocations, the annual nitrogen loads that can be received by each bay segment are adjusted to reflect the amount of water delivered during the year relative to that estimated for 1992-1994. Annual loads are thus normalized ('hydrologically normalized') to the TMDL hydrologic conditions.

- These annual hydrologic normalizations are not applied to surface water discharges from domestic wastewater treatment plans (WWTPs) or to material losses from industrial facilities, which have a fixed annual allocation (tons of nitrogen/year) that does not fluctuate with rainfall.

- Other sources, which are primarily rainfall driven, are provided a set percentage of the remaining total (hydrologically normalized) allocation for each year. In this manner, these rainfall-driven sources are assessed on a "sliding scale" related to the amount of water delivered, allowing higher nitrogen loads during wetter years and requiring lower loads during dryer years.

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In the future, any major changes to these suggested allocations would be to address the following conditions:

- Chlorophyll-a conditions deteriorate in the bay as a result of changes in nitrogen loads;
- The federally-recognized TMDL is revised to account for the assimilative capacity of the bay;
- FDEP-approved transfers occur among permitted entities on a case-by-case basis, as indicated in resulting permit modifications; or
- Allocations within FDEP permits are revised for good cause in accordance with Rule 62-620.325, F.A.C., on a case-by-case basis, as indicated in resulting permit modifications and will ultimately adhere – cumulatively in combination with all other bay segment specific allocations – with the federally-recognized TMDL for the bay segments or other WBIDs that have established TMDLs.

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SECTION I: INTRODUCTION & DOCUMENT INTENT

This report serves as the required, companion documentation of the 2007 Update to Tampa Bay Reasonable Assurance (RA) delivered to the Florida Department of Environmental Protection (FDEP) on January 28, 2008. On May 28, 2008, the FDEP formally accepted the 2007 RA Update and concluded that:

> "the activities conducted under the Nitrogen Management Strategy for Tampa Bay constitute reasonable progress towards continued attainment of water quality standards of Tampa Bay related to nutrients. The Department has also concluded that the 2007 Update provides continued reasonable assurance (RA) that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed. Given these findings, the Department does not plan to include Tampa Bay on the verified list of impaired waters for the Tampa Bay Basin, which will be adopted by Secretarial Order in June [2008]."
> –Letter to H. Greening from D. Bartlett dated May 28, 2008 (Appendix A.1)

It was also noted in this correspondence that the FDEP acceptance and RA determination was contingent upon:

> "submittal of the Final Update to the Reasonable Assurance Document to FDEP by July 31, 2009[1] *[this document]*, which will include:
> 1) Revised allocations by major bay segment to categories of nonpoint sources of nitrogen (categorical load allocations) and to specific wastewater facilities and Municipal Separate Storm Sewer Systems (facility-specific wastewater allocations), which cumulatively will not exceed the assimilative capacity for a bay segment, as defined in the federally-recognized TMDL for Tampa Bay.
> 2) A resolution signed by Consortium members accepting the revised load allocations established for Consortium members and acknowledging that the facility-specific wasteload allocations will be adopted by FDEP as Water Quality-Based Effluent Limitations." –Ibid

As part of the Tampa Bay Nitrogen Management Consortium's (NMC) Declaration of Cooperation included in the 2007 RA Update to FDEP, local governments, agencies, and industry participants represented in the NMC committed to the development of an equitable allocation of responsibility for achieving nitrogen reduction targets as well as the total maximum loading of nitrogen to each major bay segment of Tampa Bay (Figure I-1). Table I-1 lists participating entities and any additional entities receiving allocations from this effort as defined in the document herein. Final voting status and results for acceptance of this document by the entities is also listed in Table I-1. In this endeavor, the Consortium will satisfy the requirements and conditions set forth in both the updated 2007 FDEP Reasonable Assurance determination (delivered on May 28, 2008) and the U.S. Environmental Protection Agency (EPA), federally-recognized TMDL for Tampa Bay. Consortium participants recognize that allocations developed in this report will be used as the basis for proposing permit

[1] The deadline for submittal of the 2009 RA Addendum was subsequently extended to September 25th, 2009 by FDEP (see Appendix A.23).

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limits of nitrogen discharges from regulated facilities, and that these allocations will most likely be proposed by FDEP as Water Quality-Based Effluent Limitation(s) for Tampa Bay.

Table I-1: Entities participating in the Tampa Bay Nitrogen Management Consortium. For voting results, "—" indicates that entity was not represented at Sept. 11, 2009 NMC meeting or did not have individual voting rights.

Entity/Partner	Affili-ation	Participation Status	Providing Funding or In-Kind Support	Allocation Developed in 2009 RA Addendum	Individual Voting Rights	Sept. 11, 2009 Recorded Vote
Agricultural Economic Development Council, Hillsborough County	Public	Signed Declaration of Cooperation	Through Hillsborough County		No	—
Alafia Preserve (Mulberry), LLC	Private	Meeting Participant	Jointly through Eagle Ridge, LLC & LDC Donaldson Knoll Investments, LLC	√	Yes	Yes
CF Industries	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes[1]
City of Bradenton	Public	Signed Declaration of Cooperation	Yes	√	Yes	—
City of Clearwater	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
City of Gulfport	Public	Signed Declaration of Cooperation	Yes	√	Yes	—
City of Lakeland	Public	Approved by City Manager	Yes	√	Yes	Abstained[2]
City of Largo	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
City of Mulberry	Public	Approved by City Manager	Jointly through Alafia Preserve, LLC, Eagle Ridge, LLC & LDC Donaldson Knoll Investments, LLC	√	Yes	Yes
City of Oldsmar	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
City of Palmetto	Public	Approved by City Council	Yes	√	Yes	Yes
City of Plant City	Public	Approved by City Manager	Yes	√	Yes	Yes
City of St. Petersburg	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
City of Tampa	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes[3]
CSX Transportation	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Eagle Ridge (Mulberry), LLC	Private	Meeting Participant	Jointly through Alafia Preserve, LLC & LDC Donaldson Knoll Investments, LLC	√	Yes	Yes
Eastern Associated Terminals Company, LLC	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Environmental Protection Commission of Hillsborough County	Public	Signed Declaration of Cooperation	Yes		Yes	Yes
Florida Department of Agriculture & Consumer Services	Public	Signed Declaration of Cooperation	In-Kind Support	√	Yes	Yes

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Table I-1 (continued): Nitrogen Management Consortium participants.

Entity/Partner	Affili-ation	Participation Status	Providing Funding or In-Kind Support	Allocation Developed in 2009 RA Addendum	Individual Voting Rights	Sept. 11, 2009 Recorded Vote
Florida Department of Environmental Protection	Public	Approved 2007 RA Submittal	Yes		Yes	Abstained
Florida Department of Transportation	Public	Approved by District	Yes	MS4 Co-permittee	Yes	Yes
Florida Fish & Wildlife Conservation Commission	Public	Signed Declaration of Cooperation	In-Kind Support		Yes	—
Hillsborough County	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Kinder Morgan Bulk Terminals, Inc.	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes
LDC Donaldson Knoll Investments, LLC	Private	Meeting Participant	Jointly through Alafia Preserve, LLC & Eagle Ridge, LLC	√	Yes	Yes
MacDill Air Force Base	Public	Approved by Base Authority	Yes	√	Yes	Yes
Manatee County	Public	Approved by BOCC	Yes	√	Yes	Yes
Mosaic Company	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Pinellas County	Public	Approved by BOCC	Yes	√	Yes	Yes
Polk County	Public	Approved by County Administrator	Yes	√	Yes	Yes
Southwest Florida Water Management District	Public	Signed Declaration of Cooperation	Yes		Yes	Yes
Tampa Bay Estuary Program	Public	Signed Declaration of Cooperation	Yes		No (facilitator)	—
Tampa Bay Regional Planning Council	Public	Signed Declaration of Cooperation	Yes		Yes	—
Tampa Bay Water	Public	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Tampa Electric Company	Private	Signed Declaration of Cooperation	Yes	√	Yes	Yes
Tampa Port Authority	Public	Signed Declaration of Cooperation	Yes		Yes	—
Trademark Nitrogen	Private	Signed Declaration of Cooperation	Yes	√	Yes	—
Tropicana Products, Inc.	Private	Approved by Tropicana Products, Inc.	Yes	√	Yes	Yes
United States Environmental Protection Agency	Public	Signed Declaration of Cooperation	Yes		Yes	Abstained
University of Florida Institute of Food and Agricultural Sciences	Public	Advisor to FDACs	In-Kind Support		No	—
Yara North America	Private	Approved by Yara North America	Yes	√	Yes	Yes
City of Pinellas Park	Public	Meeting Participant	No	√	Yes	—
City of Safety Harbor	Public	Meeting Participant	No	√	Yes	Yes
City of Temple Terrace	Public	Meeting Participant	No	√	Yes	—
Kerry I&F Contracting	Private	Meeting Participant	Yes	√	Yes	Yes
Pasco County	Public	Meeting Participant	No	√	Yes	Yes

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Table I-1 (continued): Nitrogen Management Consortium participants.

Entity/Partner	Affili-ation	Participation Status	Providing Funding or In-Kind Support	Allocation Developed in 2009 RA Addendum	Individual Voting Rights	Sept. 11, 2009 Recorded Vote
Tampa-Hillsborough Expressway Authority	Public	Meeting Participant	No		No	—
City of Zephyrhills	Public	Invited to participate	No	√	Yes	—
Agrifos	Private		No	√	Yes	—
Alpha/Owens Corning	Private		No	√	Yes	—
Bloomingdale CDD	Public		No	√	Yes	—
Brewster Phosphogypsum	Private		No	√	Yes	—
Cheval West CDD	Public		No	√	Yes	—
City of San Antonio	Public		No	√	Yes	—
City of St. Leo	Public		No	√	Yes	—
City of St. Pete Beach	Public		No	√	Yes	—
City of Tarpon Springs	Public		No	√	Yes	—
Coronet Industries	Private		No	√	Yes	—
Estech Agicola	Private		No	√	Yes	—
Exxon/Mobil	Private		No	√	Yes	—
Greyhawk Landing CDD	Public		No	√	Yes	—
Harbor Bay CDD	Public		No	√	Yes	—
Harbourage at Braden River CDD	Public		No	√	Yes	—
Heritage Harbour CDD (Bradenton)	Public		No	√	Yes	—
Heritage Harbor CDD (Lutz)	Public		No	√	Yes	—
Heritage Harbour Marketplace CDD	Public		No	√	Yes	—
Lake St. Charles CDD	Public		No	√	Yes	—
Lakewood Ranch CDD	Public		No	√	Yes	—
Lexington CDD	Public		No	√	Yes	—
Live Oak I CDD	Public		No	√	Yes	—
Live Oak II CDD	Public		No	√	Yes	—
Magnolia Park CDD	Public		No	√	Yes	—
On Top of the World	Private		No	√	Yes	—
Palm Bay CDD	Public		No	√	Yes	—
Palm River CDD	Public		No	√	Yes	—
Panther Trace CDD	Public		No	√	Yes	—
Panther Trace II CDD	Public		No	√	Yes	—
Park Place CDD	Public		No	√	Yes	—
Pebble Creek Utilities	Private		No	√	Yes	—
Rivercrest CDD	Public		No	√	Yes	—
Sarasota County	Public		No	√	Yes	—
Spring Lake CDD	Public		No	√	Yes	—
Stone Crest CDD	Public		No	√	Yes	—
Stone Dairy Creek CDD	Public		No	√	Yes	—
Stonebriar CDD	Public		No	√	Yes	—
Stonelake Ranch CDD	Public		No	√	Yes	—
Tara CDD	Public		No	√	Yes	—

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Table I-1 (continued): Nitrogen Management Consortium participants.

Entity/Partner	Affili-ation	Participation Status	Providing Funding or In-Kind Support	Allocation Developed in 2009 RA Addendum	Individual Voting Rights	Sept. 11, 2009 Recorded Vote
University Place CDD	Public		No	√	Yes	—
Waterlefe CDD	Public		No	√	Yes	—
Westchase CDD	Public		No	√	Yes	—
Westchase East CDD	Public		No	√	Yes	—

[1]CF Industries vote for approval of the document does not represent endorsement of the regulatory process and actions that will be subsequently pursued by FDEP.
[2]City of Lakeland abstained from voting due to non-consensus among City Department staff on approval of the document.
[3]City of Tampa voted to approve the submittal of the document to FDEP, but objected to the allocations attributed to the City that are contained in the document.

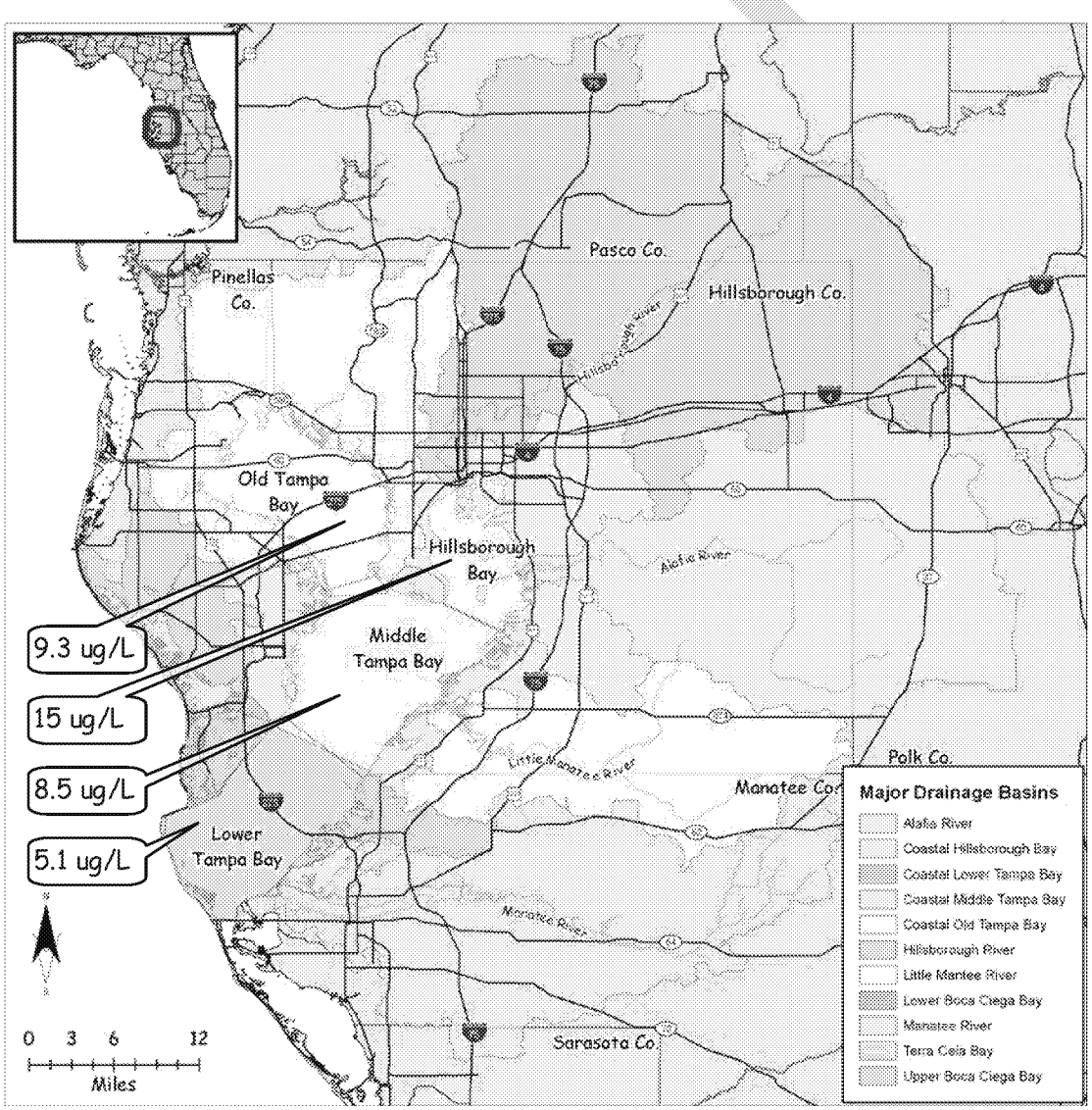

Figure I-1: Major bay segments of Tampa Bay (Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, and Lower Tampa Bay) with the drainage basins leading to each major segment. FDEP-approved chlorophyll-a thresholds are labeled in blue.

A. Objectives

This document is intended to:

1. support the 2007 Reasonable Assurance Update in providing reasonable assurance (RA) that continued attainment of water quality standards of Tampa Bay related to nutrients will be maintained;
2. describe the NMC's process and rationale for apportioning, in a fair and equitable manner, total nitrogen loads for all major nitrogen sources to the major bay segments of Tampa Bay;
3. describe the rationale and methodology of an assessment approach that will be utilized by the NMC for compiling, documenting and reporting information related to the demonstration of reasonable assurance; and
4. identify any remaining issues needing to be addressed during the 2008 – 2012 Implementation Period.

B. Structure of Document

SECTION I: INTRODUCTION & DOCUMENT INTENT
SECTION II: CHARACTERIZATION OF TAMPA BAY WATER QUALITY & SEAGRASS RESPONSE
SECTION III: CHARACTERIZATION OF NITROGEN LOADS TO TAMPA BAY
SECTION IV: RELATIONSHIP OF NITROGEN LOADS TO VARYING HYDROLOGIC INPUTS
SECTION V: THE NEED TO ESTABLISH ALLOCATIONS
SECTION VI: PROCESS TO DEVELOP ALLOCATIONS
SECTION VII: APPLICATION OF CONSORTIUM APPROVED ALLOCATION PROCESS
SECTION VIII: PROCESS TO ASSESS FUTURE REASONABLE ASSURANCE
SECTION IX: 2008-2012 RA IMPLEMENTATION PLAN
SECTION X: REFERENCES

APPENDIX A: Listing of NMC Decision Memos/White Papers & Regulatory Responses

APPENDIX B: Completed Action Plan Projects from 1992-2007 (B.1) and Future Action Plan Projects Anticipated During the 2008-2012 RA Implementation Period (B.2)

APPENDIX C: Demonstration Assessment of 5-yr Reasonable Assurance Similar to the Anticipated Process to Occur in 2012

APPENDIX D: 1992-1994 and 2003-2007 Raw Datasets Used to Develop Allocations (accompanying CD)

APPENDIX E: NMC Response to FDEP Comments on Final 2009 RA Addendum

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SECTION II: CHARACTERIZATION OF TAMPA BAY WATER QUALITY & SEAGRASS RESPONSE

A primary goal of the Tampa Bay Estuary Program (TBEP) is to restore seagrass acreage in the bay to that estimated to be found in the 1950s, a total of 38,000 acres baywide. This goal includes preservation of the existing acreage, 29,647 acres in 2008, and recovery of an additional 8,353 acres. The TBEP's Policy Board, along with the Tampa Bay Nitrogen Management Consortium (NMC), adopted a goal of maintaining nitrogen loadings to the bay at the 1992-1994 average annual loads, as described in the TBEP Comprehensive Conservation and Management Plan (CCMP) (TBEP 2006). This is the Nitrogen Management Strategy for Tampa Bay, also known as the "hold-the-line" approach, and is expected to be commensurate with water quality conditions sufficient to allow continued recovery of seagrasses. The Water and Sediment Quality Action Plan of the CCMP includes a specific action for implementation of the Nitrogen Management Strategy (TBEP 2006).

A. Changes Over Time in Chlorophyll-a, Light Attenuation and Seagrass

Water quality conditions have improved in Tampa Bay since the mid-1980s, and seagrass acreage has increased as well. Time series plots of annual bay segment chlorophyll-*a* and light attenuation are provided below in Figures II-1 and II-2. For both chlorophyll-*a* and light attenuation, dramatic improvements are obvious, especially in the more upstream bay segments (note that the scale for the y-axis changes for each bay segment).

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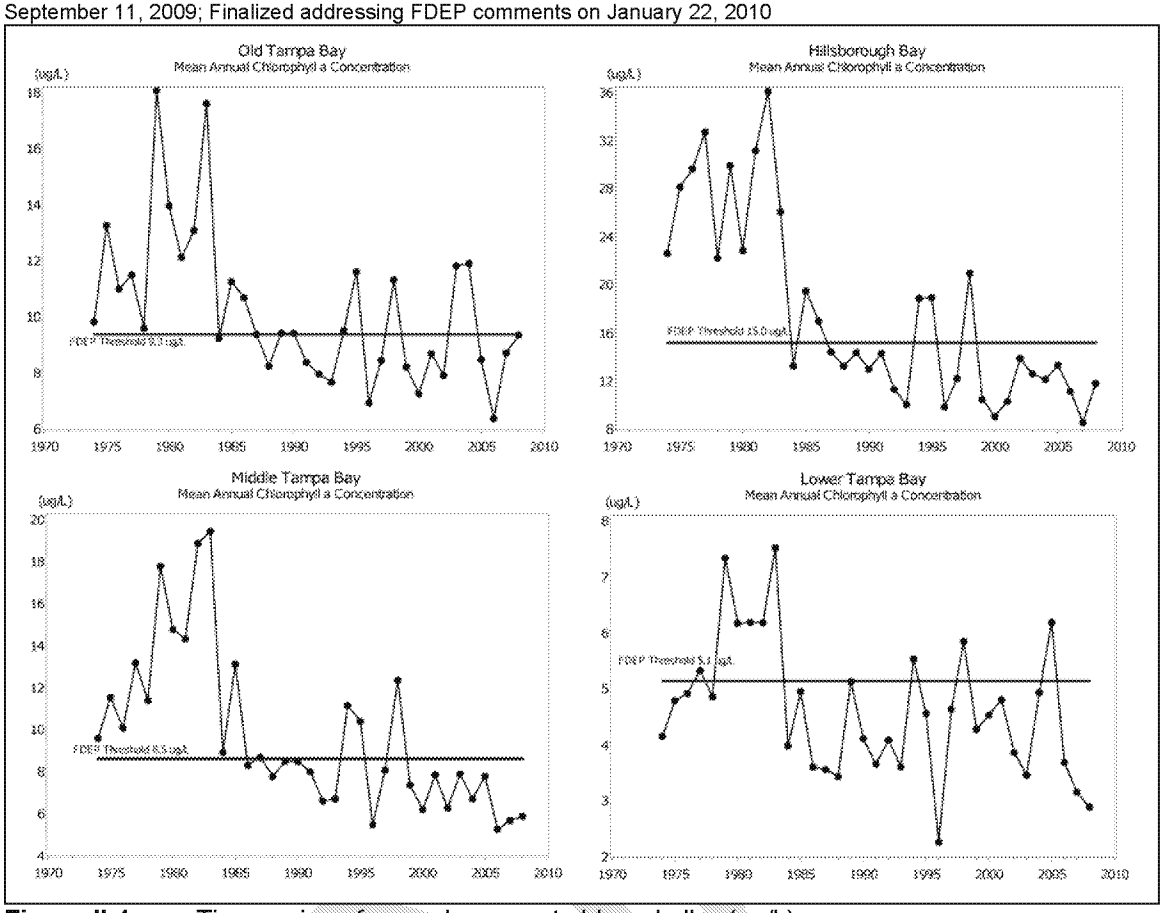

Figure II-1: Time series of annual segment chlorophyll-a (µg/L).

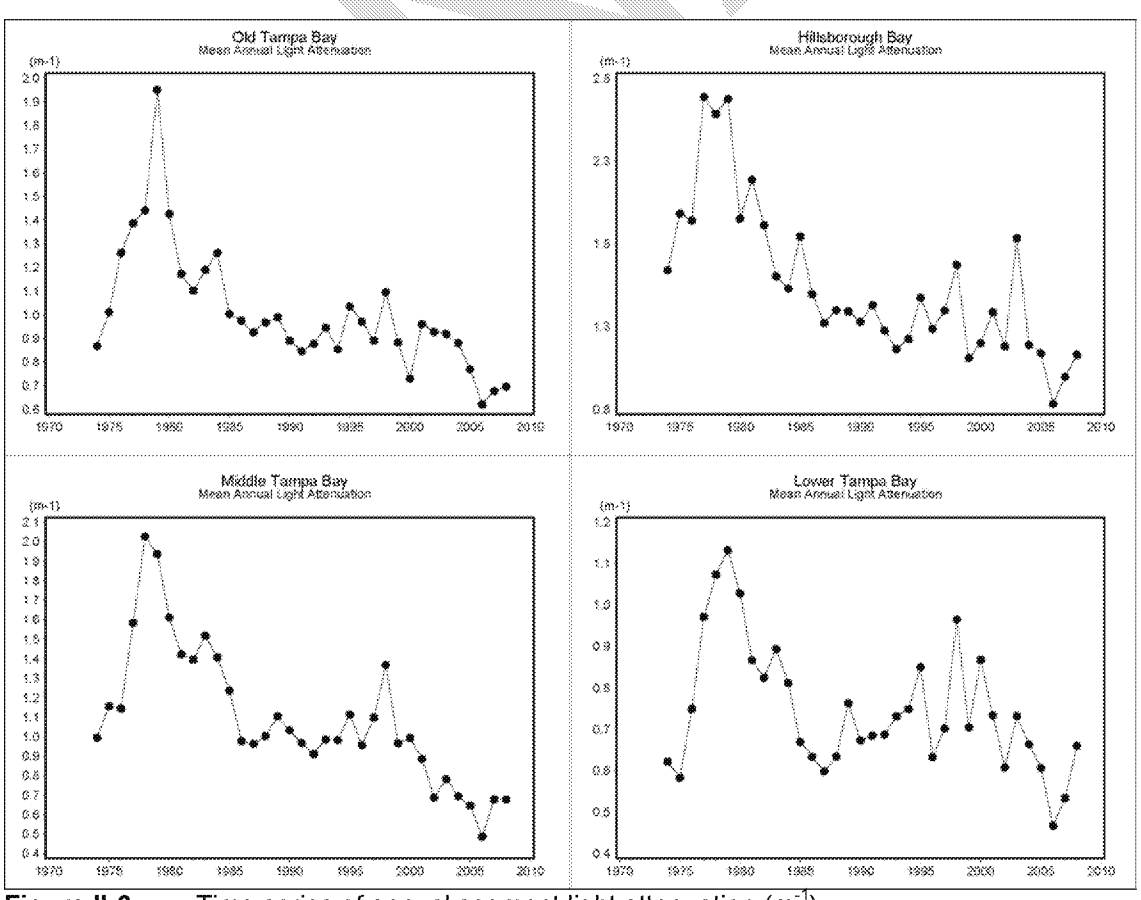

Figure II-2: Time series of annual segment light attenuation (m^{-1}).

Seagrass acreage has increased in the bay during this same time period. Figure II-3 provides the baywide total seagrass acreage over time, with the acreage during the 1950s shown for reference and representing the restoration goal for the TBEP. Baywide increases in acreage have been continuous since the early 1980s, with the exception of the year following the El Niño event of 1997-1998. However following this event, seagrasses have recovered the lost acreage and surpassed the estimates found in 1996. It should be noted that various natural phenomena are presumed to have occurred prior to the 1950s, and will likely occur in the future. As a result, positive and negative fluctuations in seagrass acreage and recovery are to be expected in the future.

On-going critical scientific analysis of these fluctuations will continue to be needed to assess and respond to changing conditions in the bay. And, as long as everything practicable can be done to limit excess nitrogen loading to the watershed in the future, it is reasonable to conclude that the natural systems will continue to improve overall.

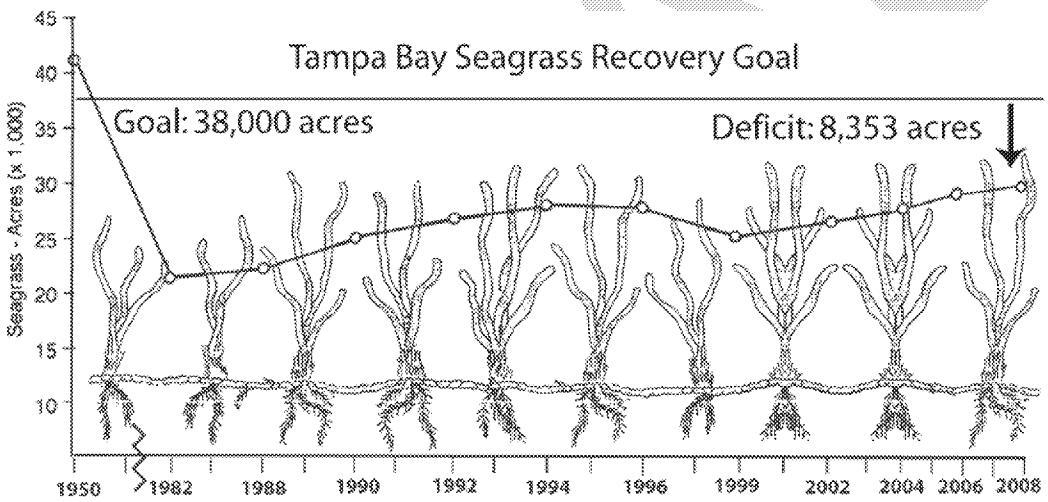

Figure II-3: Seagrass acreage since 1950 in Tampa Bay.

B. Development of Bay Segment Chlorophyll-a Thresholds

To address water quality in Tampa Bay, the NMC utilized a paradigm relating seagrass, light, chlorophyll, and nitrogen loadings, as shown in Figure II-4.

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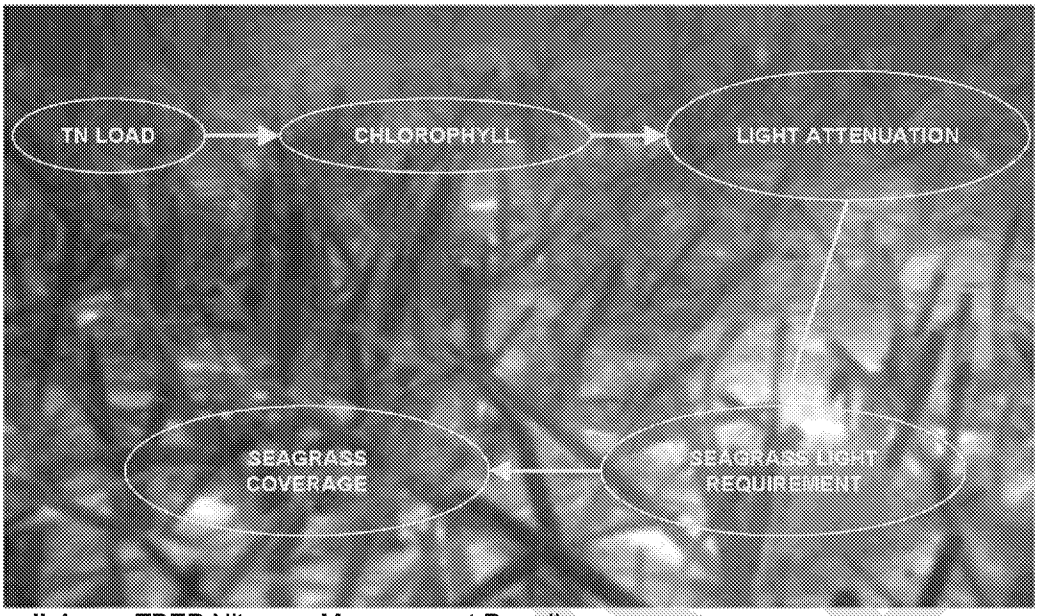

Figure II-4: TBEP Nitrogen Management Paradigm.

To quantify the relationships represented in the paradigm, empirical relationships were developed (Janicki and Wade 1996). These relationships were 1) the empirical relationship between total external loads and resulting average chlorophyll-*a* concentrations, and 2) the empirical relationship between the three water quality parameters (chlorophyll-*a*, turbidity, and color) and resulting subsurface light conditions. These relationships were developed for the Old Tampa Bay (OTB), Hillsborough Bay (HB), Middle Tampa Bay (MTB), and Lower Tampa Bay (LTB) segments.

Based on the results of this modeling effort, it was determined that seagrass restoration goals could be met by constraining external nitrogen loads and bay segment chlorophyll-*a* concentrations to remain at the estimated average levels of 1992-1994 (Janicki and Wade 1996). As described in the 2007 Reasonable Assurance Update approved by the NMC in 2008, the chlorophyll-a thresholds derived from this effort approved by FDEP for indicators of impairments of the bay segments are as follows:

- Old Tampa Bay: 9.3 µg/L
- Hillsborough Bay: 15.0 µg/L
- Middle Tampa Bay: 8.5 µg/L
- Lower Tampa Bay: 5.1 µg/L

C. Water Quality Decision Matrix

Application of the chlorophyll-*a* thresholds to the segment annual chlorophyll-*a* values shown in Figure II-1 results in the Decision Matrix results presented in Figure II-5 below. Chlorophyll-*a* values were less than the thresholds in most bay segments for most years following the 1992-1994 period. Exceptions

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included 1998, following the El Niño event of 1997-1998, and the wet period of 2003-2004 in Old Tampa Bay. The 2005 threshold exceedence in Lower Tampa Bay is coincident with the large loadings associated with the closure of the former Piney Point Facility in that bay segment.

Year	Old TB	Hills. Bay	Mid. TB	Low. TB
1974	No	No	No	Yes
1975	No	No	No	Yes
1976	No	No	No	Yes
1977	No	No	No	No
1978	No	No	No	Yes
1979	No	No	No	No
1980	No	No	No	No
1981	No	No	No	No
1982	No	No	No	No
1983	No	No	No	No
1984	Yes	Yes	No	Yes
1985	No	No	No	Yes
1986	No	No	Yes	Yes
1987	No	Yes	No	Yes
1988	Yes	Yes	Yes	Yes
1989	No	Yes	Yes	Yes
1990	No	Yes	Yes	Yes
1991	Yes	Yes	Yes	Yes
1992	Yes	Yes	Yes	Yes
1993	Yes	Yes	Yes	Yes
1994	No	No	No	No
1995	No	No	No	Yes
1996	Yes	Yes	Yes	Yes
1997	Yes	Yes	Yes	Yes
1998	No	No	No	No
1999	Yes	Yes	Yes	Yes
2000	Yes	Yes	Yes	Yes
2001	Yes	Yes	Yes	Yes
2002	Yes	Yes	Yes	Yes
2003	No	Yes	Yes	Yes
2004	No	Yes	Yes	Yes
2005	Yes	Yes	Yes	No
2006	Yes	Yes	Yes	Yes
2007	Yes	Yes	Yes	Yes
2008	Yes	Yes	Yes	Yes

FDEP-Approved Chlorophyll-*a* Thresholds:

Hillsborough Bay - 15.0 μg/L

Old Tampa Bay - 9.3 μg/L

Middle Tampa Bay - 8.5 μg/L

Lower Tampa Bay - 5.1 μg/L

Figure II-5: Compliance with FDEP-approved annual mean chlorophyll-*a* concentration thresholds for the four major bay segments, 1974-2008. Green = annual chlorophyll-a concentration at or below threshold value; Red = annual chlorophyll-a concentration exceeds threshold value.

SECTION III: CHARACTERIZATION OF NITROGEN LOADS TO TAMPA BAY

Estimates of total nitrogen (TN) loads from all major sources to Tampa Bay have been developed for 1985-2007 (Zarbock et al. 1996; Pribble et al. 2001; Poe et al. 2005; Janicki Environmental Inc. 2003, 2008). The loads were developed for each bay segment, and for six source categories within each segment. These source categories include the following:

- Nonpoint Sources (Stormwater),
- Direct Atmospheric Deposition (only that which falls directly on the Bay water surface),
- Domestic Wastewater,
- Industrial Wastewater,
- Fertilizer Material Losses, and
- Groundwater & Springs.

The contributions from these sources for the current period, 2003-2007, are provided below, followed by the time series of 1985-2007 annual segment total loads, and a description of the establishment of the Nitrogen Management Consortium (NMC) and target loads. These loads represented the direct external nitrogen load to each bay segment, and did not take into account residence times or movement of water between bay segments.

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A. Segment Total Nitrogen Loads by Source

Old Tampa Bay

During the 2003-2007 period, Nonpoint Sources (NPS) contributed 56% of the segment TN load, with Atmospheric Deposition (AD) contributing 29% and Domestic Point Sources (DPS) contributing 15% (Figure III-1). Since the 1992-1994 period, with loads reported in Zarbock et al. (1996), the relative contribution of Atmospheric Deposition to TN loads in this segment has declined, while the relative contribution of Nonpoint Sources has increased.

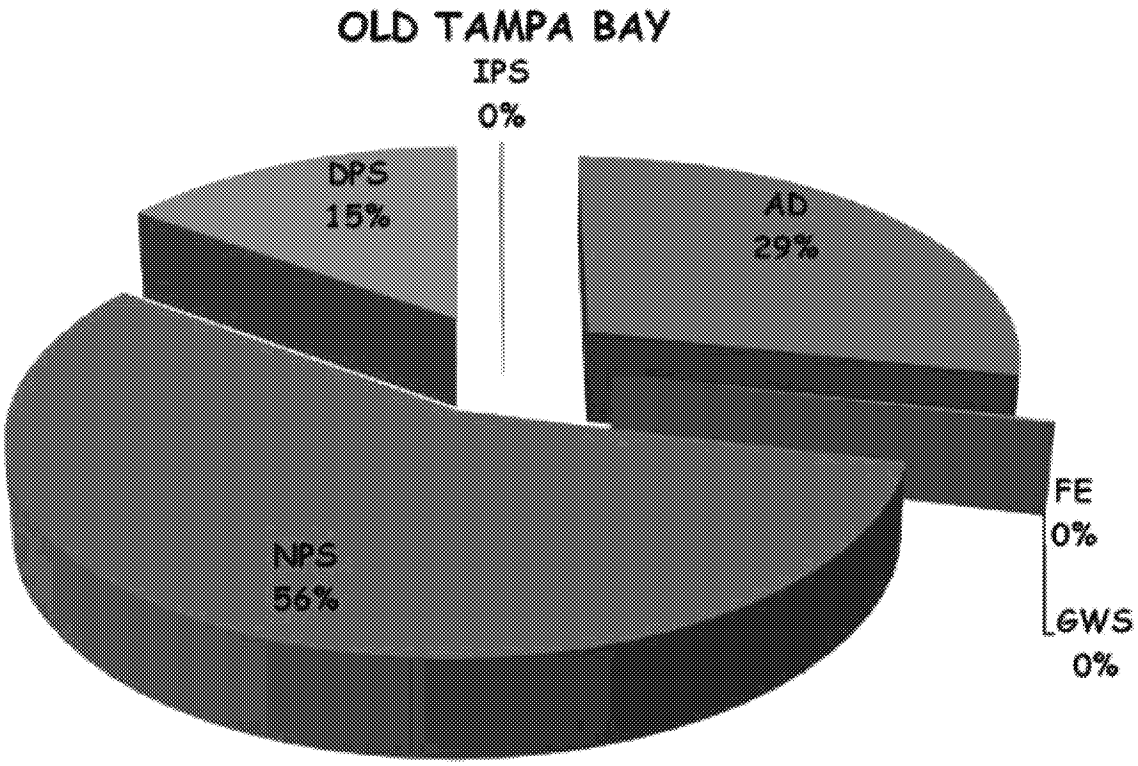

Figure III-1: Relative contributions of source categories to TN loading in Old Tampa Bay, 2003-2007 (Janicki Environmental, Inc. 2008). NPS=nonpoint sources; DPS=domestic point sources; IPS=industrial point sources; AD=atmospheric deposition; FE=fertilizer material losses; GWS=groundwater/springs.

Hillsborough Bay

During the 2003-2007 period, Nonpoint Sources (NPS) contributed 53% of the segment TN load, with Industrial Point Sources (IPS) contributing 23%, Domestic Point Sources (DPS) contributing 14%, Groundwater and Springs (GWS) contributing 5%, and Atmospheric Deposition (AD) contributing 4% (Figure III-2). As in Old Tampa Bay, the relative and absolute Atmospheric Deposition contributions to TN loadings to Hillsborough Bay have declined since 1992-1994, while the Nonpoint Source contribution has increased. The largest percentage increase in source load, however, has been for Industrial Point Sources. Much of this is due to the much wetter than normal 2003-2007 period, which included a one year period in which several facilities discharged under Emergency Discharge Orders, discussed in Section III.C. in more detail. The greatest percentage decline in source load has been for Fertilizer Material Losses (FE).

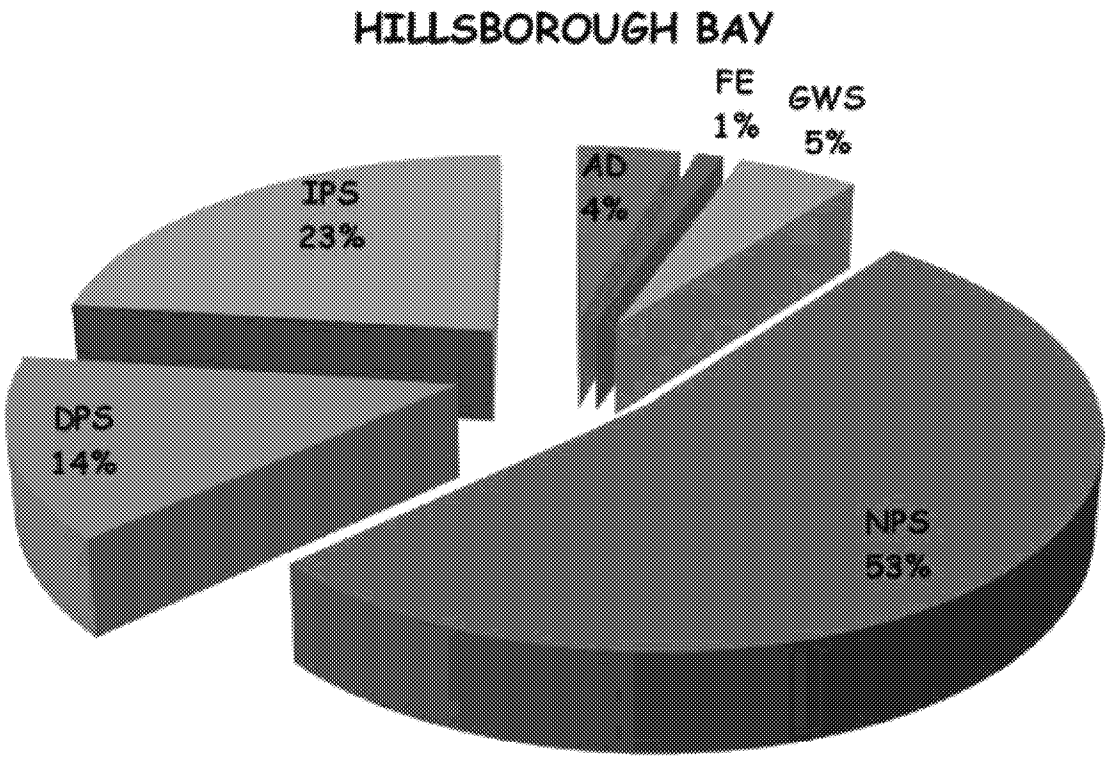

Figure III-2: Relative contributions of source categories to TN loading in Hillsborough Bay, 2003-2007 (Janicki Environmental, Inc. 2008). NPS=nonpoint sources; DPS=domestic point sources; IPS=industrial point sources; AD=atmospheric deposition; FE=fertilizer material losses; GWS=groundwater/springs.

Middle Tampa Bay

During the 2003-2007 period, Nonpoint Sources (NPS) contributed 56% of the segment TN load, with Atmospheric Deposition (AD) contributing 33%, Industrial Point Sources (IPS) contributing 8%, and Domestic Point Sources (DPS) contributing 3% (Figure III-3). Relative contributions from all sources in this segment to TN loadings have remained relatively unchanged since 1992-1994. It should be noted, however, that the absolute Atmospheric Deposition TN load has declined (in tonnage). A contributing factor to this decline is the TECO repowering and subsequent emissions reductions, discussed in Section III.C. in more detail.

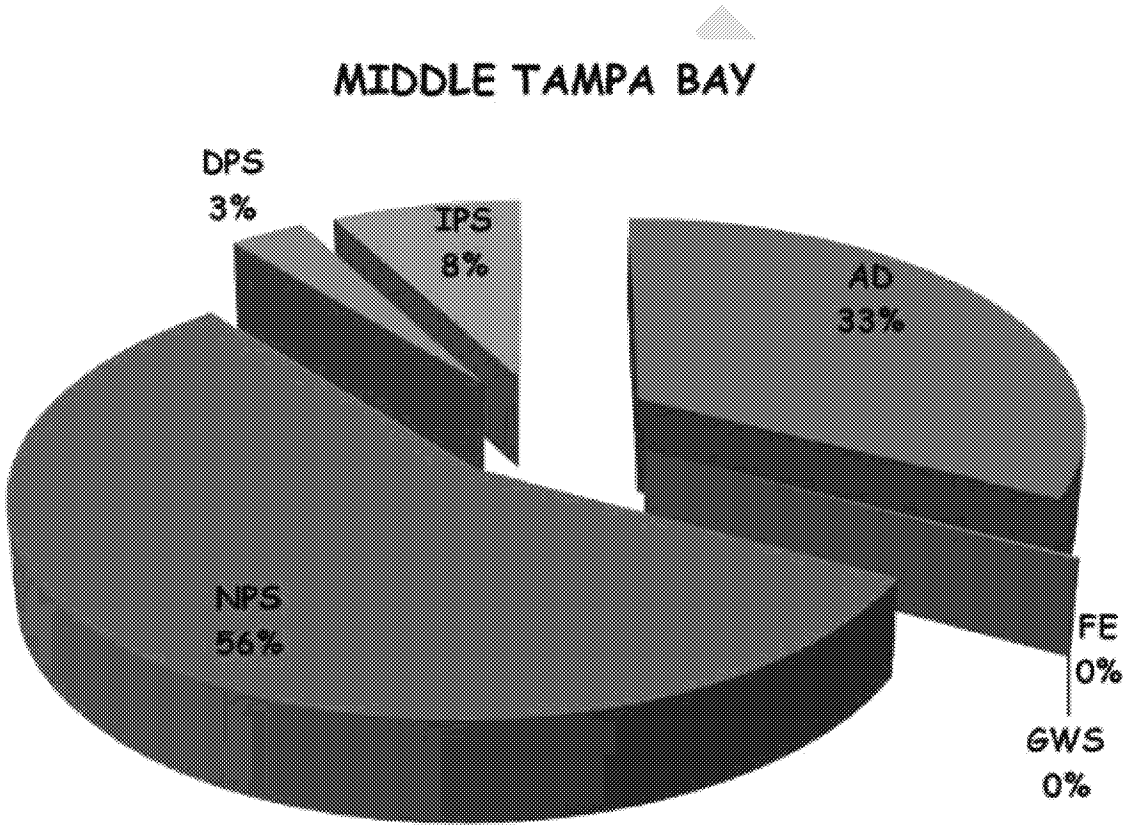

Figure III-3: Relative contributions of source categories to TN loading in Middle Tampa Bay, 2003-2007 (Janicki Environmental, Inc. 2008). NPS=nonpoint sources; DPS=domestic point sources; IPS=industrial point sources; AD=atmospheric deposition; FE=fertilizer material losses; GWS=groundwater/springs.

Lower Tampa Bay

During the 2003-2007 period, Atmospheric Deposition (AD) contributed 75% of the segment TN load, with Nonpoint Sources (NPS) contributing 16%, Industrial Point Sources (IPS) contributing 7%, and Domestic Point Sources (DPS) contributing 2% (Figure III-4). As in Middle Tampa Bay, the proportions of loads attributable to the source categories have remained relatively unchanged since 1992-1994, with the exception of the large increase in Industrial Point Source loadings. These loadings are associated with the closure of the former Piney Point Facility, which is discussed in Section III.C. in more detail.

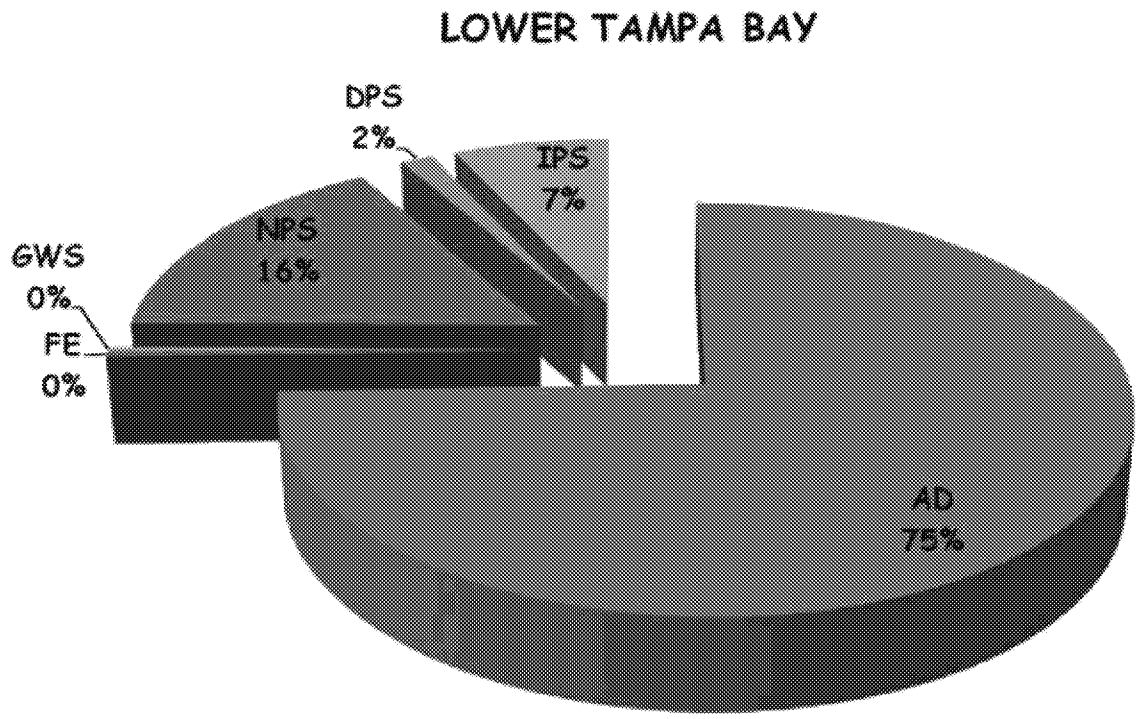

Figure III-4: Relative contributions of source categories to TN loading in Lower Tampa Bay, 2003-2007 (Janicki Environmental, Inc. 2008). NPS=nonpoint sources; DPS=domestic point sources; IPS=industrial point sources; AD=atmospheric deposition; FE=fertilizer material losses; GWS=groundwater/springs.

B. Temporal Trends in Segment Loads

Total nitrogen loadings have been estimated for Tampa Bay for the period 1985-2007. Figures III-5 through III-9 present time series of the annual TN loads for this period for Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, Lower Tampa Bay (watershed segment identified in federally-recognized TMDL), and the remaining watershed to Lower Tampa Bay (henceforth referred to as the Remainder of Lower Tampa Bay) segments. Loadings to the Remainder of Lower Tampa Bay segment are comprised of loadings from the Manatee River, Terra Ceia Bay, and the southern portion of Boca Ciega Bay which also enters

Lower Tampa Bay, but are not included in the federally-recognized TMDL watershed for Lower Tampa Bay.

In each of the loading time series figures, the 1992-1994 period defined as the "hold-the-line" period (discussed in Section II) is demarcated by blue shading (the solid blue horizontal lines represent the federally-recognized TMDL for Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay segment that were based on the annual average loadings from this time period). The green shading demarcates the current, 2003-2007 time period. Within each bay segment, it is notable that during at least one year of the 2003-2007 period, TN loads exceeded the 1992-1994 averages.

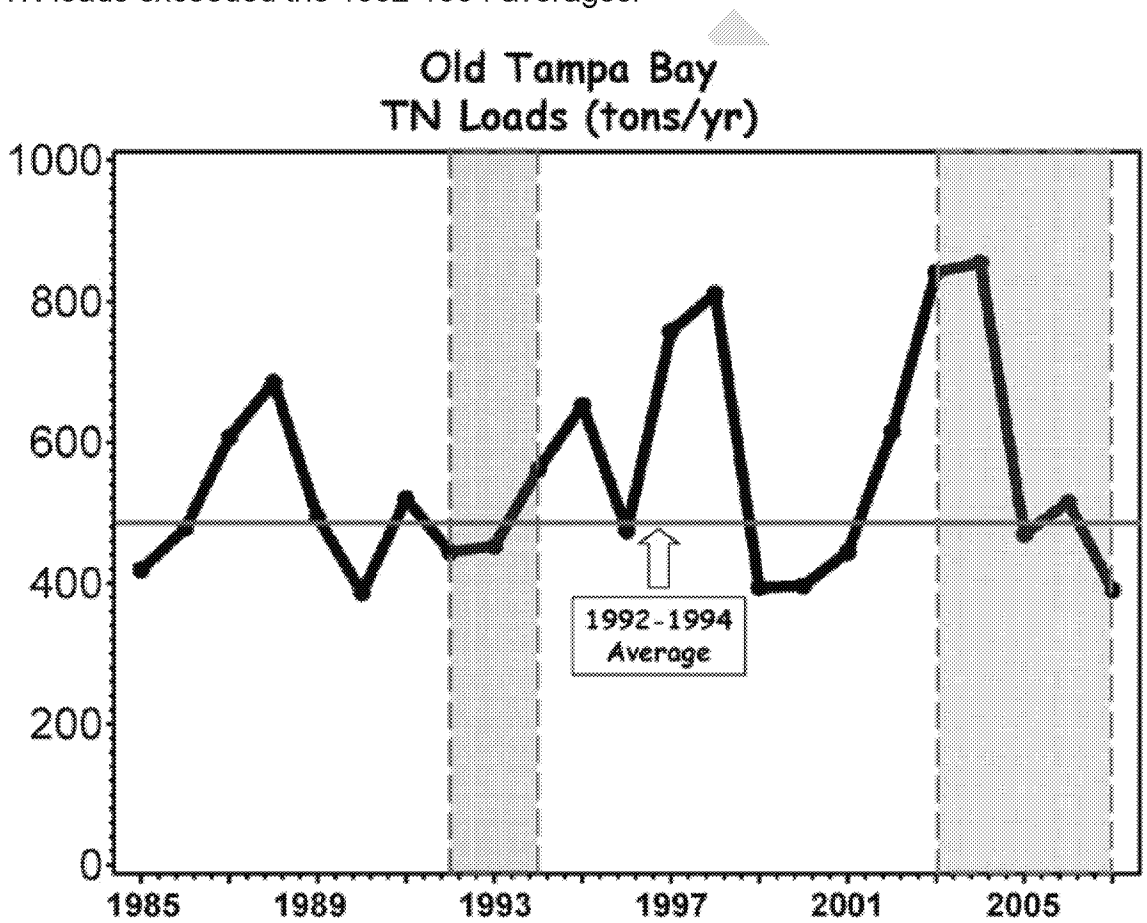

Figure III-5: Time series of annual TN loads (tons/year) to Old Tampa Bay, 1985-2007. The blue horizontal line equals 486 tons/year.

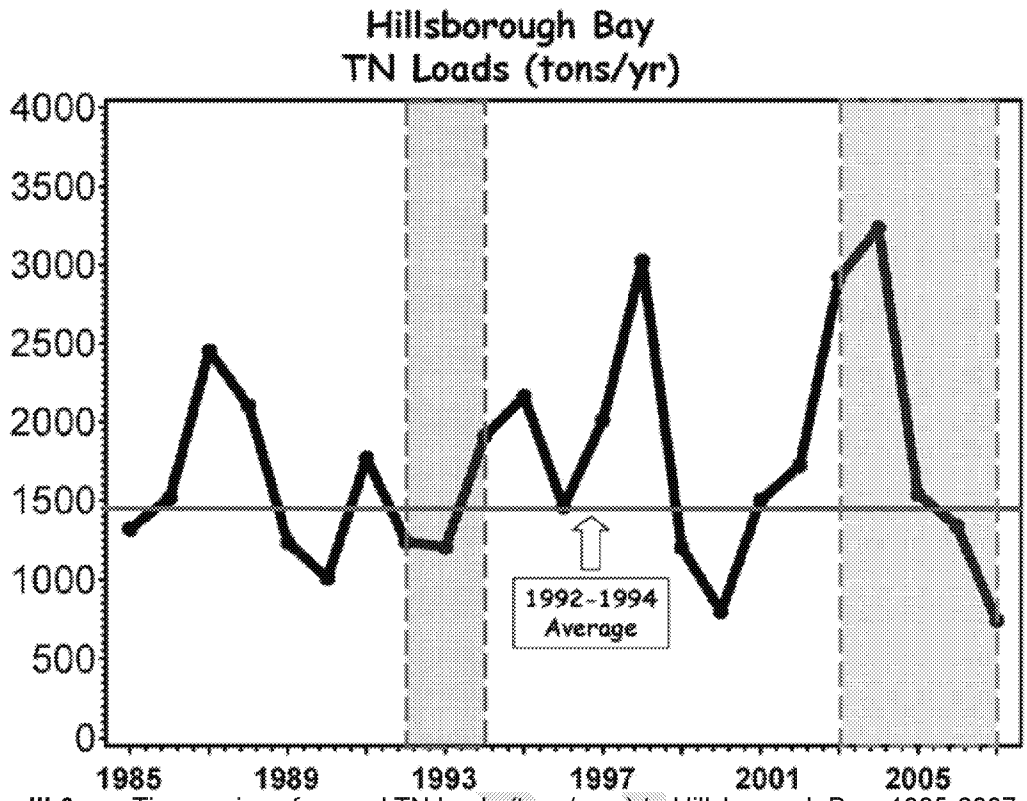

Figure III-6: Time series of annual TN loads (tons/year) to Hillsborough Bay, 1985-2007. The blue horizontal line equals 1451 tons/year.

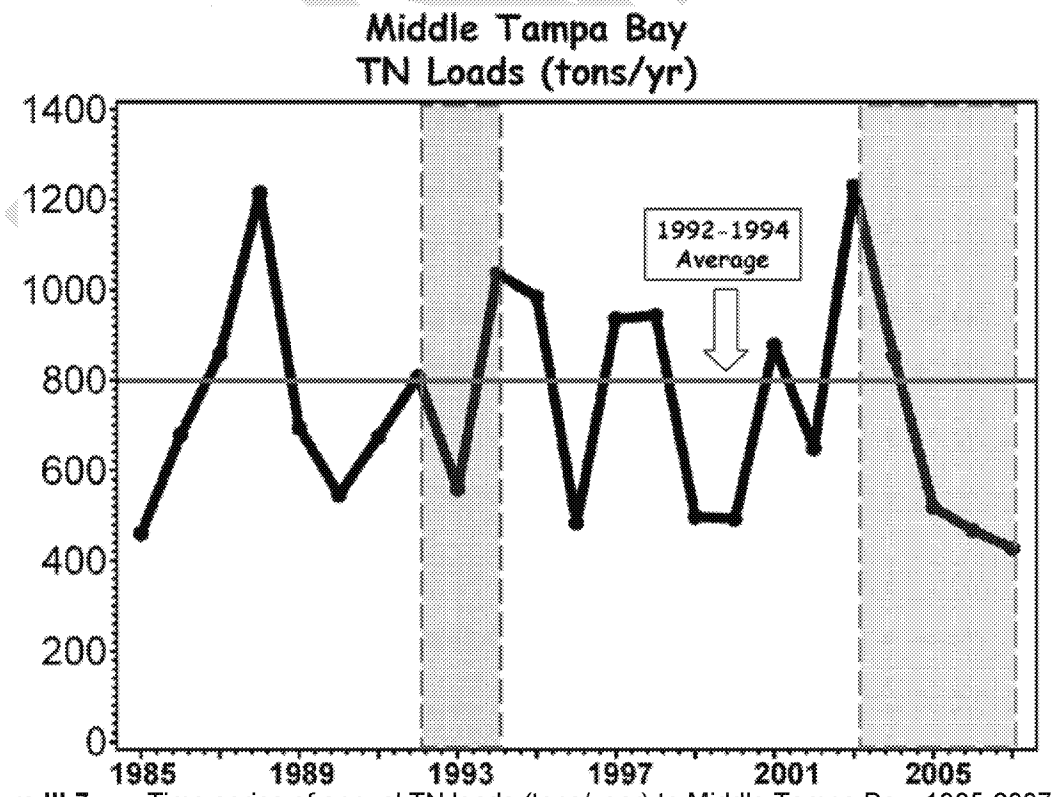

Figure III-7: Time series of annual TN loads (tons/year) to Middle Tampa Bay, 1985-2007. The blue horizontal line equals 799 tons/year.

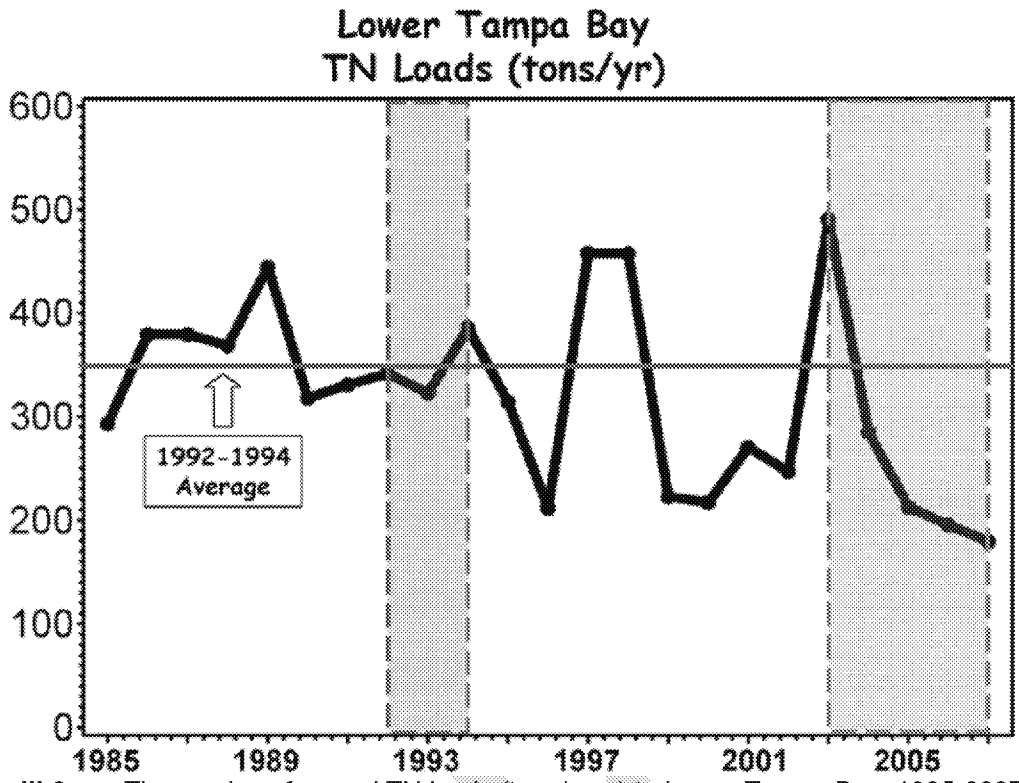

Figure III-8: Time series of annual TN loads (tons/year) to Lower Tampa Bay, 1985-2007. The blue horizontal line equals 349 tons/year.

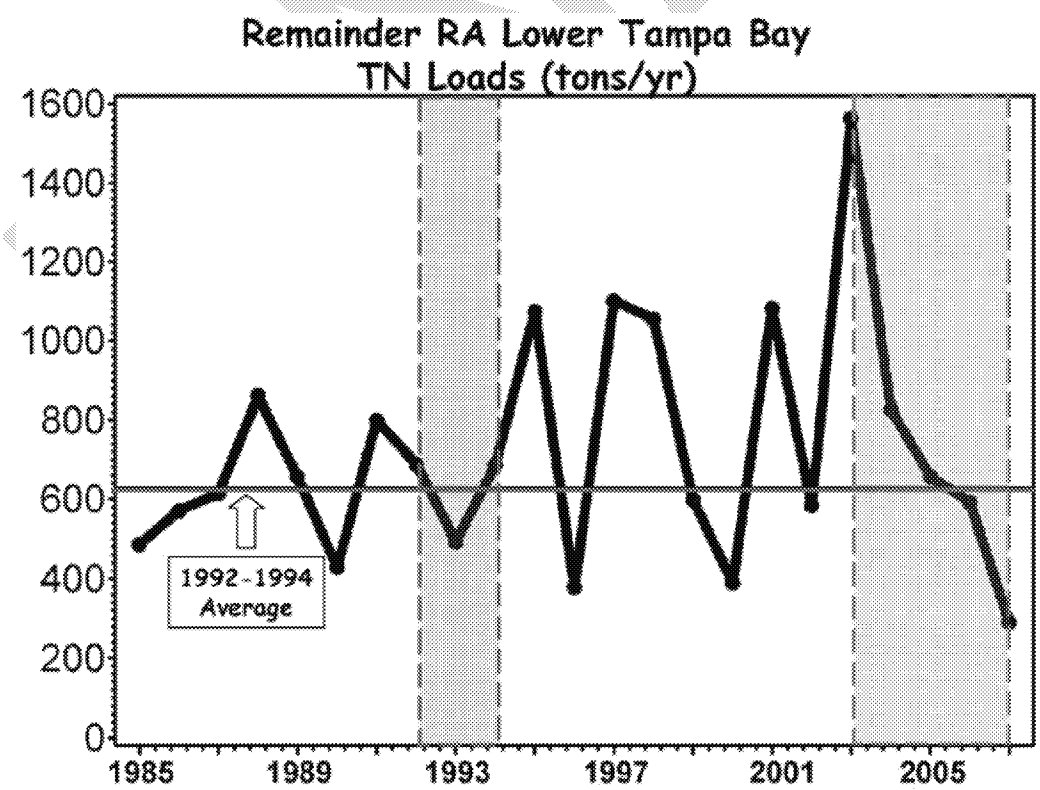

Figure III-9: Time series of annual TN loads (tons/year) to Remainder of Lower Tampa Bay, 1985-2007. The blue horizontal line equals 629 tons/year.

Trend tests were performed on the monthly TN loads of 1985-2007 for each of the four major bay segments. Despite the continued growth in the Tampa Bay watershed, there were no statistically significant trends in TN loads at the 95% confidence level for Old Tampa Bay, Hillsborough Bay, or Middle Tampa Bay. For Lower Tampa Bay, a statistically significant negative trend in TN loads was found.

C. Circumstances Affecting 2003-2007 Loads

Several circumstances specific to the 2003-2007 period contributed to changes in loadings. During this time period, the Tampa Electric Company (TECO) instituted modifications to the Big Bend and Gannon power plants which reduced atmospheric emissions of nitrogen. Also during this period, surface water withdrawals, primarily by the City of Tampa and Tampa Bay Water, reduced loadings to the Bay. Emergency Discharge Orders issued to deal with the high rainfall during the unusual hurricane seasons of the 2004-2005 period resulted in larger than normal loadings from some Industrial Point Sources to Hillsborough Bay. In Lower Tampa Bay, closure of the former Piney Point Facility resulted in much higher than normal loadings from Industrial Point Sources during the period due to the temporary load associated with the elimination of process water inventory from this facility over the 2003-2007 time period.

Reductions in Atmospheric Deposition Associated with TECO Modifications:

TECO entered into an agreement with the EPA and FDEP to install air pollution control systems for nitrogen oxide reductions at the Big Bend Stations. The company is scheduled to complete installation of selective catalytic reduction (SCR) control systems in Units 1 through 4 by 2010. Observed concentrations of atmospheric nitrogen, as measured by the Tampa Bay Atmospheric Deposition Study in Tampa and at the Verna Wellfield in Sarasota County, declined during the 2003-2007 period. These concentrations are used to estimate Atmospheric Deposition directly to the bay's surface, along with rainfall and a dryfall:wetfall ratio previously developed by the TBEP.

As noted in Section III.A. above, absolute TN loads from Atmospheric Deposition were less during the 2003-2007 period than during the 1992-1994 period. Model-based estimates of reductions in deposition to the surface of the bay have been developed by EPA for 2020, and account for TECO repowering and mobile sources (Dennis and Arnold 2007). The model results suggest that Atmospheric Deposition of TN would be reduced by approximately 11*% by 2020*.

Surface Water Withdrawals:

During the 2003-2007 period, Tampa Bay Water performed surface water withdrawals from the Hillsborough River, the Alafia River, and the Tampa Bypass Canal for public water supply. These withdrawals resulted in significant

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reductions in TN loadings to Hillsborough Bay. Withdrawals over the 2003-2007 period averaged 12.3 MGD from the Alafia River, 15.5 MGD from the Hillsborough River, and 20.6 MGD from the Tampa Bypass Canal. TN loads removed along with the water withdrawals averaged 112.1 tons/year for the five-year period.

The City of Tampa also withdraws water from the Hillsborough River for public water supply. These withdrawals result in significant reduction in TN loadings to Hillsborough Bay as well. Withdrawals over the 2003-2007 period averaged 76.2 MGD, and the associated TN loads removed along with the water withdrawals averaged 98.2 tons/yr.

Emergency Discharge Orders:

Several industrial facilities discharged unusually large loads during the 2003-2007 period. The passage of an unusual number of tropical systems during 2004 and 2005 led FDEP to issue Emergency Discharge Orders to allow treated wastewater discharges for prevention of unavoidable releases of accumulated wastewater. Industrial facilities discharging during Sep. 2004 through Aug. 2005 under these orders were:

- Brewster Phosphogypsum,
- Mosaic Bartow,
- Mosaic Green Bay,
- Mulberry Facility managed by Mosaic for FDEP,
- Mosaic Nichols Mine, and
- Mosaic South Pierce.

During the one-year period from Sep. 2004 to Aug. 2005 covered by the Emergency Discharge Orders, approximately 400 tons TN were discharged from these facilities.

Former Piney Point Facility:

The Piney Point complex held a process water inventory of ±500 million gallons, which was acidic and contained elevated levels of nutrients (i.e. ammonia and phosphorus), fluoride, sulfate and metals. In 2001, Piney Point Phosphates, Inc. notified the FDEP that it had no money and could no longer maintain the facility. As a result, in 2001 the EPA assumed responsibility for the environmental security of the facility until transferring that role to the FDEP on February 21, 2001. Water consumption requirements were significantly increased by Tropical Storm Gabrielle in September 2001 and El Niño conditions in December 2002 and January 2003, coupled with above average rainfall in calendar year 2002. In order to minimize potential adverse environmental impacts to Bishop Harbor, the FDEP, at extremely high cost, treated and barge dispersed in the Gulf of Mexico over 248 million gallons of process water and trucked over 86 million gallons of water to area domestic wastewater treatment facilities and another 96 million gallons to industrial facilities for beneficial re-use. Highly treated discharges occurred sporadically to Bishop Harbor during 2001 through 2003 and occurred

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continuously throughout 2004 until March 2007. Discharge of process water is complete, with only discharge from normal stormwater runoff expected in the future. The Industrial Point Source loadings in Figure III-4, averaging 19 tons/year for 2003-2005, are due solely to discharge from this facility.

Accidental Spills:

Two accidental spills resulted in relatively high loadings of nitrogen to the bay during the 2003-2007 period. The first of these was a release of acidic process water from the Mosaic Riverview facility due to berm erosion on September 5-6, 2004, during Hurricane Frances. This release totaled 65 million gallons of process water containing 100 tons of TN and 1100 tons of TP to Archie Creek and thence to Hillsborough Bay (R. Boler, pers. comm.). The second accidental spill was an anhydrous ammonia release from a ruptured pipeline (operated by Tampa Pipeline Corp.) caused by a private citizen to the lower Alafia River in November 2007, releasing 4.5 tons of TN to the bay (E. Sherwood, pers. comm.).

D. Tampa Bay Nitrogen Management Consortium and Established Target Loads

The TBEP governmental partners adopted a Comprehensive Conservation and Management Plan (CCMP) in 1996 that included seagrass restoration goals and related water quality and TN load targets. The TBEP partners adopted a "hold-the-line" target on TN loadings that capped the segment TN loads at levels that would ensure adequate water clarity and light to sustain seagrass recovery. The average annual 1992-1994 TN loads were selected as "hold-the-line" targets, and are as follows for the four mainstem bay segments:

- Old Tampa Bay: 486 tons/year,
- Hillsborough Bay: 1451 tons/year,
- Middle Tampa Bay: 799 tons/year, and
- Lower Tampa Bay: 349 tons/year.

In January 1998, in accordance with the Clean Water Act Section 303(d)(2), the State of Florida submitted for EPA approval a proposed TMDL for Tampa Bay, including the 1992-1994 bay-segment TN loads listed above. EPA approved the Tampa Bay TMDL as submitted by FDEP on June 18, 1998.

The TBEP partner's rationale for selection of the 1992-1994 TN loads as management targets associated with seagrass recovery was based on the relatively good water quality during this period and the observed recovery of seagrasses. The loads were derived as "best estimate" loads based on observed and modeled freshwater inflows and associated water quality from the source categories noted in Section III.A. The "hold-the-line" loads were not intended to be representative of the assimilative capacity of Tampa Bay. Rather, these loads were commensurate with good water quality that would promote seagrass

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recovery. These goals were not meant to be implemented in any regulatory scheme but rather as cooperative, measurable management efforts.

The Tampa Bay Nitrogen Management Consortium (NMC) was formed in 1996, consisting of participants from local governments, agencies, and private industry and businesses. The NMC was formed to develop Action Plans to meet the bay segment "hold-the-line" targets (TBEP 1998). Estimates of future loadings to the bay developed by the TBEP indicated that without appropriate management, future TN loadings would be greater than the "hold-the-line" targets. The NMC collectively developed a Consortium Action Plan that included a number of nitrogen load reduction/preclusion projects designed to maintain the TN loadings at or below the target levels.

The Action Plans developed by NMC participants were compiled into the Action Plan Database. This database is maintained by the TBEP, and acts as a repository of individual participants' Action Plans for TN load reduction projects to be implemented by the respective NMC participant. The database also contains other projects addressing other Action Plans included in the CCMP, such as those to address bay habitat restoration goals. The Action Plan Database is continually updated with existing and planned projects submitted by NMC participants, so that realized and expected TN loading reductions are documented.

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SECTION IV: RELATIONSHIP OF NITROGEN LOADS TO VARYING HYDROLOGIC INPUTS

The purpose of this section is to link the chlorophyll-*a* thresholds (Section II) and the TN loads (Section III), both components of the Tampa Bay Nitrogen Management Strategy described in Section II (Figure II-4) relating bay nitrogen loadings to seagrass recovery. In Section II, the results of the Water Quality Decision Matrix show that chlorophyll-*a* thresholds have been met in most segments for most years since the 1992-1994 "hold-the-line" period. As seen in Figures III-5 through III-8 of Section III, TN loads to the four major bay segments have exceeded the "hold-the-line" target loads during the 13 year 1995-2007 period (seven years in Old Tampa Bay, nine years in Hillsborough Bay, six years in Middle Tampa Bay, and three years in Lower Tampa Bay).

The nitrogen load targets adopted by the TBEP partners in 1996 were developed as protective benchmarks to support seagrass recovery, not as bay-segment specific assimilative capacities for nitrogen loading. By definition, a TMDL is the maximum loading (assimilative capacity) of a particular parameter (e.g., TN) associated with meeting water quality standards. Methods and models used by TBEP in the mid-1990s which the NMC subsequently utilized for management purposes did not address assimilative capacity. Observations since 1992 show that TN loads can be much higher than the federally-recognized TMDL limit (Section III) while chlorophyll-*a* concentrations are at or below the threshold levels. This indicates that the current, federally-recognized TMDLs do not accurately define the assimilative capacity of the bay segments.

The NMC further investigated the relationship between nitrogen loading and chlorophyll to better understand how the bay responds to varying nitrogen loads. Other factors can influence the relationship between chlorophyll and TN loadings. One such factor is residence time, which has been shown to influence this relationship in many lakes and other estuaries. As residence time shortens, and loadings move more quickly out of the estuary, biological processes have less time to convert nutrients to chlorophyll. As residence time lengthens, loadings remain within the system longer, and thus more nutrients can be converted to chlorophyll. Given the same nutrient loads, different residence times within the system can result in very different expressions in water quality constituents. Figure IV-1 provides a schematic of these influences. A major determinant of bay residence time is the amount of rainfall received.

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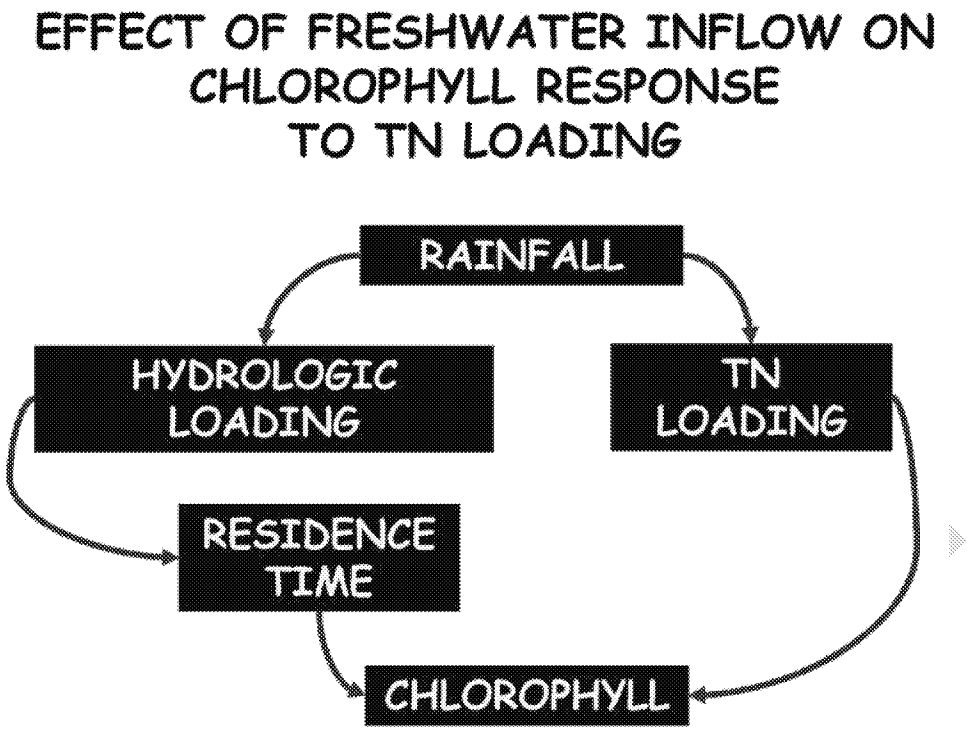

Figure IV-1: Schematic of effects of TN and freshwater loadings on chlorophyll.

Given this paradigm, that both TN loads and hydrologic loads affect the chlorophyll within the system, the annual hydrologic loads to each of the bay segments must be considered along with the annual TN loads to the segments. Time series plots of the annual hydrologic loads to each of the bay segments are provided below in Figures IV-2 through IV-6. As expected, hydrologic loads are higher coincident with those periods when TN loads are higher, as TN loads are partially driven by freshwater inflow.

Given the combined influence of both TN loads and hydrologic loads on water quality, a more appropriate predictor of the likelihood of good water quality, as defined by meeting the FDEP-approved chlorophyll-*a* thresholds, is expected to be the amount of TN delivered per unit water delivered to the bay. This is denoted as the Nitrogen Delivery Ratio, and is defined as the amount of TN delivered, in tons, per million m^3 of freshwater delivered, so that the units of the Nitrogen Delivery Ratio are tons TN/million m^3. Time series plots of the annual Nitrogen Delivery Ratios are provided in Figures IV-7 through IV-11. The 1992-1994 ratios indicated by the horizontal blue lines in these figures are:

- Old Tampa Bay: 1.08,
- Hillsborough Bay: 1.62,
- Middle Tampa Bay: 1.24,
- Lower Tampa Bay: 0.97, and
- Remainder of Lower Tampa Bay: 1.59.

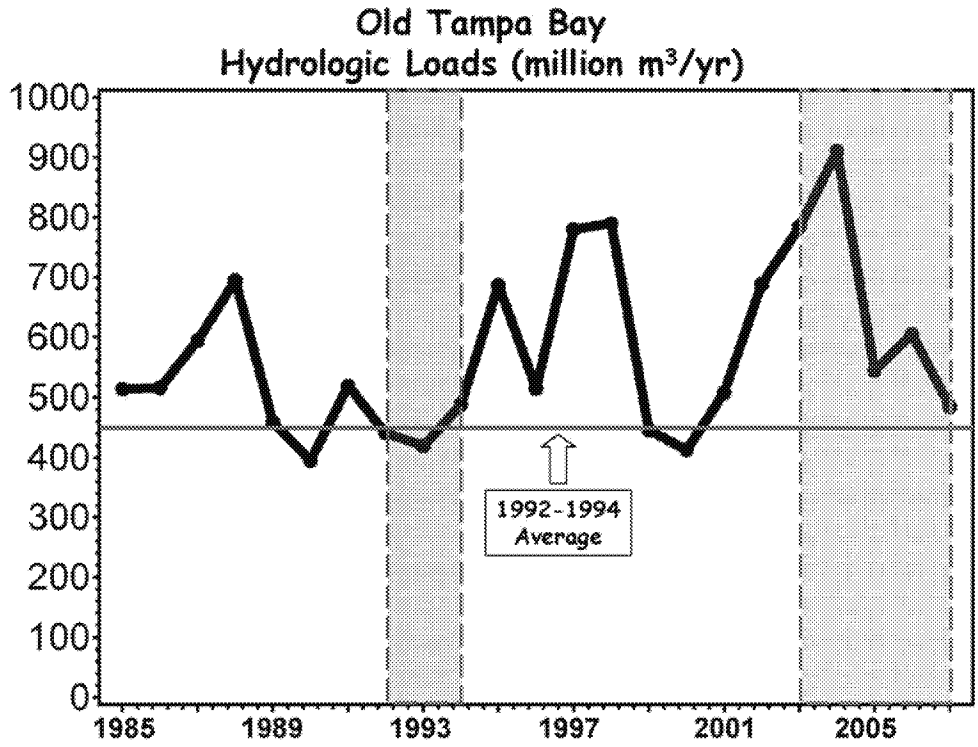

Figure IV-2. Time series of annual hydrologic loads (million m^3/year) to Old Tampa Bay, 1985-2007. The blue horizontal line equals 449 million m^3/year.

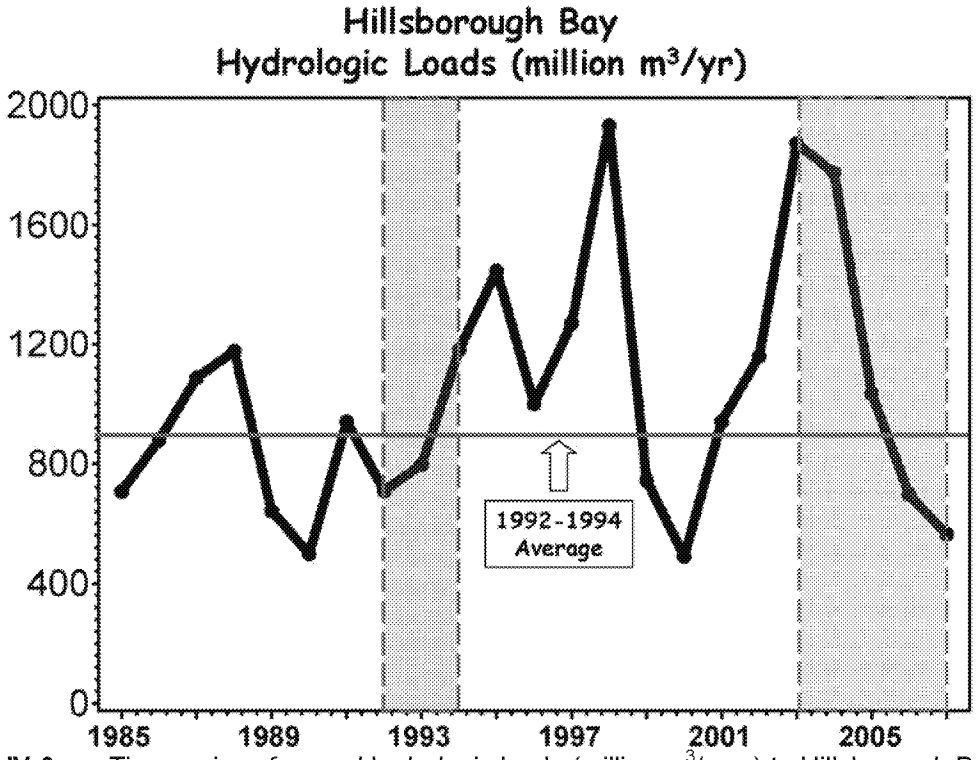

Figure IV-3. Time series of annual hydrologic loads (million m^3/year) to Hillsborough Bay, 1985-2007. The blue horizontal line equals 896 million m^3/year.

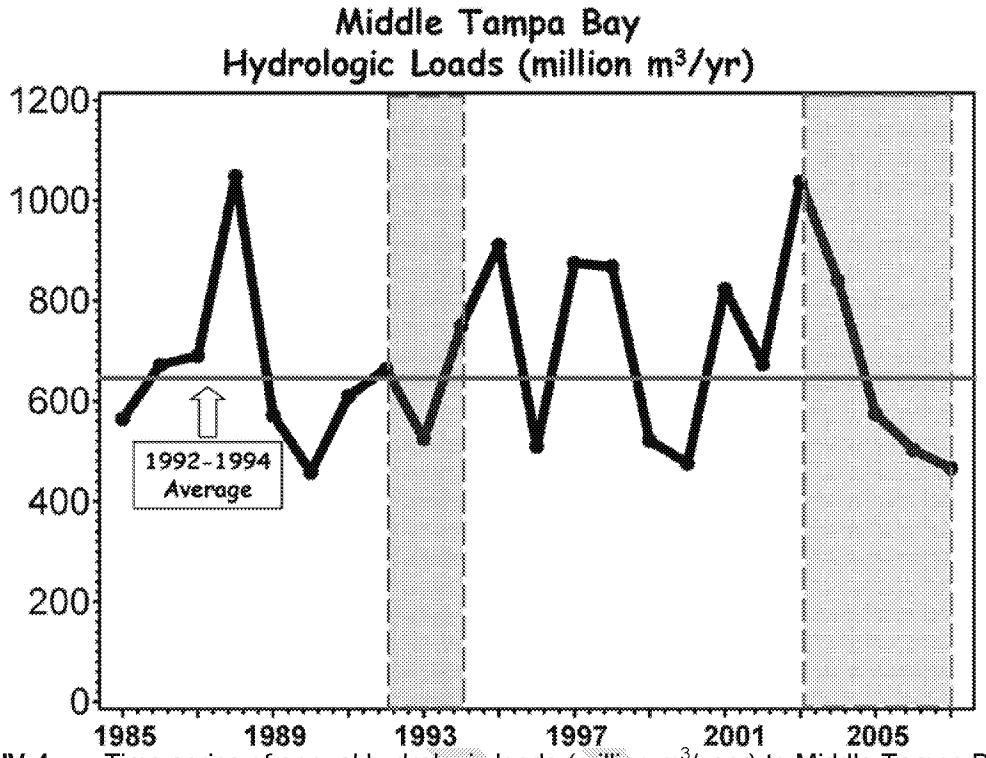

Figure IV-4. Time series of annual hydrologic loads (million m^3/year) to Middle Tampa Bay, 1985-2007. The blue horizontal line equals 645 million m^3/year.

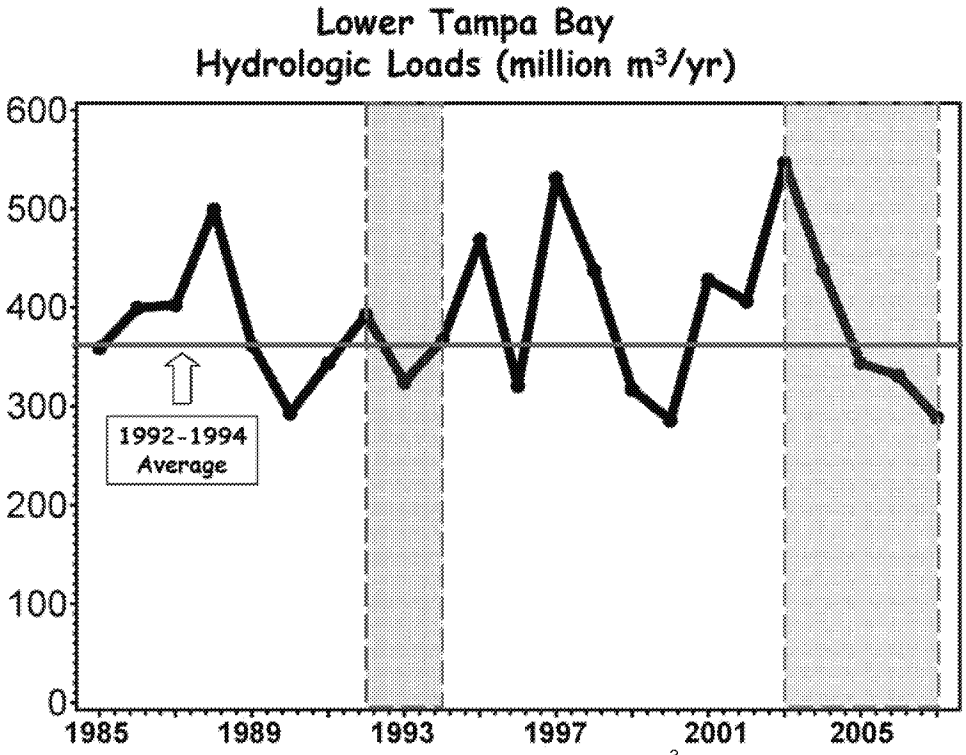

Figure IV-5. Time series of annual hydrologic loads (million m^3/year) to Lower Tampa Bay, 1985-2007. The blue horizontal line equals 361 million m^3/year.

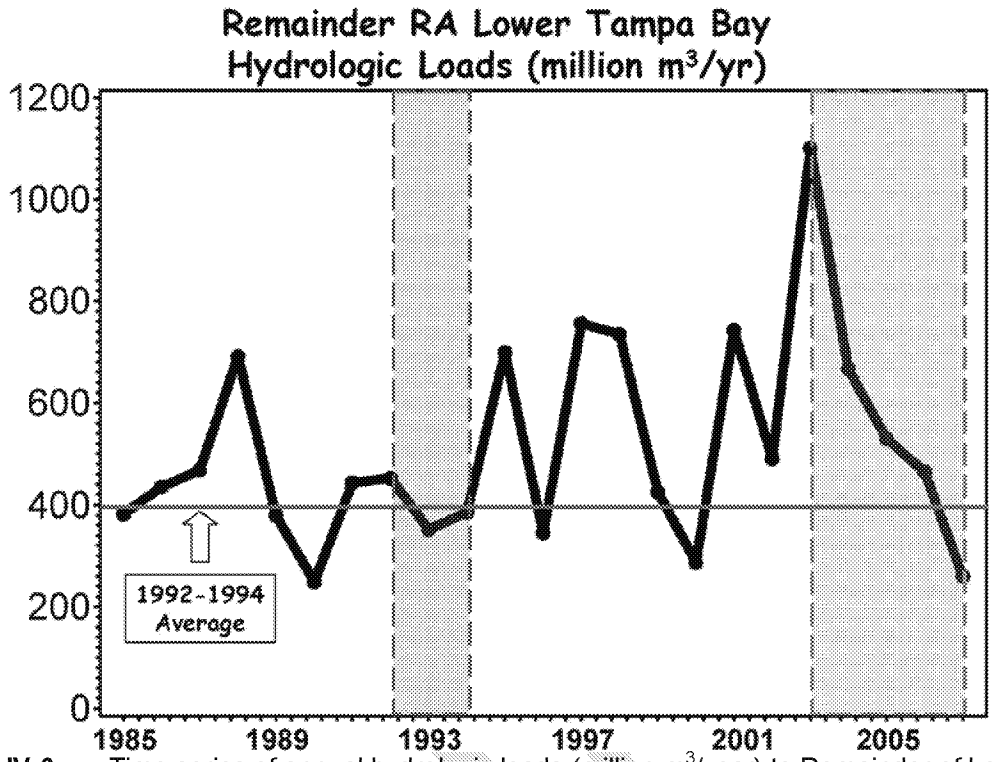

Figure IV-6. Time series of annual hydrologic loads (million m^3/year) to Remainder of Lower Tampa Bay, 1985-2007. The blue horizontal line equals 423 million m^3/year.

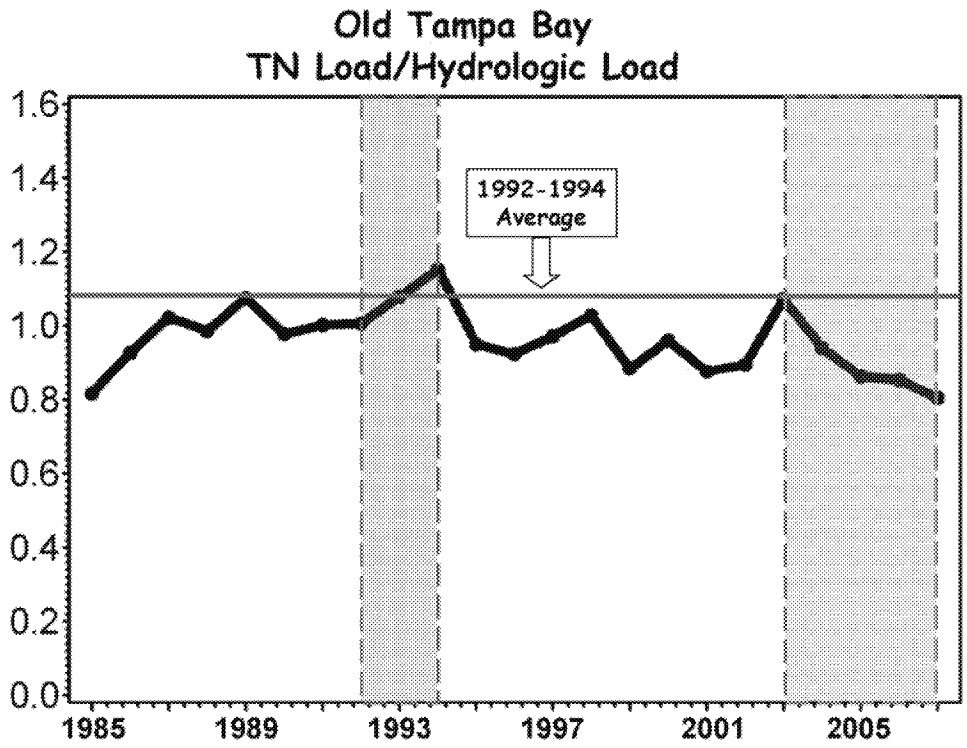

Figure IV-7. Time series of annual Nitrogen Delivery Ratio (tons TN/million m^3) to Old Tampa Bay, 1985-2007. The blue horizontal line equals 1.08.

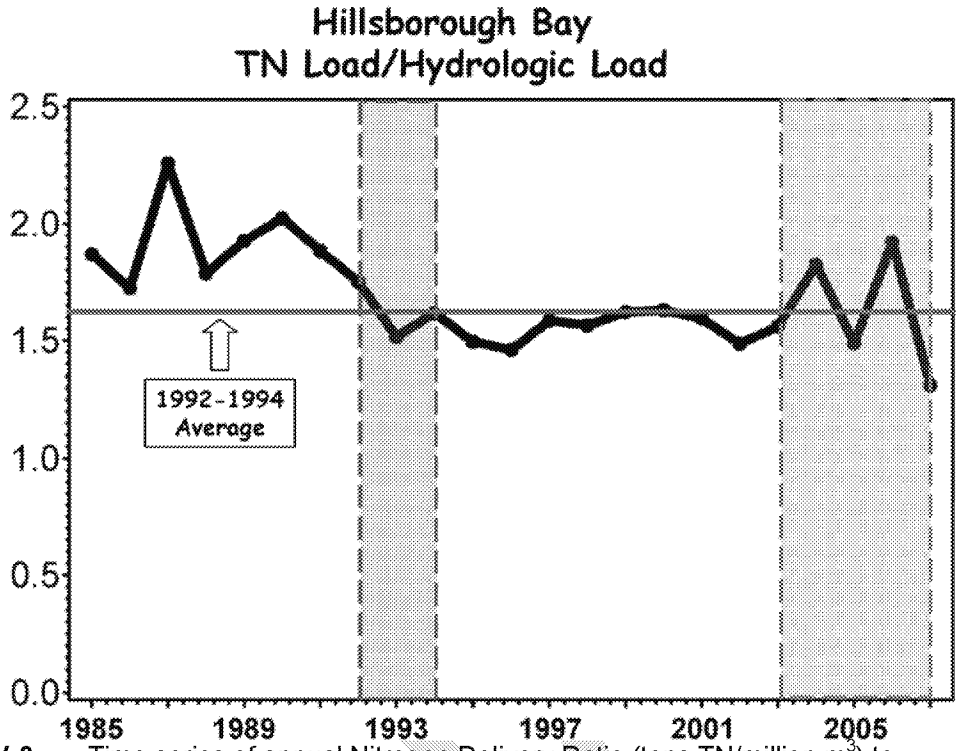

Figure IV-8. Time series of annual Nitrogen Delivery Ratio (tons TN/million m^3) to Hillsborough Bay, 1985-2007. The blue horizontal line equals 1.62.

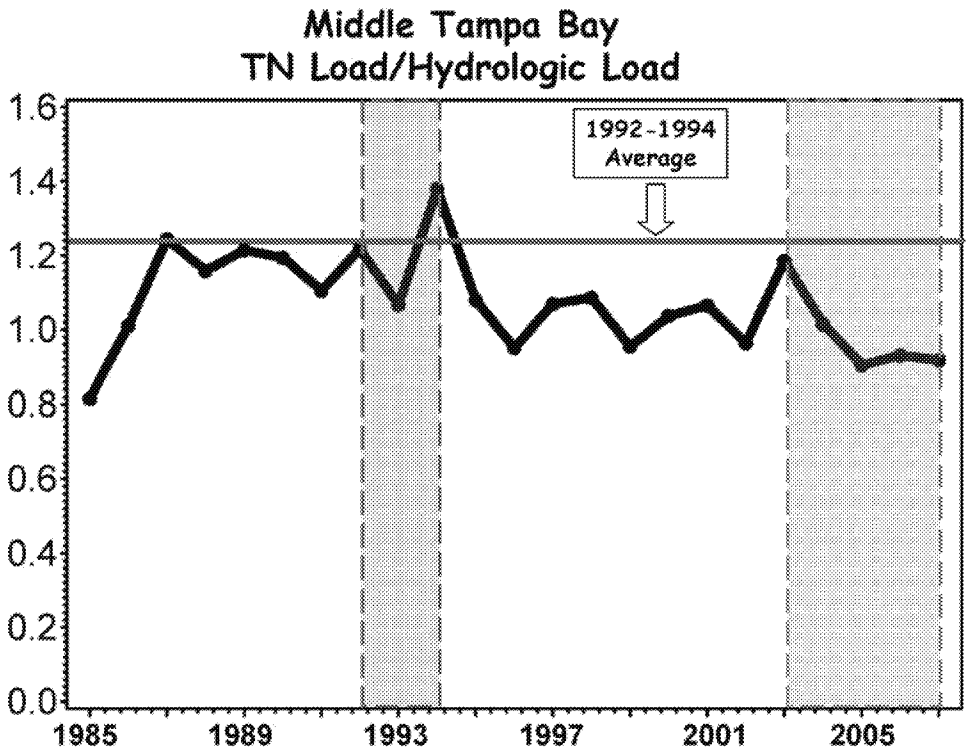

Figure IV-9. Time series of annual Nitrogen Delivery Ratio (tons TN/million m^3) to Middle Tampa Bay, 1985-2007. The blue horizontal line equals 1.24.

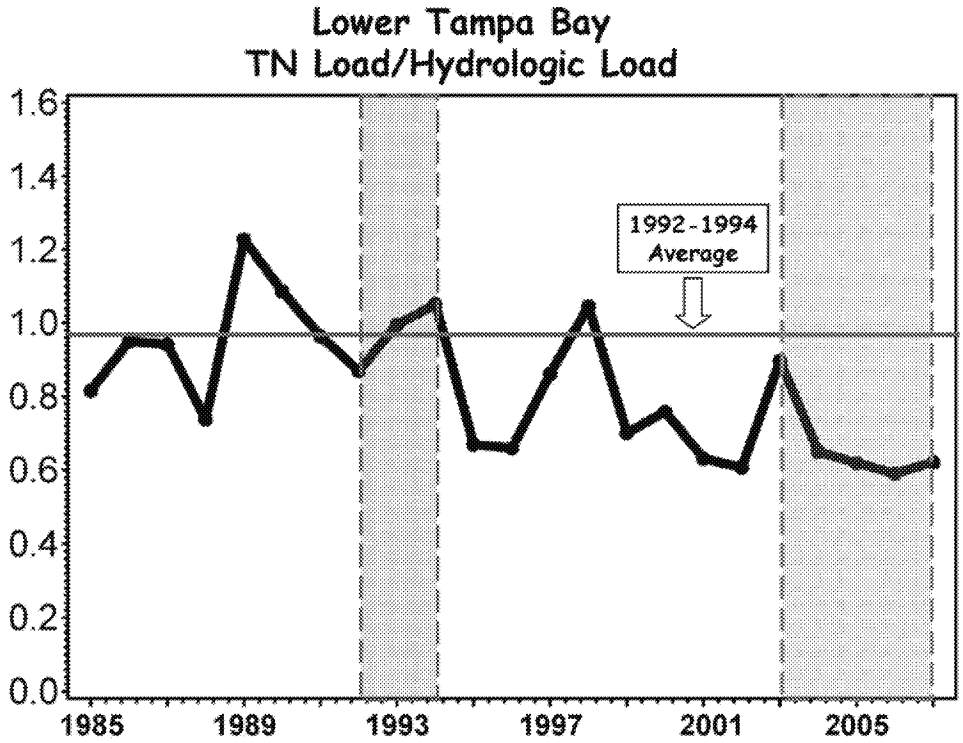

Figure IV-10. Time series of annual Nitrogen Delivery Ratio (tons TN/million m^3) to Lower Tampa Bay, 1985-2007. The blue horizontal line equals 0.97.

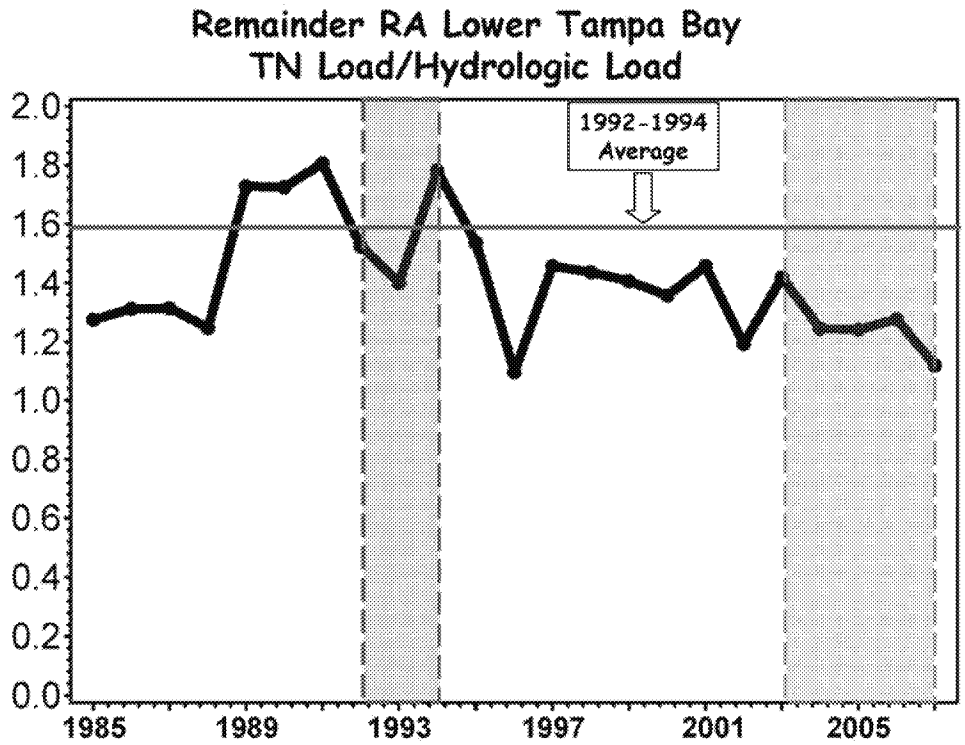

Figure IV-11. Time series of annual Nitrogen Delivery Ratio (tons TN/million m^3) to Remainder RA Lower Tampa Bay, 1985-2007. The blue horizontal line equals 1.59.

It should be noted that for the four major bay segments and the Remainder of Lower Tampa Bay segment, the Nitrogen Delivery Ratio has declined since the 1992-1994 baseline period. Hillsborough Bay has exceeded its Nitrogen Delivery Ratio during some years since the baseline period; however, since 1998, this bay segment has largely met its FDEP-approved chlorophyll-*a* threshold (Figure II-5). This has been the case for the other bay segments with regards to meeting their FDEP-approved chlorophyll-*a* thresholds. Since 1998, water quality conditions have met FDEP-approved chlorophyll-*a* thresholds (Figure II-5), with few exceptions, most notably during the El Niño year of 1998.

Observations since the 1992-1994 "hold-the-line" period show that the bay segment-specific annual TN loads have exceeded the target loads in a number of years (48% of the segment/year combinations), yet the chlorophyll-*a* concentration thresholds in the bay segments have been met in most years since 1994 (81% of the segment/year combinations). By normalizing annual TN loads to the hydrologic load that was observed in 1992-1994, the apparent disconnect between TN loads and attainment of chlorophyll-*a* thresholds can be addressed.

The following method is utilized to normalize observed TN loads for differences in hydrologic loads from those of the 1992-1994 levels. For any one year or series of years, the normalized bay segment TN load is calculated as follows:

- *Normalized TN Load =*
  [Observed TN load x (1992-1994 hydrologic load)] / (Observed hydrologic load)

A comparison of the annual observed TN loads to observed hydrologic loads for each bay segment between 1995 and 2007 is shown graphically in Figures IV-12 through IV-16. The slanted blue line represents the loads corresponding to those expected using the 1992-1994 ratios. Points above the blue line in each graphic denote years when the loads would be in excess of the target loads. The Hillsborough Bay target load would have been exceeded by the normalized load in 2004 and 2006, and the Lower Tampa Bay target load would have been exceeded in 1998. In all other remaining years for those bay segments and in all years during the 1995-2007 period for the Middle Tampa Bay and Old Tampa Bay segments, hydrologically-normalized loads were below the 1992-1994 target loads.

Based on the results of this investigation, it is apparent that in order to provide a logical and technically defensible comparison of TN loads to the NMC target loads and in the absence of determining the true assimilative capacity of the bay, TN loads should be hydrologically normalized to the 1992-1994 hydrologic conditions.

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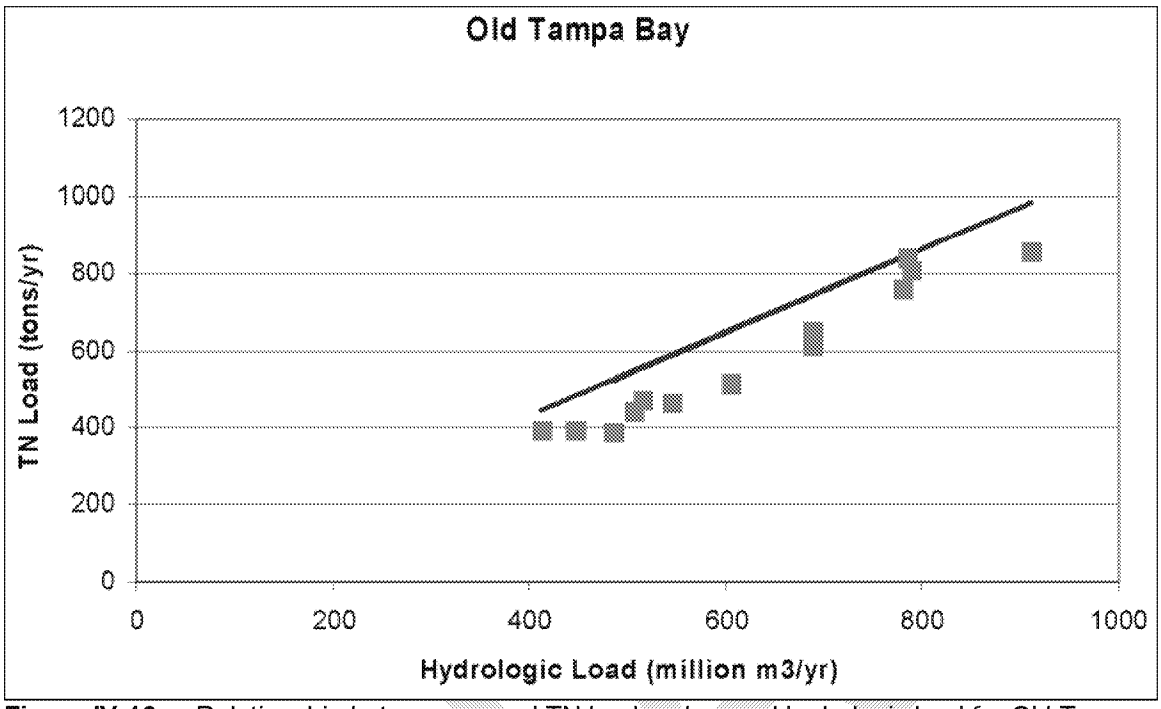

Figure IV-12: Relationship between annual TN load and annual hydrologic load for Old Tampa Bay for 1995-2007. The slanted blue line is what the expected TN loads would be given the Nitrogen Delivery Ratio of 1.08 tons TN/million m^3.

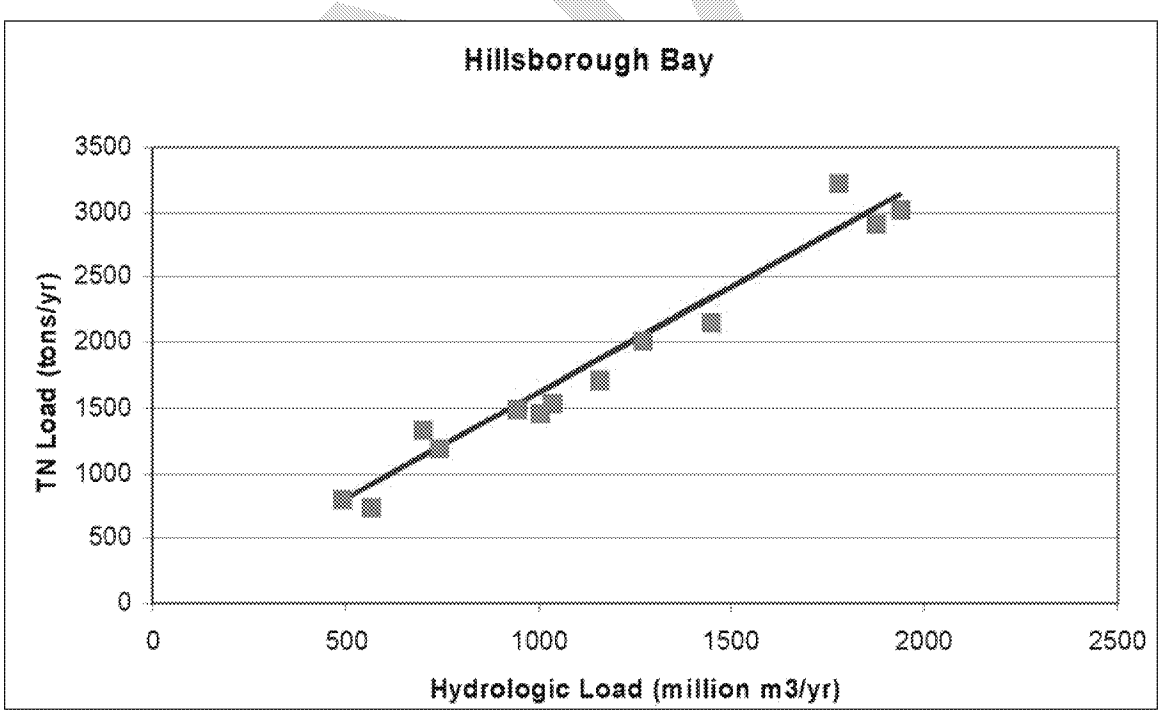

Figure IV-13: Relationship between annual TN load and annual hydrologic load for Hillsborough Bay for 1995-2007. The slanted blue line is what the expected TN loads would be given the Nitrogen Delivery Ratio of 1.62 tons TN/million m^3.

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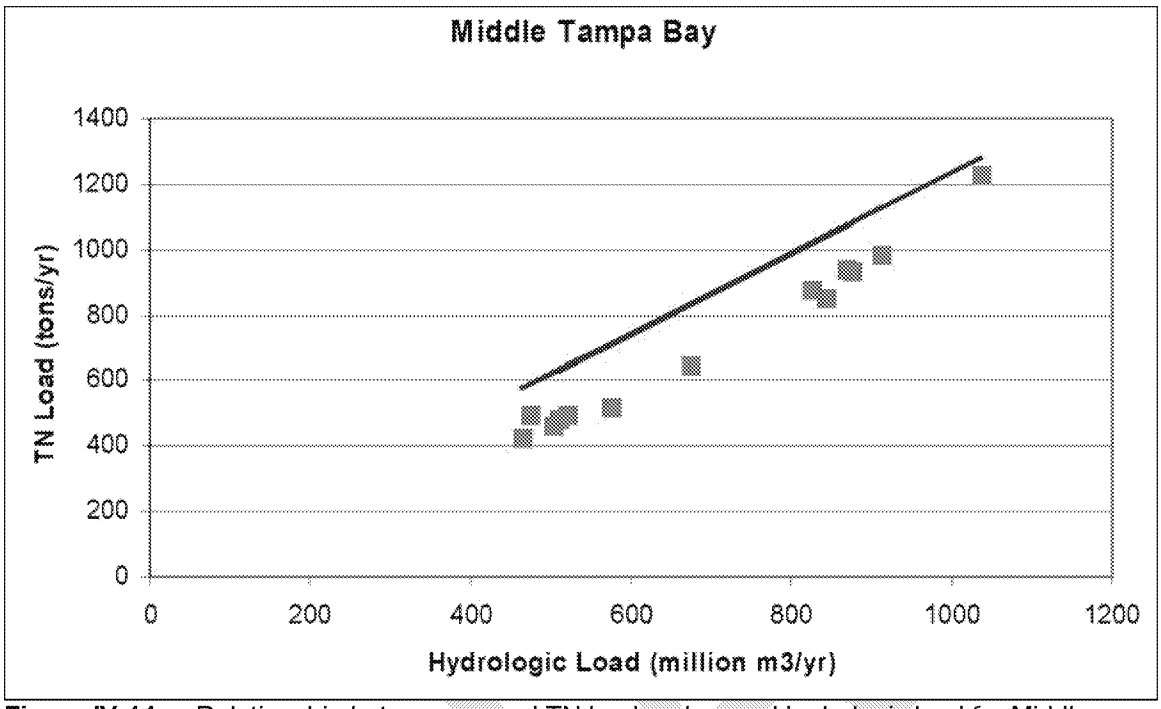

Figure IV-14: Relationship between annual TN load and annual hydrologic load for Middle Tampa Bay for 1995-2007. The slanted blue line is what the expected TN loads would be given the Nitrogen Delivery Ratio of 1.24 tons TN/million m^3.

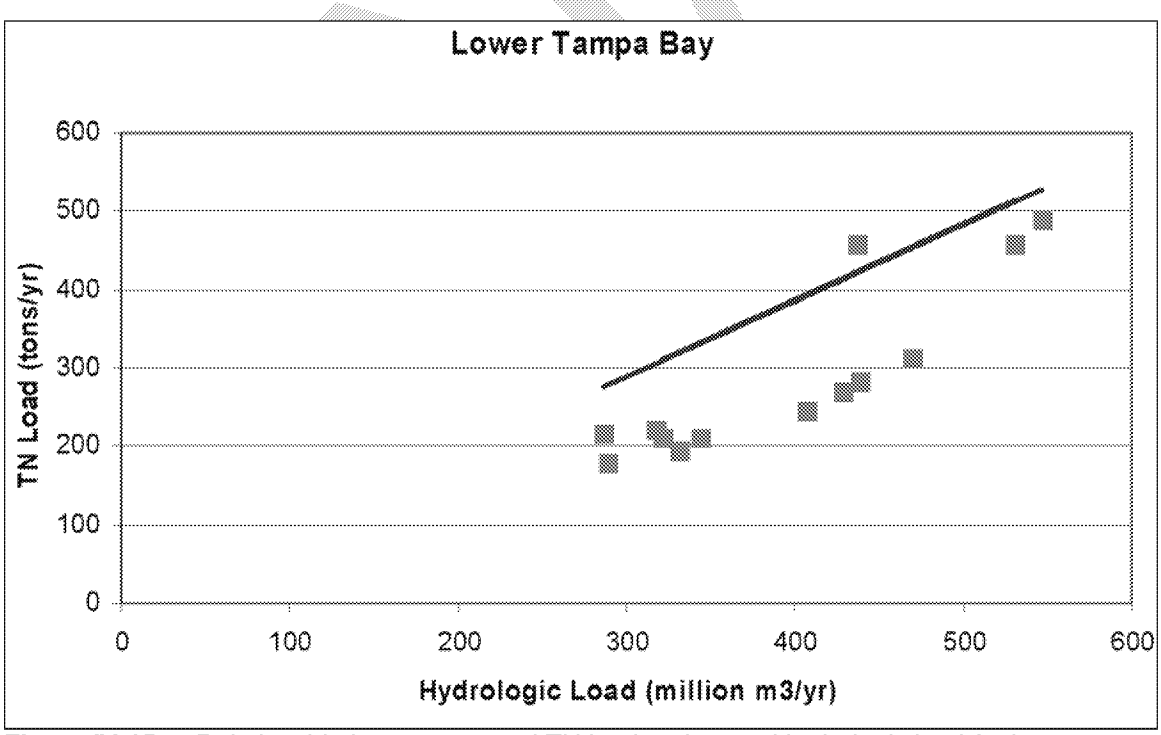

Figure IV-15: Relationship between annual TN load and annual hydrologic load for Lower Tampa Bay for 1995-2007. The slanted blue line is what the expected TN loads would be given the Nitrogen Delivery Ratio of 0.97 tons TN/million m^3.

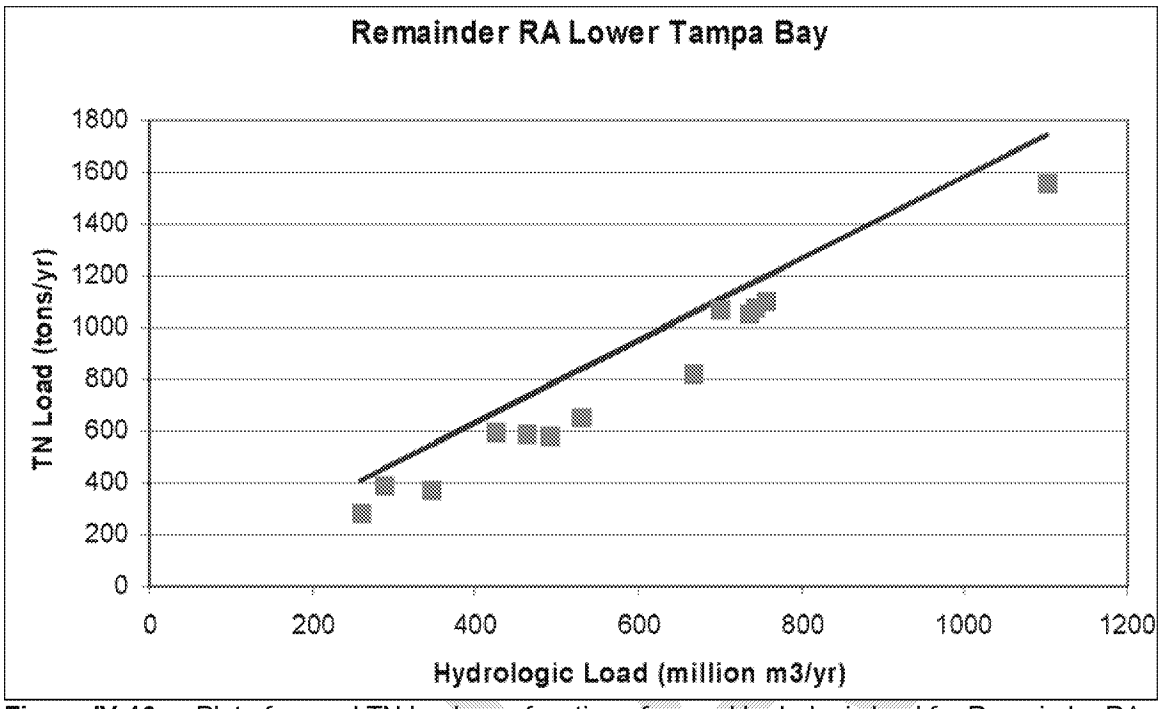

Figure IV-16: Plot of annual TN load as a function of annual hydrologic load for Remainder RA Lower Tampa Bay for 1995-2007. The slanted blue line is what the expected TN loads would be given the Nitrogen Delivery Ratio of 1.59 tons TN/million m^3.

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SECTION V: THE NEED TO ESTABLISH ALLOCATIONS

In 1998, the FDEP submitted the TBEP's target loads to EPA as a TMDL for nitrogen for Tampa Bay and EPA approved the submitted TMDL on June 18, 1998. The EPA, through establishment of the TMDL, now considers the assimilative capacity of each bay segment to be the total TMDL load to that segment, as submitted by FDEP in 1998 (e.g., 486 tons/year for Old Tampa Bay, etc.; see Appendix A.10). As noted in Section IV, the NMC target nitrogen loadings were never developed as an assimilative capacity for nitrogen loads to the Tampa Bay segments.

Subsequent state legislation (1999 Florida Watershed Restoration Act) required FDEP to develop a new methodology for identifying impaired waters and to adopt the methodology by rule (the Impaired Waters Rule), and to adopt TMDLs by rule. The statute and IWR required DEP to assess whether existing or proposed pollution control programs will attain water quality standards in the future (the RA process) before listing waters as impaired. While the bay was assessed as impaired under the IWR, in November 2002, the FDEP concluded that the Tampa Bay Nitrogen Management Strategy (TBEP 2006) provided reasonable assurance that the state water quality standards for nutrients had been met and would continue to be met. As a result, the bay was not listed as impaired, and FDEP did not seek to adopt the previously EPA-approved TMDL as a rule. However, the EPA continues to recognize the 1998 submittal by FDEP that proposed a total maximum load of nitrogen that could be discharged to the bay annually and still meet state standard water quality standards. Both FDEP's reasonable assurance determination and the total maximum nitrogen loading recognized by EPA are based on statistical modeling and data analyses performed by the TBEP and its partners

In October 2007, EPA and FDEP permit reviewers determined that the existing maximum permitted discharges for domestic point sources (Figure V-1) within the Tampa Bay watershed (i.e., maximum allowable discharges at the maximum allowable concentration) cumulatively exceeded the point source wasteload allocations identified in the 1998 federally-recognized EPA TMDL. The regulated community maintained that the likelihood of all permitted discharges reaching maximum discharge volume and concentration simultaneously was improbable, if not statistically impossible. Regardless, EPA and FDEP maintain that until such time that it is demonstrated that the nitrogen loads from permitted nitrogen discharge loads within the major bay segment watersheds are within the limits established by the 1998 federally-recognized EPA TMDL, new or renewal permits can not be issued by FDEP or EPA. For this reason, the 2007 Update to Tampa Bay Reasonable Assurance to FDEP by the Tampa Bay Nitrogen Management Consortium requires specific allocations for all permitted sources within the Tampa Bay watershed. These allocations were to be developed within the constraints and context of the 1998 federally-recognized EPA TMDL,

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although it has been acknowledged by FDEP and EPA that these limits may be revised in the future to reflect the true assimilative capacity of Tampa Bay (Appendix A.23).

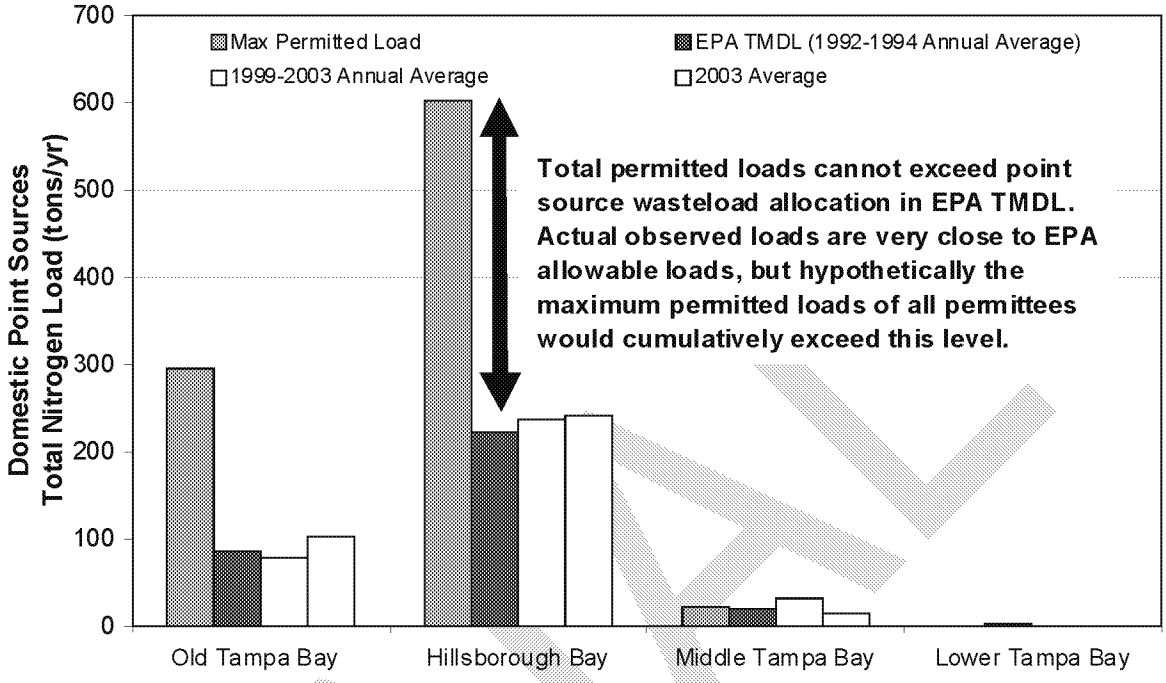

Figure V-1: Adapted graphic used in FDEP presentation to the Nitrogen Management Consortium on October 2007 that showed the cumulative maximum permitted discharges for domestic point source facilities located within the Old Tampa Bay and Hillsborough Bay watershed segments exceeded the point source wasteload allocations identified in the federally-recognized EPA TMDL.

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SECTION VI: PROCESS TO DEVELOP ALLOCATIONS

This section provides a description of the allocation development process, including brief descriptions of the geographic discretization process developed for assignment of nonpoint source load responsibility, descriptions of the allocation methodologies examined, and a detailed description of the method selected for determining final allocations.

A. Geographic Discretization of Nonpoint Source Loads

A GIS-based approach was employed to assign nonpoint source load estimates to entities within the watershed (see Appendix A.8 for NMC action and supporting white paper). In summary, existing MS4 permit boundaries were inadequate to complete this effort, so a method was developed utilizing the 2005 SWFWMD land use/land cover database to define areas of responsibility. This method is as follows:

- Loadings from those areas regulated as industrial NPDES point sources are not included in the watershed loads being assigned to responsible entities, as these loadings are included in the industrial point source loading estimates.

- Conservation lands include those lands identified by the counties, FDOT, and SWFWMD as conservation. These lands receive an allocation as a group within a bay segment.

- Responsibility for loads from agricultural lands is assigned to FDACS, with these lands identified by a specific set of Level 2 FLUCCS codes, as defined in the geographic discretization white paper (see Appendix A.8).

- Loads from the remaining lands within the bay segment watersheds, consisting of urban and other (non-agricultural) lands, are the responsibilities of entities holding Phase I and Phase II MS4 permits, with the exception of loads from those lands identified as MSGPs and other non-MS4 private developments by the MS4 permit holders. These loads are assigned as a class to Non-MS4/Non-Agricultural nonpoint sources within each bay segment.

B. Description of Allocation Alternatives Investigated by the Consortium

Several alternative allocation methodologies were evaluated by the Consortium. These are briefly described below, in the order in which they were evaluated.

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1. In July and August 2008, the Consortium evaluated a methodology similar to that previously used to develop TN load reduction/preclusion apportionment by the NMC, as described in Janicki Environmental (2003). This methodology utilized the proportions of baseline (1992-1994), future and existing loads attributable to each entity to derive the Cumulative Apportionment Factor (CAF). The CAF was equally weighted between the average of the baseline and future load proportions and the existing load proportion. The entity- and facility-specific CAF, a factor between 0 and 1 with the sum of the CAFs within a basin equaling 1, was then used to split the major basin load preclusions/reductions among the responsible entities within the major basin.

   Utilizing a similar strategy for developing allocations, loadings from the baseline period of 1992-1994 were used along with future loadings estimated for 2020 and current loadings for the period 2003-2007. For each responsible entity within a bay segment, the proportion of TN loadings for each period were used to derive the CAF, which was then used to multiply the TMDL for that segment to arrive at a total entity allocation for that segment.

2. During July-October 2008, the Consortium then evaluated a series of alternatives. The various alternatives included the allocations based on the following:

   - Proportion of current load only;
   - Proportion of future load only;
   - (Proportion of current load + proportion of future load)/2;
   - (2*[Proportion of current load] + proportion of future load)/3;
   - (Proportion of current load + 2*[proportion of future load])/3;
   - (Baseline + current loads)/2; and
   - (Baseline + 2*current loads)/3.

   As for the CAF, the entity-specific allocation factors developed from these methods summed to 1 within a bay segment, and were used to multiply the segment TMDL load to arrive at entity TN loading allocations.

3. The NMC decided that the allocation alternatives dependent upon baseline and future loads were not as useful for this process as those using only the current loads. This was because baseline loads were representative of past conditions which included facilities which have since been closed, and did not include all currently active facilities. Additionally, estimates for future loads were considered to be of varying degrees of confidence, and perhaps not reliable enough as a

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whole to utilize for this effort. The Consortium thus decided to continue evaluation of the allocation alternative which utilized the proportion of the current load only to derive entity and source allocations, as the current period was most representative of the current distribution of loads. The allocatable load for each segment was defined as the TMDL load less small point source allocations developed by FDEP for each segment. To derive the entity/source-specific allocation, the proportion of the current load from the entity/source was multiplied by the allocatable load to give the TN load allocation.

4. Beginning in November 2008, the Consortium then examined the use of the hydrologically adjusted current loads and proportions to set allocations. To derive the entity/source-specific hydrologically adjusted allocation, the ratio of the segment current TN load to the segment TMDL was multiplied by the hydrologically adjusted entity/source-specific current TN load.

5. The final allocation approach evaluated by the Consortium, and selected for use, does not utilize the hydrologically adjusted loads for allocation. Rather, the hydrologic normalization is utilized in the assessment phase of the process, described later in this document. The selected allocation method was presented at the Feb. 2009 NMC meeting. This method utilizes two different means of expressing allocations. Set Allocations are for those sources, primarily domestic point sources, which have less rainfall-related variability than other, more significantly rainfall-influenced loading sources. Percentage allocations are for those sources with more highly variable rainfall-related loadings, denoted as hydrologically affected, primarily mining/industrial sources and other nonpoint sources, including MS4s, agriculture, and atmospheric deposition.

   To derive the allocations for those sources with set allocations, the mean of the five annual TN loads from 2003-2007 is the allocation. The sum of the set allocations within a segment is then subtracted from the total segment load, resulting in the remaining segment load. For each of the hydrologically affected sources, the proportion of the mean annual 2003-2007 remaining load attributable to each entity/source becomes the allocation for that source.

   A more detailed description of the selected allocation process is found in Section VI.C.

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C. Final Allocation Approach

The final allocation approach briefly described in Section VI.B.5. is delineated in detail here. Allocations for a given entity/source within a segment are derived in a 4-step process, as follows:

Step 1): Estimate mean 2003-2007 bay segment TN load.
Step 2): Estimate mean 2003-2007 Set Allocations (see definition below)
Step 3): Calculate Remaining Load as the difference between the segment TN load and the Set Allocations. This provides the segment TN load remaining after the Set Allocations are removed.
Step 4): Estimate the percentage contribution for a given entity/source as the ratio of the entity/source 2003-2007 average annual TN load to the Remaining Load for the segment.

This process results in Set Allocations in tons/year, with all other allocations being percentages of the remaining segment load.

Step 1): Estimates of mean 2003-2007 segment loads utilized the same methodology previously employed by the TBEP in developing loads for 1985 through the present for the six source categories described in Section III (see also: Zarbock et al. 1996; Pribble et al. 2001; Poe et al. 2005; Janicki Environmental Inc. 2003, 2008). In addition, adjustments to the nonpoint source load estimates were made from ungaged areas of the watershed. These reductions were due to decreases in atmospheric deposition to the watershed, and due to implementation of Action Plan projects during the 2003-2007 period (see Appendices A.8 and B.1, respectively).

The reductions in nonpoint source loads due to reductions in atmospheric deposition contribution were estimated based on methodology described in a white paper compiled for this effort (see Appendix A.8). Briefly, the reduction in unit areal atmospheric TN load directly to the surface of the bay was extrapolated to the ungaged areas of the watershed, and estimates made of how this reduction in atmospheric deposition resulted in reduced nonpoint source loads.

A representative value for the atmospheric deposition contribution to nonpoint source TN loads was taken to be 35% of the total nonpoint source load (see Appendix A.8). Given the 32% reduction in unit areal atmospheric deposition of TN to the surface of the bay observed between the baseline (1992-1994) period and the 2003-2007 period, and applying this reduction to the atmospheric deposition onto the land surface, provides an 11% reduction in land use-specific TN concentrations. This reduction was applied to all land use-specific TN concentrations, and the nonpoint source load estimates recalculated for the

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ungaged areas of the watershed to arrive at the reduced ungaged area nonpoint source TN loads. The gaged area loads for the 2003-2007 period already incorporated any reductions in atmospheric deposition, as these loads were based on measured TN concentrations.

The resultant nonpoint source loads from the ungaged areas of the segment watersheds were reduced by the following:

- Old Tampa Bay: 20 tons,
- Hillsborough Bay: 44 tons,
- Middle Tampa Bay: 18 tons,
- Lower Tampa Bay: 4 tons, and
- Remainder of Lower Tampa Bay: 28 tons.

The reductions were apportioned among the MS4 entities responsible for nonpoint source loads from the ungaged areas in proportion to the total load estimated for each entity in each segment.

The reductions in nonpoint source loads from ungaged areas due to Action Plan projects implemented during 2003-2007 were compiled using the Action Plan Database (see Appendix B.1). Load reductions were assigned to responsible entities, including FDACS for those agricultural Action Plans resulting in load reductions. Reductions for a project were applied beginning in the year in which a project was finished, and for each year afterward. The nonpoint source loads from the ungaged areas were reduced by the following annual tonnage, averaged over 2003-2007, due to the Action Plan projects:

- Old Tampa Bay: 8.8 tons,
- Hillsborough Bay: 7.1 tons,
- Middle Tampa Bay: 8.5 tons,
- Lower Tampa Bay: 0.3 tons, and
- Remainder of Lower Tampa Bay: 0.9 tons.

Following these adjustments, estimated nonpoint source loads for each bay segment were disaggregated among the MS4 entities responsible for nonpoint source loads in proportion to the land use areas represented within their jurisdictional boundaries as provided by Consortium participants (see Appendix A.8).

Step 2): Set Allocations are allocations primarily for those domestic wastewater facilities which are already at AWT treatment standards and/or discharge for reuse (irrigation). All domestic point sources facilities discharging >0.1 MGD in the Tampa Bay watershed received Set Allocations. Also at the request of FDEP and where applicable, entity point source allocations containing both direct surface water and reuse discharge loads were not combined in the final allocation to an entity. Set Allocations were derived as the average annual

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load for the 2003-2007 period for direct surface water discharge loads and estimated loads associated with reuse discharges. Additional Set Allocations were also assigned to material loss facilities, and to several other industrial facilities as well, as described in Section VII. Additionally, the Small Point Sources received aggregate Set Allocations as developed by FDEP staff within each of the TMDL bay segments (see Appendix A.4).

Step 3): Calculate Remaining Load as the difference between the actual bay segment TN load and the Set Allocations. This provides the segment TN load remaining after the Set allocations are removed.

Remaining Segment Load = Total Segment Load – Segment Set Allocations

Step 4): Estimate the percentage contribution for a given entity/source as the ratio of the entity/source 2003-2007 average annual TN load to the Remaining Load for the segment.

Percentage Contribution = 100 Entity Load / Remaining Segment Load*

Percentage Contributions were also developed for the remaining ~~LA~~ sources. These are sources other than permitted point sources and MS4 nonpoint sources which also contribute to the nitrogen loads to Tampa Bay. These sources include:

- Atmospheric Deposition,
- Groundwater and Springs,
- Non-MS4/Non-Agricultural Lands,
- Conservation Lands, and
- Agricultural Lands.

Assignment of loadings from Non-MS4/Non-Agricultural Lands, Conservation Lands, and Agricultural Lands are described in Section VI.A. Loadings from Atmospheric Deposition are defined as those loads from wetfall (rain) and dryfall directly to the bay segment water surface, for which estimates are derived from measured atmospheric concentration data. Loadings from groundwater are defined as those loads from groundwater directly to the shoreline of the bay segment, and are estimated using estimated groundwater inflows derived from potentiometric surfaces and average nutrient concentrations. Loadings from springs are estimated using spring flow records and measured nutrient concentrations. The Allocations for these sources were defined as the percentage of the Remaining Segment Load for the 2003-2007 period.

In the future, if chlorophyll-*a* thresholds are exceeded in the Bay, it is not expected that reductions would be required from Conservation Lands. Reductions, if needed, will be addressed by the Consortium. However, actions to reduce loads may take place on Conservation Lands within watersheds where reductions may be needed.

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SECTION VII: APPLICATION OF CONSORTIUM APPROVED ALLOCATION PROCESS

This section contains explanations of those suggested allocations that are not based directly on the 2003-2007 average annual loads as described in Section VI, followed by the suggested allocation tables.

A. Exceptions to Using 2003-2007 Average Annual Load for Setting Allocations

Domestic Facilities: Most of the domestic facilities Set Allocations were based on the 5 year annual average TN loading. Exceptions are as follows:

- Old Tampa Bay

  City of Oldsmar – The 5-year average annual load for the City of Oldsmar WWTP is 3.1 tons/year. The City requested a total allocation of 3.2 tons/year to be consistent with their 2009 FDEP permit.

- Hillsborough Bay

  City of Lakeland – The 5-year average annual load for the City of Lakeland domestic facility is 9.7 tons/year. However, for 2005-2007, the City was retaining water in its treatment wetlands to satisfy permitted conductivity limits, and the discharge from the wetlands was not representative of the City's normal discharge. For the 2003-2004 period, the City's discharge averaged 14.1 tons/year. In addition to this modification to the standard method of deriving the Set Allocation, consideration was also given to the very low TN concentration in the City's discharge. For the 2003-2004 period, the flow-weighted TN concentration in the discharge was less than 1 mg/L, much lower than that for any other domestic facility in the Tampa Bay watershed. The next lowest average TN concentration for the 2003-2007 period was greater than 1.5 mg/L. The City of Lakeland also treats a portion of wastewater originating from Polk County facilities. The average annual TN load for 2003-2007 associated with this wastewater transfer following treatment by the City of Lakeland is 0.2 tons/yr. In recognition of these facts, and because of the City's ongoing discussions with FDEP regarding acceptance of additional wastewater from nearby package plants, the Set Allocation for the City of Lakeland

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wastewater facility was increased from 14.1 tons/year to 20 tons TN/year.

Polk County Southwest Regional Plant – Polk County SW Regional Wastewater Plant operates a reuse system which has an allocation of 1.1 tons/year. Additionally, the County delivers reclaimed water to the City of Lakeland for additional treatment and surface water discharge. If this arrangement terminates with the City in the future, then the allocation associated with this wastewater will be determined using the best available information at that time.

City of Mulberry – The 5-year average annual load for the City of Mulberry domestic facility is 1.4 tons/year. At the City's request, the Set Allocation was increased to 2.4 tons/year to account for additional wastewater that the City has committed to accepting from Eagles Ridge, LLC. and Alafia Preserve, LLC.

Pasco County – The original 5-year average annual load for two Pasco County facilities totaled 3.9 tons/year. However, the Pasco County Master Reuse System is comprised of interconnections of five facilities which ultimately contribute nitrogen loads to the Hillsborough Bay watershed. Data for 2006-2008, which was the only period for which data were available, indicate that annual Set Allocations to the Pasco County Reuse system should be 5.8 tons/year.

Industrial Facilities: Facilities with Material Losses and some other industrial facilities were provided with Set Allocations, for various reasons. The Set Allocations for the Material Losses for each facility were derived by a group of handling facility representatives working together to develop a uniform loss rate per shipped ton of fertilizer product. This loss rate was set to 0.0023 lbs N/ton of product shipped, and will be used in the future for estimating Material Losses loadings. The rationale for each Set Allocation for industrial facilities is provided in the following:

- Hillsborough Bay

  Material Losses:

CF Industries –	3.4 tons/year,
CSX Transportation –	5.6 tons/year,
Eastern Terminals –	5.6 tons/year,
Kinder Morgan Port Sutton –	1.8 tons/year,
Kinder Morgan Tampaplex –	3.4 tons/year, and
Mosaic Riverview –	3.4 tons/year.

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Other Industrial Facilities:

CF Industries – The proposed allocation provided to CF Industries' Plant City facility for the 2003-2007 period, equaling 0.1% of the remaining source allocation of the Hillsborough Bay remaining load, represents a net allocation to this facility. The net allocation for this facility shall take into account CF Industries' acceptance and elimination of nitrogen load contained in reclaimed water provided from the City of Plant City for use in production at the CF Plant City facility. The load associated with this reclaimed water represents approximately 7.6 tons, or 0.5%, of the remaining source allocation of the Hillsborough Bay remaining load if it were discharged into the watershed.

Eastern Terminals – No DMR data were available for providing a reasonable estimate of 2003-2007 loadings for allocations from this facility. Load estimates for this facility for the 2003-2007 period were originally based on historic estimates of material losses from the 1999-2003 period. With the renegotiated material loss estimates of the facilities indicated above, the remaining load was assigned as an interim allocation until 2012.

CSX Winston Yard – This facility had been under Consent Order, so that no DMR data were available for providing a reasonable estimate of 2003-2007 loadings. The Draft NPDES permit has an annual limit of 3.0 tons/year, so this was used as the Set Allocation for NPDES discharge for this facility. FDEP staff agreed with this as an allocation.

CSX Rockport – CSX personnel noted the need for an allocation based on the potential for discharge, and requested 5.0 tons/year as a Set Allocation. FDEP staff agreed, in principle, with this as an interim Set Allocation, but noted that final approval is conditional upon review of the data used by CSX to derive this load.

Kinder Morgan Hartford Terminal, Ammonia Facility, and Port Sutton – These three facilities combined had an average annual load of 179.2 tons during the 2003-2007 period. An upgraded stormwater system, as developed in response to a Consent Order, is being developed for these facilities, leading to an interim Set Allocation of 75.0 tons/year until 2012 to allow for development and testing of the stormwater system.

Kerry I&F Contracting – The original 5-year average annual load was estimated to be less than 0.1 tons/year, but no monitoring data were available. Average groundwater nitrogen concentrations were

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used to estimate loads for this facility because groundwater is used in their process. An interim Set Allocation of 1.8 tons/year, consistent with loadings developed during the 1992-1994 period, has been proposed for the facility until 2012.

Lowry Park Zoo – Originally the Zoo was considered a small source. Expected changes to its surface water discharge are anticipated in the future. An allocation of 1.0 tons/year was determined for this facility by FDEP and was partitioned from the original small source allocation for Hillsborough Bay.

Tampa Bay Water – The original 5-year average annual loads were 0.3 tons/year during testing of the system. Facility representatives requested a Set Allocation of 1.5 tons/year to allow for potential discharges associated with treatment of increasing surface water use of the region.

- Middle Tampa Bay

  TECO Big Bend – The average annual load for 2004-2007, when the new surface water discharge occurred, was 35.0 tons. As the final loadings from this discharge once the system is completed are unknown, the Set Allocation is for 35.0 tons, with an additional 21.5 tons as an interim allocation until 2012. The interim Set Allocation will be in place until monitoring of the SCR units is complete and actual discharge levels are determined.

- Lower Tampa Bay

  Kinder Morgan Port Manatee Material Losses – The Set Allocation for this facility is the 5-year mean annual load of 0.3 tons/year.

  Piney Point Facility – The 5-year mean annual load was 18.9 tons/year. FDEP staff provided that the expected 2008-2012 annual load should be the same as that for 2007, so the Set Allocation is 0.9 tons/year.

- RA Remainder of Lower Tampa Bay

  Tropicana – The 5-year mean annual load was 0.2 tons/year, with loads only during 2003. Facility representatives requested sufficient allocation to allow surface water discharge as an alternative discharge, and agreed to an interim Set Allocation of 9.125 tons/year through the 2008-2012 reasonable assurance period.

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B. Suggested Allocation Tables

The suggested Allocation Tables are provided below for each bay segment. Allocations are provided as tons nitrogen/year for those point source facilities with Set Allocations, and as the percentage of the remaining load for all other entities. For the 2008-2012 RA period, no reductions are required for MS4s (i.e. % reductions = 0). For allocations defined as a percentage, the base tonnage represented as 1992-1994 hydrologic conditions are listed in Tables IX-1 through IX-5. Tables IX-1 through IX-5 are only provided to define the transferable allocations to an entity. In addition, Appendix C lists a demonstration of entity allocation attainment for each bay segment (see also Section VIII.E). Note that offsets were needed for several facilities in order to attain the allocations listed in Tables VII-1 through VII-5 (see Table VIII-8).

With the exception of interim allocations, the suggested allocations listed in Tables VII-1 through VII-5 are proposed as being fixed. Any major changes to these suggested allocations in the future would be to address the following conditions:

- Chlorophyll-*a* conditions deteriorate in the bay as a result of changes in nitrogen loads;
- Federally-recognized TMDL is revised to account for the assimilative capacity of the bay;
- FDEP-approved transfers occur among permitted entities on a case-by-case basis, as indicated in resulting permit modifications; or,
- Allocations within FDEP permits are revised for good cause in accordance with Rule 62-620.325, F.A.C., on a case-by-case basis, as indicated in resulting permit modifications and will ultimately adhere – cumulatively in combination with all other bay segment specific allocations – with the federally-recognized TMDL for the bay segments or other WBIDs that have established TMDLs.

Other transfers will be addressed in future RA updates.

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Table VII-1: Proposed nitrogen load allocation table for Old Tampa Bay. SW=Surface water discharge allocation, RE=Reuse discharge allocation.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Cheval West	MS4		0.2%
City of Clearwater	MS4		2.7%
	Point Source - Clearwater East SW	9.3	
	Point Source - Clearwater East RE	0.1	
	Point Source - Clearwater Northeast SW	16.6	
	Point Source - Clearwater Northeast RE	1.1	
Heritage Harbor	NPS		0.2%
Hillsborough County	MS4		23.3%
	Point Source - Dale Mabry SW	7.4	
	Point Source - Dale Mabry RE	2.8	
	Point Source - Northwest Regional SW	2.9	
	Point Source - Northwest Regional RE	5.5	
	Point Source - River Oaks SW	13.4	
	Point Source - River Oaks RE	1.6	
	Point Source - Van Dyke RE	0.8	
City of Largo	MS4		1.4%
	Point Source – Largo SW	16.4	
	Point Source – Largo RE	2.6	
MacDill Air Force Base	MS4		0.1%
City of Oldsmar	MS4		1.4%
	Point Source – Oldsmar SW	2.7	
	Point Source – Oldsmar RE	0.5	
On Top of the World	Point Source - On Top of the World RE	0.5	
Palm Bay	NPS		<0.1%
Park Place	NPS		0.1%
Pasco County	MS4		0.4%
Pinellas County	MS4		14.7%
	Point Source - W.E. Dunn RE	2.3	
	Point Source - Bridgeway Acres SW	1.2	
City of Pinellas Park	MS4		1.0%

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Table VII-1 (continued): Old Tampa Bay proposed allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
City of Safety Harbor	MS4		1.3%
City of St. Petersburg	MS4		0.9%
	Point Source - St. Pete Facilities RE	4.7	
Stonebriar	NPS		0.1%
City of Tarpon Springs	MS4		0.4%
City of Tampa	MS4		5.3%
Westchase	NPS		0.4%
Westchase East	NPS		0.4%
Non-MS4/Non-Ag NPS			2.6%
Atmospheric Deposition			33.6%
Other (Groundwater, Springs, Conservation)			3.6%
FDACS (Agriculture)			6.1%
Small Sources		1.0	
Total		**93.3**	**100%**

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Table VII-2: Proposed nitrogen load allocation table for Hillsborough Bay. SW=Surface water discharge allocation, RE=Reuse discharge allocation.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Hillsborough County	MS4		22.6%
	Point Source – Falkenburg SW	15.2	
	Point Source – Falkenburg RE	2.8	
	Point Source - South County SW	1.8	
	Point Source – Valrico SW	5.6	
	Point Source – Valrico RE	5.0	
City of Lakeland	MS4		1.1%
	Point Source – Lakeland SW	20.0	
	Point Source – Lakeland RE	0.2	
City of Mulberry	MS4		0.2%
	Point Source – Mulberry SW	2.4	
Pasco County	MS4		3.7%
	Point Source - Master Reuse System RE	5.8	
City of Plant City	MS4		0.9%
	Point Source - Plant City SW	9.5	
	Point Source - Plant City RE	1.0	
Polk County	MS4		6.5%
	Point Source - NW Regional RE	0.6	
	Point Source - SW Regional RE	1.1	
City of Tampa	MS4		4.8%
	Point Source - HF Curren SW	212.2	
	Point Source - HF Curren RE	1.0	
City of Zephyrhills	MS4		0.2%
	Point Source – Zephyrhills RE	3.0	
CF Industries	Point Source - Material Losses	3.4	
	Point Source – Bartow SW		1.5%
	Point Source - Plant City SW*		0.1%*
	Point Source - Tampa Ammonia SW		<0.1%
	Point Source - Tampa Phosphate SW		0.1%
CSX*	Point Source - Rockport Material Losses	5.6	
	Point Source - Winston Yard SW	3.0	
	Point Source – Rockport SW*	5.0*	

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Table VII-2 (continued): Hillsborough Bay proposed allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Mosaic	Point Source - Material Losses Riverview	3.4	
	Point Source – Bartow SW		0.1%
	Point Source - Ft. Lonesome SW		0.3%
	Point Source - Green Bay SW		0.6%
	Point Source – Hookers Prairie SW		0.5%
	Point Source – Hopewell SW		0.3%
	Point Source – Kingsford SW		6.2%
	Point Source – Mulberry SW		0.5%
	Point Source – New Wales Stack Closure SW		<0.1%
	Point Source – Nichols Mine SW		0.3%
	Point Source – Riverview SW		0.8%
	Point Source – Riverview Stack Closure SW		0.5%
	Point Source – South Pierce SW		0.2%
Eastern Terminals*	Point Source - Material Losses	5.6	
	Point Source - Eastern Terminals SW*		0.7%*
Kinder Morgan*	Point Source - Material Losses - Port Sutton	1.8	
	Point Source - Material Losses – Tampaplex	3.4	
	Point Source - Hartford Terminal SW*	75*	
	Point Source - Ammonia Facility SW*		
	Point Source - Port Sutton SW*		
Agrifos	Point Source – Nichols Prep Plant SW		<0.1%
Brewster Phosphogypsum	Point Source SW		0.1%
Alpha/Owens Corning	Point Source SW		0.1%
Coronet Industries	Point Source SW		0.5%
Estech Agricola	Point Source SW		0.3%
Exxon Mobil	Point Source SW		0.2%
Kerry I&F Contracting*	Point Source SW*	1.8*	
Tampa Bay Water	Point Source SW	1.5	
Pebble Creek Utilities	Point Source SW	0.3	
	Point Source RE	0.1	

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Table VII-2 (continued): Hillsborough Bay proposed allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
TECO Bayside	Point Source SW		0.1%
Trademark Nitrogen	Point Source SW		<0.1%
Yara North America	Point Source SW		<0.1%
Alafia Preserve	NPS		0.1%
Bloomingdale	NPS		<0.1%
Donaldson Knoll	NPS		<0.1%
Eagle Ridge	NPS		0.1%
Lake St. Charles	NPS		<0.1%
Live Oak I	NPS		<0.1%
Live Oak II	NPS		<0.1%
Magnolia Park	NPS		<0.1%
MacDill Air Force Base	MS4		0.1
Palm River	NPS		<0.1%
Panther Trace	NPS		<0.1%
Panther Trace II	NPS		<0.1%
Rivercrest	NPS		<0.1%
City of San Antonio	NPS		<0.1%
Spring Lake	NPS		<0.1%
City of St. Leo	NPS		<0.1%
Stone Crest	NPS		<0.1%
Stone Dairy Creek	NPS		<0.1%
Stonelake Ranch	NPS		<0.1%
City of Temple Terrace	MS4		0.2%
Non-MS4/Non-Ag NPS			0.5%
Atmospheric Deposition			6.0%
Other (Groundwater, Springs, Conservation)			13.5%
FDACS (Agriculture)			25.8%
Small Sources		10.5	
Lowry Park Zoo	Point Source SW	1.0	
Total		**408.7**	**100%**

See Section VII.A.

Table VII-3: Proposed nitrogen load allocation table for Middle Tampa Bay. SW=Surface water discharge allocations, RE=Reuse discharge allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Harbor Bay	NPS		<0.1%
Hillsborough County	MS4		9.9%
	Point Source - South County RE	0.5	
MacDill Air Force Base	MS4		1.0%
	Point Source – WWTP RE	0.7	
Manatee County	MS4		3.0%
Pinellas County	MS4		0.5%
City of Pinellas Park	MS4		0.7%
City of St. Petersburg	MS4		6.5%
	Point Source – St. Pete Facilities RE	20.8	
Mosaic	Point Source - Four Corners SW		4.1%
TECO Big Bend*	Point Source – SW*	56.5*	
	Point Source - RE	2.1	
Non-MS4/Non-Ag NPS			0.5%
Atmospheric Deposition			35.2%
Other (Groundwater, Springs, Conservation)			5.1%
FDACS (Agriculture)			33.4%
Small Sources		2.4	
Total		**83.0**	**100%**

Includes a Set Allocation of 35.0 tons/year and an Interim Allocation through 2012 of an additional 21.5 tons/year to allow determination of new discharge loads.

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Table VII-4: Proposed nitrogen load allocation table for Lower Tampa Bay. SW=Surface water discharge allocations, RE=Reuse discharge allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Hillsborough County	MS4		<0.1%
Lexington	NPS		<0.1%
Manatee County	MS4		7.8%
	Point Source - Manatee County North RE	3.9	
City of St. Petersburg	MS4		<0.1%
Kinder Morgan Port Manatee	Point Source - Material Losses	0.3	
Piney Point Facility*	Point Source SW*	0.9*	
Non-MS4/Non-Ag NPS			0.5%
Atmospheric Deposition			81.8%
Other (Groundwater, Springs, Conservation)			1.2%
FDACS (Agriculture)			8.6%
Small Sources		0.3	
Total		**5.4**	**100%**

Interim Set Allocation based on expected load under the closure during the RA's implementation through 2012.

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Table VII-5: Proposed nitrogen load allocation table for the Remainder of Lower Tampa Bay. SW=Surface water discharge allocations, RE=Reuse discharge allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
City of Bradenton	MS4		1.8%
	Point Source - Bradenton SW	18.6	
	Point Source - Bradenton RE	0.6	
City of Gulfport	MS4		0.4%
Greyhawk Landing	NPS		0.1%
Harbourage at Braden River	NPS		<0.1%
Heritage Harbour	NPS		0.1%
Heritage Harbour Marketplace	NPS		<0.1%
Lakewood Ranch	MS4		1.5%
Lexington	NPS		<0.1%
Manatee County	MS4		21.3%
	Point Source - Southeast RE	2.7	
Pinellas County	MS4		0.2%
City of Palmetto	MS4		0.8%
	Point Source - Palmetto SW	2.2	
	Point Source - Palmetto RE	1.0	
Sarasota County	MS4		1.4%
City of St. Petersburg Beach	MS4		0.2%
City of St. Petersburg	MS4		1.3%
	Point Source – St. Pete Facilities RE	1.6	
Tara	NPS		0.2%
University Place	NPS		0.1%
Waterlefe	NPS		0.1%
Tropicana*	Point Source SW*	9.1*	

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Table VII-5 (continued): Remainder of Lower Tampa Bay proposed allocations.

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Non-MS4/Non-Ag NPS			<0.1%
Atmospheric Deposition			13.0%
Other (Groundwater, Springs, Conservation)			10.9%
FDACS (Agriculture)			46.0%
Total		**35.8**	**100%**

**** Tropicana has agreed to this allocation as an interim allocation only applicable through the end of the current 2008 – 2012 reasonable assurance assessment period and reserves the right to seek a larger allocation for total nitrogen as additional information as to efficacy of existing federal TMDLs and the assimilative capacity of the Manatee River and lower Tampa Bay becomes available.***

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SECTION VIII: PROCESS TO ASSESS FUTURE REASONABLE ASSURANCE

A. Rationale for Proposed Consortium Reasonable Assurance Assessment

Continuing water quality improvements in the major bay segments of Tampa Bay, as depicted in annual average chlorophyll-*a* assessments, has resulted in a net increase in baywide seagrass resources (Figure VIII-1). The annual assessment strategy developed by Janicki and Wade (2000), known as the "Decision Matrix," has been used by the Tampa Bay Estuary Program to track these improvements and provides an easy to understand reporting tool for bay managers to decide whether additional management action is necessary to address any water quality perturbations that could impact the bay's seagrass recovery. In this vein, the "Decision Matrix" management tool has bridged the necessary divide in terms of synoptically assessing the expected ecological response of the bay (increase/decrease in seagrass acreage) with observed water quality conditions (annual average chlorophyll-*a* concentrations) that are dependent upon total nitrogen loads to the bay.

With the establishment of the Nitrogen Management Consortium in 1998 and the formal adoption of the Consortium's Nitrogen Management Strategy as Tampa Bay Reasonable Assurance by FDEP in 2002, TBEP partners have proactively performed these annual assessments. Results have been impressive – since 1998 there have only been 3 annual exceedences of the FDEP approved chlorophyll-*a* thresholds (Figure VIII-1; 2003 & 2004 in Old Tampa Bay; 2005 in Lower Tampa Bay). These exceedences evoked immediate response by bay managers as described in the original 2007 RA submittal.

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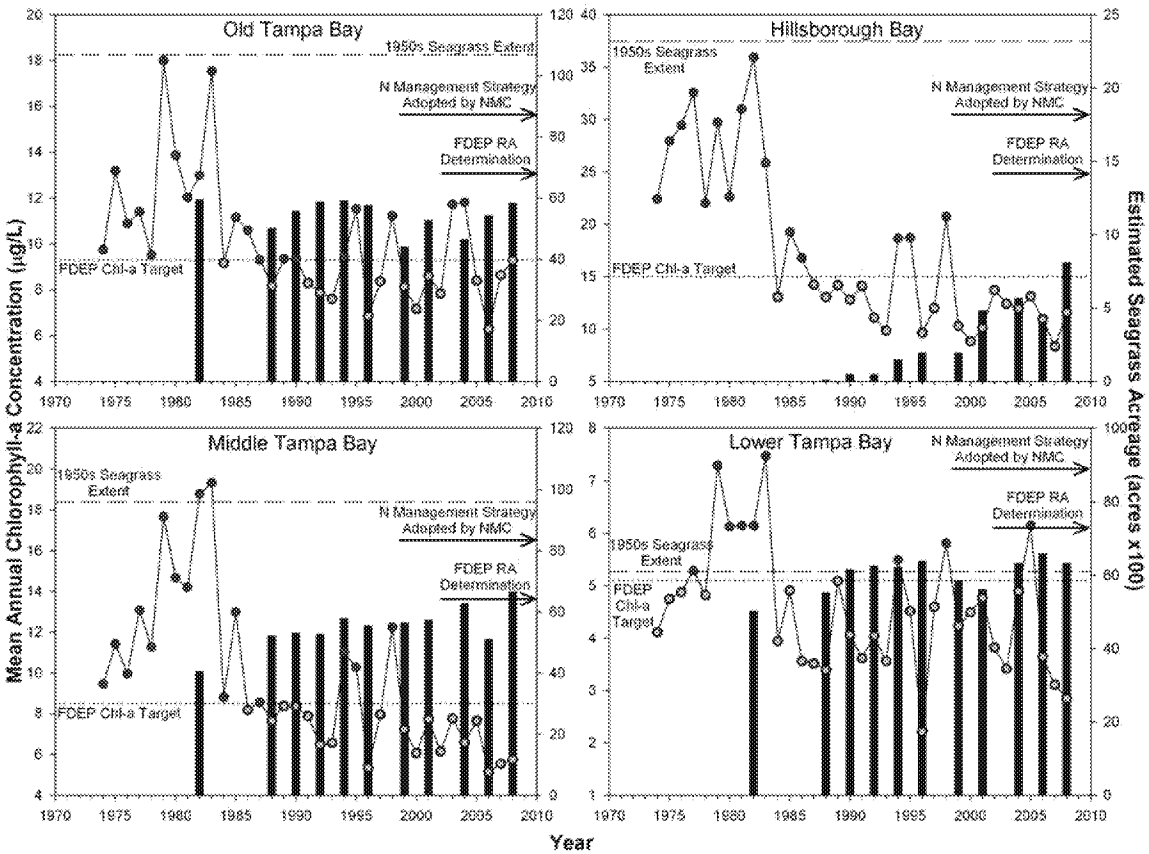

Figure VIII-1: Annual average chlorophyll-*a* concentrations (points) and estimated total seagrass acreage (bars) in the major bay segments of Tampa Bay. Red points indicate exceedences of the FDEP-approved chlorophyll-*a* thresholds, while green points indicate that thresholds were met. Reference lines are included for each bay segment's FDEP-approved chlorophyll-*a* threshold and estimated seagrass acreage in the 1950s. Arrows indicate the initiation of bay management policies. Note that the scale for the y-axes change for each bay segment.

B. Proposed Consortium Reasonable Assurance Assessment Framework

The Consortium has proposed that similar annual assessments be performed based upon the rationale of the existing "Decision Matrix" approach. As an element of the 2007 Update to Tampa Bay Reasonable Assurance, Consortium participants have developed a framework for assessing annual nitrogen allocation reasonable assurance within the context of the established "Decision Matrix" management tool already accepted by bay managers. The annual reasonable assurance assessment is comprised of steps to be completed by the Consortium on an annual basis or during re-submittal of Reasonable Assurance to FDEP in 2012. The Consortium's assessment responsibilities are shown in green in Figure VIII-2. It should be noted that the Consortium's reasonable assurance assessment strategy begins with the observation of water quality conditions in the bay for a particular year. As is recommended in numerous EPA

guidance documents for the development of numeric nutrient criteria, the Consortium's assessment strategy attempts to apply a dose-response rationale for the determination of nitrogen load allocation reasonable assurance in Tampa Bay.

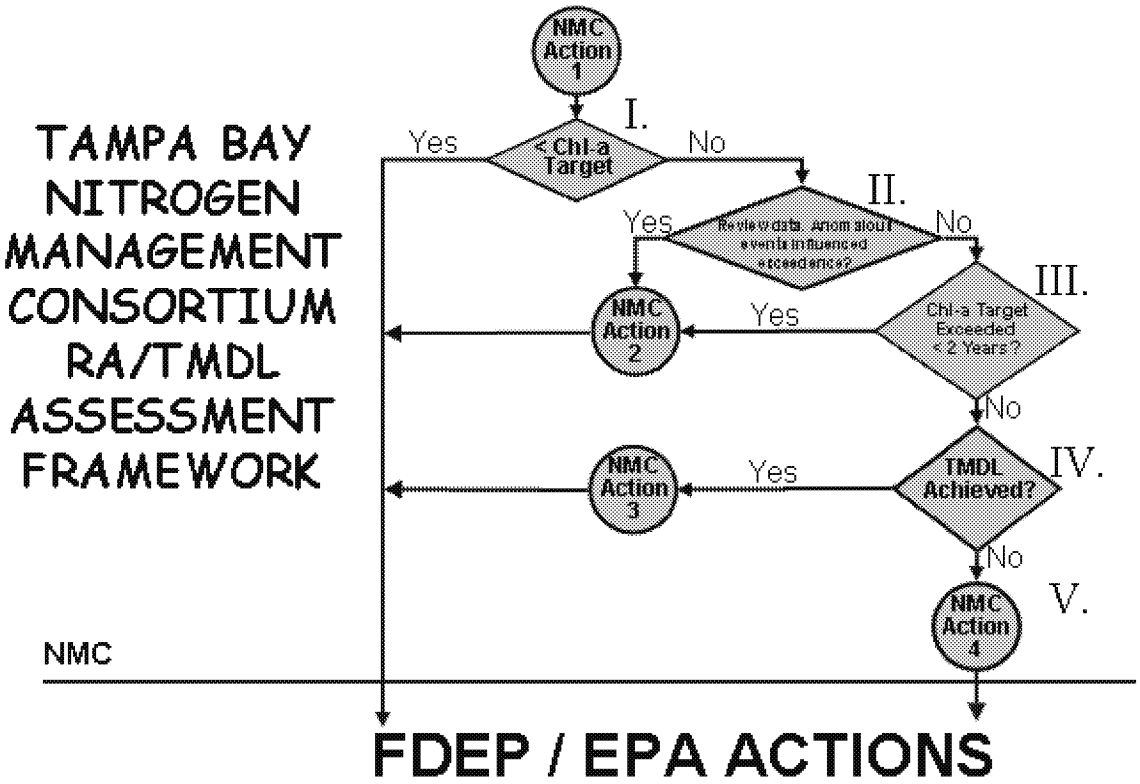

Figure VIII-2: Nitrogen Management Consortium decision framework to assess future reasonable assurance of adopted allocations. Actions and steps to be conducted by the NMC are shown in green. Steps, decision points, and actions are outlined in Table VIII-1 according to the Roman numerals listed on the figure.

The framework is applied on a bay-segment basis, and is predicated on assessing annual attainment of the bay segment chlorophyll-*a* concentration threshold as the initial step. If the bay segment-specific chlorophyll-*a* threshold is met, the Consortium annually reports the results to FDEP and EPA and additional assessment steps are not required by the Consortium (by June of the following year). If annual average chlorophyll-*a* thresholds are not met in one or more bay segments, additional assessment steps are required by the Consortium as noted in the framework and assessment process (Figure VIII-2; Table VIII-1).

Regardless of the assessment results, the Consortium will annually report (by June of the following year) whether the bay segment specific chlorophyll-*a* thresholds are met using the Environmental Protection Commission of Hillsborough County (EPCHC) dataset, as traditionally assessed using the "Decision Matrix" management strategy developed by the TBEP (Janicki and Wade 2000) and will deliver this to FDEP and EPA (Figure VIII-2; NMC Action 1 in the Framework). If an annual, individual exceedence of a bay segment

chlorophyll-*a* threshold is observed, an addendum report outlining the anomalous event(s) or data which influenced the bay segment chlorophyll-*a* exceedence will be delivered to FDEP and EPA upon review by NMC participants by September of the following year (Figure VIII-2; NMC Action 2 in the Framework). An evaluation of the bay segment assimilative capacity (i.e. revision to the federally-recognized TMDL) is formally considered (if not already considered by the NMC) when bay segment chlorophyll-*a* thresholds are not met in 2 concurrent years, and hydrologically normalized loads for those years meet the federally-recognized TMDL (Figure VIII-2; NMC Action 3 in the Framework; see Appendix A.11). Alternatively, when bay segment chlorophyll-*a* thresholds are not met in 2 concurrent years and hydrologically normalized loads for those years also do not meet the federally-recognized TMDL, the Consortium will deliver a full loading report to FDEP and EPA comparing the observed, combined entity/source annual or multiple year loadings to the sources' 2008-2012 annual average allocations by September of the following year (see Tables VII-1 thru VII-5). This report will identify any exceedences among combined entity/source load categories after taking into consideration "set allocation" sources and hydrologically-normalized sources, and if necessary, whether exceedences were observed for individual MS4 or unpermitted (LA) sources (Figure VIII-2; NMC Action 4 in the Framework). It is noted that FDEP will independently assess individual entities for compliance with their allocations.

The Consortium recommends that EPA and FDEP regulatory actions in response to bay segment and/or entity-specific allocation exceedences should first consider whether bay segment chlorophyll-*a* is above the FDEP-approved threshold, and as a result, whether seagrass resources within the bay segment have been or are likely to be impacted. Accordingly, Consortium participants encourage regulators to consider the bay's response as factors in FDEP and EPA compliance assessments during the 2008-2012 implementation period.

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Table VIII-1: Assessment steps linked to the Nitrogen Management Consortium's decision framework, as depicted in Figure VIII-2.

Assessment Step	Result	Action
I. Determine annual bay segment specific chlorophyll-a FDEP threshold attainment as traditionally assessed using the Decision Matrix management strategy developed by the TBEP (TBEP Technical Publication 04-00).	**Yes**	**NMC Action 1**
	No	**NMC Action 1**
II. Review data and determine if an anomalous event(s) influenced non-attainment of the bay segment specific chlorophyll-a threshold.	**Yes**	**NMC Action 2**
	No	**Go to III.**
III. Determine if the chlorophyll-a thresholds have been exceeded for <2 consecutive years.	**Yes**	**NMC Action 2**
	No	**Go to IV.**
IV. Determine if the bay segment specific federally-recognized TMDL has been achieved using the hydrologically-adjusted compliance assessment outlined in NMC Decision Memo #11 (Appendix 2-11).	**Yes**	**NMC Action 3**
	No	**Go to V.**
V. For a given year or for multiple years, compile and report entity-specific combined source loads in comparison to 5-yr annual average reasonable assurance allocation.	**Compile & Report**	**NMC Action 4**

NMC actions outlined in Figure VIII-2 and Table VIII-1 performed during RA Implementation (2008-2012) are as follows:

NMC Action 1. A report assessing attainment of bay segment specific chlorophyll-*a* thresholds using the EPCHC dataset, as traditionally assessed using the Decision Matrix management strategy developed by the TBEP (TBEP Technical Publication 04-00) will be delivered to FDEP and EPA.

NMC Action 2. A report of the anomalous event(s) or data which influenced the bay segment chlorophyll-*a* exceedence will be delivered to FDEP and EPA, upon review by NMC participants.

NMC Action 3. Consider re-evaluation of the bay segment assimilative capacity based on nonattainment of bay segment chlorophyll-*a* threshold while meeting federally-recognized TMDL.

NMC Action 4. If federally-recognized TMDL not achieved, compile results of hydrologic evaluation for FDEP's review and identify potential further actions needed to achieve reasonable assurance for bay segment allocations.

Upon submittal of future updates of Tampa Bay Reasonable Assurance to FDEP, Consortium members will identify any necessary actions needed to address chlorophyll-*a* threshold exceedences observed during the current RA period.

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C. Demonstration of the NMC Reasonable Assurance Assessment for the 2003-2007 Period

The 5-year annual average allocations proposed in the final allocation tables (see Tables VII-1 thru VII-5) will remain fixed unless specific revisions are recommended by the Consortium and then approved by FDEP and EPA. The Consortium has developed allocations as 5-yr annual average set allocations in tons/year or as a percentage of the baseline remaining bay segment load. Based on the process to develop allocations for individual facilities/sources (see Chapter VI), a 5-year reporting period will be the primary basis to assess Reasonable Assurance if FDEP-approved chlorophyll-*a* thresholds are met each year of the Implementation Period (2008-2012) (see Appendix A.21). Therefore, for the adopted facility/source-specific allocations detailed in this report (see Tables VII-1 thru VII-5), reasonable assurance will be assessed in 2013 unless annual average bay segment chlorophyll-*a* concentrations exceed threshold levels for 2 consecutive years. This assessment is demonstrated in Tables VIII-2 through VIII-6 for the 2003-2007 time period, as this is the most recent 5-year period for which nitrogen loads to the bay are available.

As previously described, chlorophyll-*a* exceedences occurred in Old Tampa Bay in 2003 and 2004, which would trigger additional NMC assessment steps if this were the implementation period. However, the additional assessment steps indicated that the federally-recognized TMDL for Old Tampa Bay was not exceeded by any of the hydrologically-normalized loads in the 5 years of the assessment period. Therefore, scrutiny of individual entity or source reasonable assurance allocation exceedences in any one year or over the demonstration 5-year period (see Appendix C) would not necessarily be warranted. The Lower Tampa Bay segment showed the only other occurrence of a chlorophyll-*a* threshold exceedence, but it occurred in only one year of the 5 year assessment period. As was the case for the Old Tampa Bay segment, Lower Tampa Bay's hydrologically-normalized annual loadings did not exceed the federally-recognized TMDL in any of the 5 years of the demonstration assessment period (Table VIII-5), nor did the Remainder of Lower Tampa Bay segment's watershed loadings exceed the RA target loads (Table VIII-6). So, scrutiny of individual entity or source allocation exceedences in any one year or over the demonstration 5-year period would not necessarily be warranted, as well (see Appendix C). All other bay segments met chlorophyll-*a* threshold levels during the demonstration 5-year assessment period, indicating that additional assessment steps would not necessarily be justified during the demonstration implementation period.

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Table VIII-2: Demonstration of reasonable assurance assessment steps for Old Tampa Bay. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2).

Bay Segment Reasonable Assurance Assessment Steps	EXAMPLE OF DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE					OUTCOME
	Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	
NMC Action 1: Determine if observed chlorophyll-*a* exceeds FDEP threshold of 9.3 µg/L	11.7 µg/L (Yes)	11.8 µg/L (Yes)	8.4 µg/L (No)	6.3 µg/L (No)	9.27 µg/L (No)	Chlorophyll-*a* threshold exceedences occurred during first 2 years of assessment period necessitating further NMC actions
NMC Action 2: Determine if any observed chlorophyll-*a* exceedences occurred for 2 consecutive years	No	Yes	No	No	No	Year 2 triggers additional NMC Action 3
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds federally-recognized TMDL of 486 tons/year	482 tons/yr (No)	422 tons/yr (No)	388 tons/yr (No)	383 tons/yr (No)	362 tons/yr (No)	All 5 years below TMDL after accounting for hydrology, NMC reports anomalous events or data affecting water quality in bay segment, not necessary to perform NMC Actions 4-5
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						Not necessary when TMDL met

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Table VIII-3: Demonstration of reasonable assurance assessment steps for Hillsborough Bay. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2).

Bay Segment Reasonable Assurance Assessment Steps	**EXAMPLE OF DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE**					**OUTCOME**
	Year 1 (2003)	**Year 2 (2004)**	**Year 3 (2005)**	**Year 4 (2006)**	**Year 5 (2007)**	
NMC Action 1: Determine if observed chlorophyll-*a* exceeds FDEP threshold of 15.0 µg/L	12.4 µg/L (No)	11.9 µg/L (No)	13.1 µg/L (No)	10.9 µg/L (No)	8.3 µg/L (No)	All 5 years below threshold, not necessary for NMC Actions 2-5
NMC Action 2: Determine if any observed chlorophyll-*a* exceedences occurred for 2 consecutive years	No	No	No	No	No	All years met threshold, not necessary for NMC Actions 3-5
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds federally-recognized TMDL of 1451 tons/year	1402 tons/yr (No)	1547 tons/yr (Yes)	1179 (No)	1732 tons/yr (Yes)	1190 (No)	2 years exceeded TMDL after accounting for hydrology, however, chlorophyll-*a* threshold was met in all 5 years
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						Not necessary when chlorophyll-*a* threshold met

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Table VIII-4: Demonstration of reasonable assurance assessment steps for Middle Tampa Bay. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2).

Bay Segment Reasonable Assurance Assessment Steps	**EXAMPLE OF DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE**					**Comment**
	Year 1 (2003)	**Year 2 (2004)**	**Year 3 (2005)**	**Year 4 (2006)**	**Year 5 (2007)**	
NMC Action 1: Determine if observed chlorophyll-*a* exceeds FDEP threshold of 8.5 μg/L	7.8 μg/L (No)	6.6 μg/L (No)	7.7 μg/L (No)	5.1 μg/L (No)	5.5 μg/L (No)	All 5 years below threshold, not necessary for NMC Actions 2-5
NMC Action 2: Determine if any observed chlorophyll-*a* exceedences occurred for 2 consecutive years	No	No	No	No	No	All years met threshold, not necessary for NMC Actions 3-5
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds federally-recognized TMDL of 799 tons/year	764 tons/yr (No)	654 tons/yr (No)	584 tons/yr (No)	600 tons/yr (No)	592 tons/yr (No)	All 5 years below TMDL after accounting for hydrology, not necessary for NMC Actions 4-5
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						Not necessary when chlorophyll-*a* threshold and TMDL target met

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Table VIII-5: Demonstration of reasonable assurance assessment steps for Lower Tampa Bay. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2).

Bay Segment Reasonable Assurance Assessment Steps	**EXAMPLE OF DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE**					**OUTCOME**
	Year 1 (2003)	**Year 2 (2004)**	**Year 3 (2005)**	**Year 4 (2006)**	**Year 5 (2007)**	
NMC Action 1: Determine if observed chlorophyll-*a* exceeds FDEP threshold of 5.1 μg/L	3.4 μg/L (No)	4.9 μg/L (No)	6.1 μg/L (Yes)	3.6 μg/L (No)	3.1 μg/L (No)	1-year exceeded threshold, but was not persistent, so NMC reports anomalous events for that year (e.g., red tides, Fall 2004 hurricane loadings)
NMC Action 2: Determine if any observed chlorophyll-*a* exceedences occurred for 2 consecutive years	No	No	No	No	No	Chlorophyll-*a* exceedence did not occur in 2 straight years, not necessary for NMC Actions 3-5
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds federally-recognized TMDL of 349 tons/year	324 tons/yr (No)	234 tons/yr (No)	223 tons/yr (No)	213 tons/yr (No)	224 tons/yr (No)	All 5 years below TMDL after accounting for hydrology, not necessary for NMC Actions 4-5
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						Not necessary when chlorophyll-*a* threshold met in subsequent year and TMDL targets were met in all 5-years

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Table VIII-6: Demonstration of reasonable assurance assessment steps for the Remainder of the Lower Tampa Bay watershed. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2).

Bay Segment Reasonable Assurance Assessment Steps	**EXAMPLE OF DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE**					**OUTCOME**
	Year 1 (2003)	**Year 2 (2004)**	**Year 3 (2005)**	**Year 4 (2006)**	**Year 5 (2007)**	
NMC Action 1: Determine if observed chlorophyll-a exceeds FDEP threshold of 5.1 µg/L for Lower Tampa Bay proper	3.4 µg/L (No)	4.9 µg/L (No)	6.1 µg/L (Yes)	3.6 µg/L (No)	3.1 µg/L (No)	1-year exceeded threshold, but was not persistent, so NMC reports any anomalous events (e.g., red tides, Fall 2004 hurricane loadings)
NMC Action 2: Determine if any observed chlorophyll-*a* exceedences occurred for 2 consecutive years	No	No	No	No	No	Chlorophyll-*a* exceedence did not occur in 2 straight years, not necessary for NMC Actions 3-5
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds RA target load of 629 tons/year	600 tons/yr (No)	527 tons/yr (No)	525 tons/yr (No)	540 tons/yr (No)	475 tons/yr (No)	All 5 years below RA target after accounting for hydrology, not necessary for NMC Actions 4-5
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						Not necessary when chlorophyll-*a* threshold met in subsequent year and TMDL targets were met in all 5-years

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D. Demonstration of Future NMC Reasonable Assurance Assessments

An example application of the NMC reasonable assurance framework (Figure VIII-2) for an imaginary bay segment is provided in Table VIII-7. The chlorophyll-*a* threshold and TMDL target load for this example are 10.0 µg/L and 1000 tons/yr, respectively. At the end of the second year of monitoring, an exceedence of the chlorophyll-*a* threshold was detected. The following describes the potential actions to be taken by the NMC in response to this example exceedence.

Year 1
NMC Actions 1-2:
The annual chlorophyll-*a* threshold is exceeded in Year 1 of the 5-year assessment period, leading to a report of the event developed by TBEP. No further NMC actions occur based on the Year 1 data.

Year 2
NMC Actions 1-2:
The chlorophyll-*a* threshold is exceeded in Year 2. Given that the threshold was exceeded in both Year 1 and Year 2, go to NMC Action 3.

NMC Action 3:
Because the chlorophyll-*a* threshold was exceeded in two consecutive years and could not be explained by external factors (e.g., illicit spills, tropical storm occurrence, etc.), the NMC then develops annual nitrogen loads and determines if the hydrologically-normalized segment load exceeds the TMDL load. The TMDL load is exceeded during Year 2 of the period.

NMC Actions 4-5:
The annual loads are quantified at the entity/source/facility scale, and compared to the 5-year allocations. Reasonable assurance allocation exceedences are noted and reported to FDEP and EPA at the source, entity, and individual facility scale. As seen in Table VIII-7, Entity A loads in Year 2 from both the point source and nonpoint source are greater than its allocations, while Entities B and C are in compliance for both source categories.

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Table VIII-7: Example of reasonable assurance assessment steps for an imaginary bay segment. Green and yellow squares indicate outcomes of decision points outlined in the Consortium's reasonable assurance assessment framework (Figure VIII-2 and Table VIII-1). Purple cells represent entity/source/facility exceedences of allocations for a single year, as determined using loads calculated as part of NMC Action 4.

Bay Segment Reasonable Assurance Assessment Steps	EXAMPLE DATA USED TO ASSESS INTERIM REASONABLE ASSURANCE					Comment
	Year 1	Year 2	Year 3	Year 4	Year 5	
NMC Action 1: Determine if observed chlorophyll-*a* exceeds example FDEP threshold of 10.0 µg/L	12.0 µg/L (Yes)	14.0 µg/L (Yes)				Chlorophyll-a exceedences occurred during first 2 years of assessment period necessitating further NMC actions
NMC Action 2: Determine if any observed chlorophyll-a exceedences occurred for 2 consecutive years	No	Yes				Year 2 triggers additional NMC Action 3
NMC Action 3: Determine if observed hydrologically-normalized total load exceeds example federally-recognized TMDL of 1000 tons/year	900 tons/yr (No)	1100 tons/yr (Yes)				Year 2 exceeds the TMDL after accounting for hydrology, NMC performs NMC Actions 4-5
NMC Actions 4-5: Determine if any entity/source/facility specific exceedences of 5-yr average allocation occurred during implementation period						At end of 5-year period, facility/source-specific exceedences listed in this column ↓

ENTITY	SOURCE	Allocation	EXAMPLE DATA USED TO ASSESS INTERIM REASONABLE ASSURANCE					
			Year 1	Year 2	Year 3	Year 4	Year 5	5-Yr Average
Entity A	Set Allocation – Domestic Point Source A	300 tons	290 tons	380 tons				
	MS4 % Contribution (normalized tons)	30.0%	29.0%	38.0%				
Entity B	Set Allocation – Domestic Point Source B	200 tons	180 tons	190 tons				
	MS4 % Contribution (normalized tons)	50.0%	48.0%	49.0%				
Entity C	Set Allocation – Domestic Point Source C	50 tons	45 tons	48 tons				
	MS4 % Contribution (normalized tons)	20.0%	23.0%	13.0%				

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E. Anticipated Management Actions to Achieve Allocation Reasonable Assurance

Any necessary management actions beyond those to maintain loads commensurate with an entity's current reasonable assurance allocation will be the responsibility of the individual entity to report to the Consortium's Action Plan Database. Because the collective total of existing allocations is equal to the federally-recognized TMDL in each of the four major bay segments (see Appendix A.5), maintaining the Consortium's Action Plan Database is important to document offsets during the 2008-2012 Implementation Period.

A demonstration 5-year reasonable assurance assessment period (2003-2007) indicated that potential management actions may be needed to meet individual facility or source reasonable assurance allocations during the 2008-2012 implementation period (see Appendix C). Appendix C lists a demonstration of entity allocation attainment for each bay segment. Based on this demonstration, only a few of the 5-year allocations were exceeded. These exceedences of individual facility/source allocations (greater than 0.1% for percent allocations) and the potential offsets needed in the future are listed in Table VIII-8 based upon the demonstration depicted in Appendix C. As has been traditionally employed by the Nitrogen Management Consortium, projects to reduce nitrogen loads in the bay have been collected by the TBEP in the Action Plan Database. A number of these projects have been identified at the bay segment scale to address the potential needed offsets listed in Table VIII-8 during the 2008-2012 implementation period (see Appendix B.2). Any combination of the projects or actions outlined in Table VIII-8 and Appendix B.2, or other future projects and actions may be substituted in the future to achieve equivalent anticipated offsets. However, as noted in Table VIII-8, potential offsets identified for individual facility/source allocations that would be needed during the 2008-2012 implementation period are based on the demonstration assessment period (2003-2007) and do not reflect the actual offsets that may be necessary in the future.

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Table VIII-8: Summary of individually-permitted facility/source allocations exceeded in the demonstration 2003-2007 reasonable assurance assessment period (see Appendix C). Only those entities with differences between their allocation and compliance percentages >0.1% are included. Potential offsets for each line item exceedence are listed; however, an entity's total allocation may compensate for an individual facility/source exceedence in the future. The anticipated Action Plan projects or entity-specific actions to achieve the potential offsets are summarized in the last column (see also Appendix B.2). If any one these projects or actions cannot be met, other projects or actions may be substituted to achieve equivalent load offsets.

Bay Segment	Entity	Anticipated Future Actions & Action Plan Projects to Achieve Potential Offsets	Individual Source/Facility	5-Yr Average Allocation Target	2003-2007 Demonstration Compliance Assessment Average	Potential Offsets Needed in 2008-2012
Hillsborough Bay[1]	CSX	CSX's total entity allocation not exceeded	Set Allocation - Rockport Material Losses	5.6 tons	7.1 tons	-1.5 tons
	Eastern Terminals*	Eastern Terminal's material loss allocation is not anticipated to be exceeded based on compliance with fertilizer facility throughput / material loss calculations developed from facility subcommittee	Set Allocation - Material Losses	5.6 tons	15.8 tons	-10.2 tons
			NPS % Contribution*	0.7%*	1.0%	-0.3%
	Kinder Morgan*	Interim allocation is commensurate with expected future needs as defined in their consent order with FDEP and EPCHC	Hartford Terminal, Ammonia Facility, & Port Sutton Interim Allocation	75 tons *	179.2 tons	-104.2 tons
	Mosaic	An aggregate N Load Permit has been requested by Mosaic to handle total loadings from all facilities (refer to Appendix A.19)	Kingsford % SW Contribution	6.2%	7.5%	-1.3%
			South Pierce SW % Contribution	0.2%	0.5%	-0.3%
Lower Tampa Bay	Piney Point Facility*	Piney Point Facility interim allocation is commensurate with expected future needs to close facility by FDEP	Set Interim Allocation*	0.9 tons*	18.9 tons	-18 tons

Interim Allocations to be evaluated during the RA's implementation through 2012.
[1]See additional future Action Plan Project List for Hillsborough Bay (Appendix B.2).

SECTION IX: 2008-2012 RA IMPLEMENTATION PLAN

The Tampa Bay Nitrogen Management Consortium is an informal, ad-hoc group consisting of representatives from local governments, agencies, private companies and corporations, and industries located within the Tampa Bay watershed. The Consortium participants are working together to implement the 2008-2012 Reasonable Assurance document, ensuring that state water quality standards related to nutrients will continue to be met in the bay.

The Tampa Bay Nitrogen Management Consortium is committed to continue to implement the 2007 Reasonable Assurance as updated herein throughout the 2008-2012 implementation period. The following roles and activities will guide the Consortium's actions during this RA period.

The Implementation Plan has four primary elements:

A. Defining the Basic Roles of the Consortium
B. Revisiting the 1998 Federally-Recognized TMDL
C. Monitoring and Reporting Chlorophyll-*a* in Tampa Bay and the Consortium's Actions to Meet Chlorophyll-*a* Thresholds
D. Consideration of Defining Nitrogen Credits and Development of a Transfer System
E. Pursuit of Legislation to Allow Trading

A. Defining the Basic Roles of Consortium

The basic roles of the Tampa Bay Nitrogen Management Consortium relative to the RA process are to compile, assess and report information related to RA implementation. The Consortium will not address individual permit compliance, which is a responsibility of FDEP and EPA.

Specific objectives identified by the Consortium are to:

1. Annually apply the decision framework and report results. Annual average (calendar year, January through December) bay-segment-wide chlorophyll-*a* will be compiled and reported to FDEP and EPA by March of each year, as defined in TBEP's Decision Matrix (Janicki et al. 2000; Sherwood 2009). The Tampa Bay Estuary Program staff will apply the Decision Matrix and framework, and report the results to the Consortium.

2. Update nitrogen management projects. Consortium participants will update their Action Plans, including new projects and changes to existing projects, and provide updates to the Action Plan Database as appropriate. Updates will be submitted by Consortium participants by

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December 2012 or as changes occur, for inclusion in the 2013-2017 Reasonable Assurance submittal.

3. Provide information to Consortium participants to assist in participants' activities (including N transfers) related to RA implementation. Such information could include projects in the Action Plan Database, potential N credits accrued, and contact information.

4. Maintain and manage the Action Plan Database. The Tampa Bay Estuary Program staff will maintain and manage the Action Plan Database through this RA period.

5. Evaluate mechanisms to maintain chlorophyll-*a* thresholds in the bay in the future.

To accomplish these roles, the Consortium has determined that the existing structure of the Consortium appears to be adequate, and that no separate legal entity is needed at this time. The current structure of the Consortium is an informal ad-hoc working group, with staff support provided by the Tampa Bay Estuary Program.

B. Revisiting the Federally-Recognized TMDL

The 1998 federally-recognized TMDL was submitted to EPA by FDEP, based on 1992-1994 TN loading estimates developed by the Tampa Bay Estuary Program (at that time known as the Tampa Bay National Estuary Program). The 1992-1994 TN loading estimates were observed to occur when bay-segment annual average chlorophyll-*a* concentrations were adequate for sufficient light levels to support restoration of seagrasses to depths observed in 1950. In 1996, the TBNEP adopted a long-term seagrass restoration goal (38,000 acres baywide) and associated chlorophyll-*a* targets and nitrogen load target of "holding-the-line" at loads observed in 1992-1994 as management goals and targets for Tampa Bay. The "hold-the-line" strategy for nitrogen management in Tampa Bay appears to have been effective for maintaining ambient chlorophyll-*a* concentrations at or below target levels in most years. Seagrass acreage has increased by almost 4,000 acres since 1992, despite a regional setback in 1998 associated with heavy El Niño rains (Section I).

The nitrogen load targets adopted by the TBNEP partners in 1996 were developed as management tools to support seagrass recovery, not as an assimilative capacity for nitrogen loading for Tampa Bay. A TMDL assumes that maximum loading limit of a particular parameter (TN) does not exceed the assimilative capacity of the receiving water body (in this case, a bay segment of Tampa Bay) associated with meeting water quality standards. Methods and models used by TBNEP in the mid-1990s for management purposes did not address assimilative capacity. Observations since 1992 (Section IV) show that

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TN loads can be much higher than the federally-recognized TMDL limit while chlorophyll-*a* concentrations are at or below FDEP-approved threshold levels, indicating that the current TMDLs may not accurately define assimilative capacity.

The Consortium intends to evaluate the feasibility of developing assimilative capacities for nitrogen loading for the four major bay segments, and develop assimilative capacities, if appropriate, as follows:

1. Obtain assurance from FDEP and EPA that technically-defensible assimilative capacity estimates developed by the Consortium will be considered as replacements for the existing federally-recognized TMDLs. EPA has formally acknowledged that the existing federally-recognized TMDLs could be revised with proper submittal and approval through FDEP (see Appendix A.23).

2. Perform preliminary analyses (including an approximate cost-benefit assessment) to determine whether developing assimilative capacities for the four major bay segments and the remainder of the Lower Tampa Bay RA watershed is warranted. The preliminary analyses should identify the most appropriate parameter(s) (e.g. water clarity metrics, dissolved oxygen, seagrass acreage, chlorophyll-*a*, etc.) on which to base the assimilative capacity assessments.

3. If development of assimilative capacities is determined by the Consortium to be appropriate, develop assimilative capacities prior to 2013-2017 RA update. Consider a phased approach (it may be more cost-effective to develop assimilative capacities for the entire bay at one time). Consider incorporating inter-bay segment transfers and watershed attenuation. Revise Tampa Bay TN loading targets and the Remainder of the Lower Tampa Bay segment watershed based on the assimilative capacities.

4. Re-allocate to all sources using the revised TN loading targets. This may include consideration of different allocation approaches, including that used for the 2008-2012 allocation, a proportional approach (taking into account reductions over this RA period), or other allocation approaches.

5. Formally request that EPA replace the existing federally-recognized TMDLs with the assimilative capacities and re-allocated source loads, and if at all possible, prior to the 2013-2017 RA update.

Initiation of a full assimilative capacity assessment and development would need to occur no later than early 2011 to allow finalization by the summer 2013 for the 2013-2017 RA submittal.

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C. Monitoring and Reporting Chlorophyll-a in Tampa Bay and the Consortium's Actions to Meet Chlorophyll-a Thresholds

Monitoring environmental indicators and tracking and reporting actions conducted by the Consortium participants to meet chlorophyll-*a* thresholds and nitrogen loading targets are critical elements needed to support RA assessments. RA assessment requires consistent TN load estimates from all sources, including point sources. In addition, estimating load reduction from projects and actions conducted by the Consortium participants requires adequate documentation.

The Consortium participants have committed to the following monitoring and reporting actions to support RA implementation and assessment:

1. Maintain existing monitoring programs for open waters of Tampa Bay, as outlined in the approved 2007 RA Update, during the 2008-2012 RA implementation period.

2. Consortium participants will update their Action Plans as appropriate, including new projects and changes to existing projects, and provide updates to the Action Plan Database. Consortium participants will provide nitrogen reduction estimates for existing or new projects, including validation documentation for reductions claimed for future projects. FDEP and EPA will provide guidance on potential credits achieved from proposed projects. Updates will be submitted by Consortium participants in 2012 or as changes occur, for inclusion in the 2013-2017 Reasonable Assurance submittal.

3. Consortium participants, in cooperation with the FDEP, will evaluate options to assist in the reporting and submittal of point source monthly information necessary for RA assessment, including flow and TN concentrations. Options may include, but not be limited to, creating a standardized short form to be completed and submitted to FDEP and the Consortium by each point source; submitting DMRs electronically to the Consortium (existing DMR reporting requirements for flow and TN concentration will need to be standardized for this option to be functional), or; other options identified by the Consortium. Ensuring adequate quality assurance and quality control of submitted reports will be addressed (e.g., possible training for those submitting reports or posted direction and examples of completed forms). Finalized point source reporting methods will be developed and implemented by summer 2010. Consortium participants will be requested to provide monthly point source information using the adopted reporting method for 2008-2012, to allow RA assessment by summer 2013.

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4. Consortium participants will evaluate and consider cost-sharing by public and private Consortium participants to support ambient monitoring necessary for RA assessment prior to the 2013-2017 RA submittal. Issues for consideration include the following:
   a. May be dependent upon additional reporting requirements of FDEP/EPA (e.g., additional MS4 outfall monitoring). What will be required for MS4 reporting when % reduction needed is 0?
   b. If considered, cost-sharing should be focused only on parameters necessary to estimate loads (flow, rainfall, n concentrations) and the bay's response (chlorophyll-*a*)
   c. May require a monitoring entity other than local governments or be designated as a role of the NMC
   d. Public or private entities should consider cost-sharing as an option if they're receiving any benefit of existing monitoring programs through the RA process

D. Consideration of Defining Nitrogen Credits and Development of a Transfer System

The Consortium is currently meeting bay-segment TN loading targets (and the federally-recognized TMDLs) (Section II). However, in order to meet loading targets in the future if growth and changes occur in the watershed, new loads will need to be offset in one of two ways if the current TMDL is not revised as indicated herein. New nitrogen load reduction projects or actions can be conducted to offset expected new loads, or unused N credits accrued by another entity within a bay-segment watershed may be transferred if both parties agree.

Potential activities leading to increases or decreases in loads for an entity include:

- Expansion of domestic wastewater facilities (e.g. growth, septic tank removal)
- Wastewater facility/entity accepting small source contributions
- Expansion of reuse system
- Expansion of transportation networks
- Wastewater treatment improvements or changes in operation
- Stormwater treatment improvements (structural/non-structural projects including flood control)
- Implementation of new ordinances that impact nitrogen loads
- Emission changes (point and mobile sources)
- Changes in land use (e.g. growth; transitions from agriculture to developed area; redevelopment; canopy cover in watershed)
- Changes in monitoring technology/data related to load estimation
- Changes in Tampa Bay's ecosystem/hydrology to assimilate nitrogen
- Changes to flood control structure operations
- Annexation

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- Addition of new source
- Acquisition of new source
- Source elimination/reduction
- Purchase/sale of reclaimed water
- Changes to interim allocations
- Gypsum stack closures
- Water withdrawals
- Interbasin/intersegment transfers of water/wastewater

The Consortium has conceptually developed basic guidelines for N credit transfer as follows:

1. Because the collective total of existing allocations is equal to the federally-recognized TMDL in each of the four major bay segments, new or expanded existing permitted sources must document how expected additional TN loads generated will be offset, either through transfer from an existing source allocation or new TN load reduction project or action. Documentation of offset will be provided in the permit application and to the Consortium for inclusion in the Consortium's Action Plan Database.

2. Defining economic value of allocation and credits accrued from projects/allocations is not the responsibility of Consortium. Negotiations for transfers that may occur between consenting parties are not the responsibility of the Consortium or the FDEP. FDEP has indicated that implementation of agreed upon transfers may be addressed within permits.

3. Allocations in this document and credits (offsets) generated by an entity between 2008 and 2012 (the current RA implementation period) will remain with that entity indefinitely. Each entity will be responsible for documenting credits (as defined by a specific N load reduction project and its expected operational period) in the Action Plan Database during implementation. Credits from a single project will not accrue or accumulate over the expected operational period, but will be expressed as tons/yr of expected offset. As an example, an entity who constructs a stormwater system in 2010 that removes an additional 2 tons/yr would have available a 2 ton/yr TN credit to use or transfer in 2010 or future years. If the entity does not transfer any credits until some future date, then they would only be able to transfer or offset 2 tons/yr TN in the future – not the accumulated reduction through time. At a minimum, documentation of new or revised projects and the associated N load reduction credit is due to the Consortium for inclusion by December 2012, for inclusion in the 2013-2017 RA submittal package.

4. Transfers of allowable credits generated during RA implementation are allowed within a bay segment drainage area. Any inter-bay-segment

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transfers would require documentation that the transfer does not result in an exceedence of any bay segment nitrogen TMDL. Direct offsets may need to be documented for inter-bay-segment transfers.

5. Transferable allocations are defined as:
   a. for set allocations- equal to the RA allocations (tons/year)
   b. for percent allocations - calculated tons/year for TMDL hydrologic load and TN load conditions (as calculated for 1992-1994).

6. Allowable transferable allocations for 2008-2012 are shown in Tables IX-1 through IX-5.

7. Transfers are not allowed for interim allocations or those provided for alternative surface water discharges in the event existing discharge is not available (as defined in the RA documentation).

8. Transfers between-entities (like and non-like sources) may be allowed by FDEP post-RA submittal on a case-by-case basis. Each entity must meet its revised allocations. Between-entity transfers will be contingent upon final approval by the FDEP of allocations developed by the participating entities, once the RA is finalized and WQBELs are adopted. FDEP has indicated that post-RA transfers will require revision and re-adoption of the WQBELs for the parties involved with the transfer. However, the WQBELs for other entities discharging to the same bay segment would not be affected by this action and would not be re-adopted.

9. Once transfers are finalized, documentation from the transfer entities will be submitted to the Consortium's Action Plan Database.

10. FDEP has stated that for entities that requested an aggregate wasteload allocation (WLA) which would combine the WLAs for multiple NPDES permitted sources, the aggregate WLA will be adopted as an aggregate WQBEL. The FDEP notes that aggregation of WLAs will only be allowed for discharges within a bay segment. The aggregate WQBEL will then be implemented by revising one of the existing permits (typically the wastewater permit) to include effluent limits for the aggregate 5-year annual average load AND aggregate maximum annual loads (in some cases, the FDEP may issue an additional, "aggregate permit" that includes the aggregate permit limits, rather than revise one of the existing permits). For the case of an aggregate WLA that includes the load for an MS4, the load for the MS4 will be set at the load for the TMDL load conditions (1992-1994), which is the same process as recommended by the NMC for transfer purposes. It should be noted that this load will be presumed to be fixed for the life of the permit, and would not be hydrologically normalized. To be in compliance, the total of the measured loads from wastewater discharges, plus the fixed MS4 load, minus any

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agreed-upon reductions attributed to stormwater-related management activities, must be below the aggregate load limit.

11. The Consortium, in coordination with FDEP, will develop more detailed transfer guidelines by summer 2010. All parties acknowledge that legislation may be required to implement a comprehensive transfer program.

E. Pursuit of Legislation to Allow Trading

Consortium participants will consider the need for supporting legislation that addresses transfers/offsets (generation of credits) in Tampa Bay. If legislation is found to be needed, participants of the Consortium may wish to pursue legislative options. Development of legislative action will not involve TBEP staff; however, TBEP staff can assist the NMC, if appropriate, in developing trading alternatives.

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Table IX-1: Proposed allowable, transferable nitrogen allocations for 2008-2012 for Old Tampa Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Cheval West	MS4	0.2%	0.7
City of Clearwater	MS4	2.7%	10.6
	Point Source – Clearwater East SW		9.3
	Point Source – Clearwater East RE		0.1
	Point Source – Clearwater Northeast SW		16.6
	Point Source – Clearwater Northeast RE		1.1
Heritage Harbor	NPS	0.2%	0.6
Hillsborough County	MS4	23.3%	91.6
	Point Source – Dale Mabry SW		7.4
	Point Source – Dale Mabry RE		2.8
	Point Source – Northwest Regional SW		2.9
	Point Source – Northwest Regional RE		5.5
	Point Source – River Oaks SW		13.4
	Point Source – River Oaks RE		1.6
	Point Source – Van Dyke		0.8
City of Largo	MS4	1.4%	5.5
	Point Source – Largo SW		16.4
	Point Source – Largo RE		2.6
MacDill Air Force Base	MS4	0.1%	0.4
City of Oldsmar	MS4	1.4%	5.4
	Point Source – Oldsmar SW		2.7
	Point Source – Oldsmar RE		0.5
On Top of the World	Point Source – On Top of the World RE		0.5
Palm Bay	NPS	<0.1%	0.0
Park Place	NPS	0.1%	0.4
Pasco County	MS4	0.4%	1.7
Pinellas County	MS4	14.7%	57.6
	Point Source – W.E. Dunn RE		2.3
	Point Source – Bridgeway Acres SW		1.2
City of Pinellas Park	MS4	1.0%	4.0
City of Safety Harbor	MS4	1.3%	5.0
City of St. Petersburg	MS4	0.9%	3.5
	Point Source – St. Pete Facilities RE		4.7

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Table IX-1 (continued): Old Tampa Bay transferable allocations.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Stonebriar	NPS	0.1%	0.2
City of Tarpon Springs	MS4	0.4%	1.6
City of Tampa	MS4	5.3%	20.8
Westchase	NPS	0.4%	1.4
Westchase East	NPS	0.4%	1.7
Non-MS4/Non-Ag NPS		2.6%	10.1
Atmospheric Deposition		33.6%	131.8
Other (Groundwater, Springs, Conservation)		3.6%	14.0
FDACS (Agriculture)		6.1%	24.1
Small Sources			1.0
Total			**486**
Note: The resulting MS4 and point source TMDL loads based on percent allocations are not proposed as permit limits.			

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Table IX-2: Proposed allowable, transferable nitrogen allocations for 2008-2012 for Hillsborough Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Hillsborough County	MS4	22.6%	235.6
	Point Source – Falkenburg SW		15.2
	Point Source – Falkenburg RE		2.8
	Point Source – South County SW		1.8
	Point Source – Valrico SW		5.6
	Point Source – Valrico RE		5.0
City of Lakeland	MS4	1.1%	10.9
	Point Source – Lakeland SW		20.0
	Point Source – Lakeland RE		0.2
City of Mulberry	MS4	0.2%	2.1
	Point Source – Mulberry SW		2.4
Pasco County	MS4	3.7%	38.4
	Point Source – Master Reuse System RE		5.8
City of Plant City	MS4	0.9%	9.2
	Point Source – Plant City SW		9.5
	Point Source – Plant City RE		1.0
Polk County	MS4	6.5%	67.5
	Point Source – NW Regional RE		0.6
	Point Source – SW Regional RE		1.1
City of Tampa	MS4	4.8%	50.0
	Point Source – HF Curren SW		212.2
	Point Source – HF Curren RE		1.0
City of Zephyrhills	MS4	0.2%	1.6
	Point Source – Zephyhills RE		3.0
CF Industries	Point Source – Material Losses		3.4
	Point Source – Bartow SW	1.5%	15.1
	Point Source – Plant City SW*	0.1%*	0.9*
	Point Source – Tampa Ammonia SW	<0.1%	0.2
	Point Source – Tampa Phosphate SW	0.1%	0.6
CSX *	Point Source – Rockport Material Losses		5.6
	Point Source – Winston Yard SW		3.0
	Point Source – Rockport SW*		5.0*
Eastern Terminals*	Point Source – Material Losses		5.6
	Point Source – Eastern Terminals SW*	0.7%*	7.5*

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Table IX-2 (continued): Hillsborough Bay transferable allocations.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Kinder Morgan*	Point Source – Material Losses – Port Sutton		1.8
	Point Source – Material Losses – Tampaplex		3.4
	Point Source – Hartford Terminal SW*		75.0*
	Point Source – Ammonia Facility SW*		
	Point Source – Port Sutton SW*		
Mosaic	Point Source – Material Losses Riverview		3.4
	Point Source – Bartow SW	0.1%	1.1
	Point Source – Ft. Lonesome SW	0.3%	2.6
	Point Source – Green Bay SW	0.6%	6.6
	Point Source – Hookers Prairie SW	0.5%	5.5
	Point Source – Hopewell SW	0.3%	2.6
	Point Source – Kingsford SW	6.2%	64.3
	Point Source – Mulberry SW	0.5%	5.6
	Point Source – New Wales Stack Closure SW	<0.1%	0.0
	Point Source – Nichols Mine SW	0.3%	3.5
	Point Source – Riverview SW	0.8%	8.8
	Point Source – Riverview Stack Closure SW	0.5%	4.9
	Point Source – South Pierce SW	0.2%	1.9
Agrifos	Point Source – Nichols Prep Plant SW	<0.1%	0.0
Brewster Phosphogypsum	Point Source SW	0.1%	1.0
Alpha/Owens Corning	Point Source SW	0.1%	1.0
Coronet Industries	Point Source SW	0.5%	4.7
Estech Agricola	Point Source SW	0.3%	2.6
Exxon Mobil	Point Source SW	0.2%	1.7
Kerry I&F Contracting*	Point Source SW*		1.8*
Tampa Bay Water	Point Source SW		1.5
Pebble Creek Utilities	Point Source SW		0.3
	Point Source RE		0.1
TECO Bayside	Point Source SW	0.1%	0.8
Trademark Nitrogen	Point Source SW	<0.1%	0.0
Yara North America	Point Source SW	<0.1%	0.3
Alafia Preserve	NPS	0.1%	0.6

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Table IX-2 (continued): Hillsborough Bay transferable allocations.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Bloomingdale	NPS	<0.1%	0.0
Donaldson Knoll	NPS	<0.1%	0.1
Eagle Ridge	NPS	0.1%	0.7
Lake St. Charles	NPS	<0.1%	0.4
Live Oak I	NPS	<0.1%	0.2
Live Oak II	NPS	<0.1%	0.1
Magnolia Park	NPS	<0.1%	0.1
MacDill Air Force Base	MS4	0.1%	0.7
Palm River	NPS	<0.1%	0.0
Panther Trace	NPS	<0.1%	0.3
Panther Trace II	NPS	<0.1%	0.2
Rivercrest	NPS	<0.1%	0.3
City of San Antonio	NPS	<0.1%	0.3
Spring Lake	NPS	<0.1%	0.1
City of St. Leo	NPS	<0.1%	0.0
Stone Crest	NPS	<0.1%	0.0
Stone Dairy Creek	NPS	<0.1%	0.0
Stonelake Ranch	NPS	<0.1%	0.0
City of Temple Terrace	MS4	0.2%	2.1
Non-MS4/Non-Ag NPS		0.5%	5.2
Atmospheric Deposition		6.0%	63.0
Other (Groundwater, Springs, Conservation)		13.5%	140.2
FDACS (Agriculture)		25.8 %	268.8
Small Sources			10.5
Lowry Park Zoo	Point Source SW		1.0
Total			**1451**
Note: The resulting MS4 and point source TMDL loads based on percent allocations are not proposed as permit limits.			

Section VII.A.

Table IX-3: Proposed allowable, transferable nitrogen allocations for 2008-2012 for Middle Tampa Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Harbor Bay	NPS	<0.1%	0.2
Hillsborough County	MS4	9.9%	70.9
	Point Source - South County RE		0.5
MacDill Air Force Base	MS4	1.0%	7.0
	Point Source - WWTP RE		0.7
Manatee County	MS4	3.0%	21.8
Pinellas County	MS4	0.5%	3.2
City of Pinellas Park	MS4	0.7%	5.3
City of St. Petersburg	MS4	6.5%	46.5
	Point Source - St. Pete Facilities RE		20.8
Mosaic	Point Source - Four Corners SW	4.1%	29.3
TECO Big Bend*	Point Source – SW*		56.5*
	Point Source - RE		2.1
Non-MS4/Non-Ag NPS		0.5%	3.8
Atmospheric Deposition		35.2%	252.1
Other (Groundwater, Springs, Conservation)		5.1%	36.7
FDACS (Agriculture)		33.4%	239.2
Small Sources			2.4
Total			**799**
Note: The resulting MS4 and point source TMDL loads based on percent allocations are not proposed as permit limits.			

Includes a Set Allocation of 35.0 tons/year and an Interim Allocation through 2012 of an additional 21.5 tons/year to allow determination of new discharge loads.

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Table IX-4: Proposed allowable, transferable nitrogen allocations for 2008-2012 for Lower Tampa Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Hillsborough County	MS4	<0.1%	0.0
Lexington	NPS	<0.1%	0.1
Manatee County	MS4	7.8%	26.8
	Point Source - Manatee County North RE		3.9
City of St. Petersburg	MS4	<0.1%	0.0
Kinder Morgan Port Manatee Material Losses	Point Source		0.3
Piney Point Facility*	Point Source SW*		0.9*
Non-MS4/Non-Ag NPS		0.5%	1.7
Atmospheric Deposition		81.8%	281.0
Other (Groundwater, Springs, Conservation)		1.2%	4.2
FDACS (Agriculture)		8.6%	29.7
Small Sources			0.3
Total			**349**
Note: The resulting MS4 and point source TMDL loads based on percent allocations are not proposed as permit limits.			

Interim Allocation based on expected load under the closure during the RA's implementation through 2012.

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Table IX-5: Proposed allowable, transferable nitrogen allocations for 2008-2012 for the Remainder of Lower Tampa Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	RA Load (tons/year)
City of Bradenton	MS4	1.8%	10.8
	Point Source - Bradenton SW		18.6
	Point Source - Bradenton RE		0.6
City of Gulfport	MS4	0.4%	2.2
Greyhawk Landing	NPS	0.1%	0.8
Harbourage at Braden River	NPS	<0.1%	0.0
Heritage Harbour	NPS	0.1%	0.8
Heritage Harbour Marketplace	NPS	<0.1%	0.1
Lakewood Ranch	MS4	1.5%	8.7
Lexington	NPS	<0.1%	0.1
Manatee County	MS4	22.0%	129.5
	Point Source - Southeast RE		2.7
Pinellas County	MS4	0.2%	1.1
City of Palmetto	MS4	0.8%	4.6
	Point Source - Palmetto SW		2.2
	Point Source - Palmetto RE		1.0
Sarasota County	MS4	1.4%	8.2
City of St. Petersburg Beach	MS4	0.2%	1.2
City of St. Petersburg	MS4	1.3%	7.5
	Point Source - St. Pete Facilities RE		1.6
Tara	NPS	0.2%	1.1
University Place	NPS	0.1%	0.6
Waterlefe	NPS	0.1%	0.6
Mosaic	NPS	1.0%	6.0
Tropicana*	Point Source SW		9.1
Non-MS4/Non-Ag NPS		<0.1%	0.0
Atmospheric Deposition		13.0%	76.9
Other (Groundwater, Springs, Conservation)		10.9%	64.9
FDACS (Agriculture)		46.0%	271.1
Total			**629**
Note: The resulting MS4 and point source TMDL loads based on percent allocations are not proposed as permit limits.			

Tropicana has agreed to this allocation as an interim allocation only applicable through the end of the current 2008 – 2012 reasonable assurance assessment period and reserves the right to seek a larger allocation for total nitrogen as additional information as to efficacy of existing federal TMDLs and the assimilative capacity of the Manatee River and lower Tampa Bay becomes available.

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APPENDIX A: Listing of NMC Decision Memos/White Papers & Regulatory Responses

ED_002491_00001148-00096

A.1. TBEP 2007 Reasonable Assurance Update Submittal to FDEP (January 28, 2008)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 28, 2008

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

This is in response to your January 31, 2008 letter on behalf of the Tampa Bay Nitrogen Management Consortium (Consortium) in which you submitted the Tampa Bay 2007 Reasonable Assurance Update (2007 Update) and a Declaration of Cooperation of the Consortium (Declaration). Based on our review of the 2007 Update document and Declaration, the Department has concluded that the activities conducted under the Nitrogen Management Strategy for Tampa Bay constitute reasonable progress towards continued attainment of water quality standards of Tampa Bay related to nutrients. The Department has also concluded that the 2007 Update provides continued reasonable assurance (RA) that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed. Given these findings, the Department does not plan to include Tampa Bay on the verified list of impaired waters for the Tampa Bay Basin, which will be adopted by Secretarial Order in June.

As we have discussed with the Consortium, the Department's conclusion that there has been reasonable progress (and its approval of the 2007 Update) is based on the Consortium completing the activities included in the Declaration. Specifically, the approval is contingent on submittal of the Final Update to the Reasonable Assurance Document to FDEP by July 31, 2009, which will include:

1) Revised allocations by major bay segment to categories of nonpoint sources of nitrogen (categorical load allocations) and to specific wastewater facilities and Municipal Separate Storm Sewer Systems (facility-specific wastewater allocations), which cumulatively will not exceed the assimilative capacity for a bay segment, as defined in the federally-recognized TMDL for Tampa Bay.

2) A resolution signed by Consortium members accepting the revised load allocations established for Consortium members and acknowledging that the facility-specific wasteload allocations will be adopted by FDEP as Water Quality-Based Effluent Limitations.

We would also like to note that the Consortium previously acknowledged in the Declaration that the Department will establish interim loading limits for permits that come up for renewal before July 2009. These interim limits will be designed to maintain current nitrogen loading from each facility, and will take into account recent growth and variability in discharge due to rainfall and other factors.

I would like to close by expressing our appreciation for the outstanding job that the TBEP and the Nitrogen Management Consortium membership are doing to protect Tampa Bay. We want to continue our cooperative relationship with TBEP and the Consortium and encourage you to continue to coordinate with Department staff (both in Tallahassee and the Tampa District Office) throughout the reallocation process.

Sincerely,

Drew Bartlett, Deputy Director
Division of Environmental Assessment and Restoration

cc: Jerry Brooks
Deborah Getzoff

Estuary Program

January 31, 2008

Mr. Daryll Joyner
Acting Chief, Bureau of Standards and Special Projects
2600 Blair Stone Road
Mail Station 3560
Tallahassee, FL 32399-2400

SUBJECT: Submittal of Tampa Bay 2007 Reasonable Assurance Update

Dear ~~Mr. Joyner~~ Daryll:

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a Declaration of Cooperation and Tampa Bay 2007 Reasonable Assurance Update. The purposes of these document are 1) to provide an update on implementation of the Tampa Bay Nitrogen Management Strategy; 2) to provide adequate documentation to allow FDEP a finding of Reasonable Progress pursuant to Florida Administrative Code 62-303.600; and 3) to request an extension of the determination that the Strategy will continue to provide reasonable assurance that the Strategy will adequately address impairment of designated uses related to nutrients in Tampa Bay.

The 2007 RA Update will be followed with a 2009 Reasonable Assurance document by July 31, 2009, which will include Total Nitrogen loading allocations to categories of nitrogen sources by major bay segment, and facility-specific and MS-4 specific allocations within each major bay segment. Documented load reductions from permitted and non-permitted projects undertaken or planned will be incorporated into the allocation process.

The format of this 2007 Reasonable Assurance Update follows that provided in the draft "Guidance for Development of Documentation to Provide Reasonable Assurance that Proposed Pollution Control Mechanisms will Result in the Restoration of Designated Uses in Impaired Waters" provided by FDEP in February 2002. For each element, the July 2002 documentation is included, followed by the 2007 Update documentation.

To date, twenty-eight public and private entities have signed the Declaration of Cooperation, or are in the process of obtaining approval and signatures from their governing boards in early February 2008. The participation status of partners as of today's date is shown in the accompanying table. Once all signature pages are collected, copies will be forwarded to you.

T A M P A B A Y E S T U A R Y P R O G R A M
Mail Station I-1/NEP • 100 8th Avenue S.E. • St. Petersburg, FL 33701 • (727) 893-2765 • FAX (727) 893-2767 • SUNCOM 513-9497
POLICY BOARD: HILLSBOROUGH COUNTY, MANATEE COUNTY, PINELLAS COUNTY, CITY OF CLEARWATER, CITY OF ST. PETERSBURG, CITY OF TAMPA,
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, U.S. ENVIRONMENTAL PROTECTION AGENCY

We look forward to your review and approval of the Tampa Bay 2007 Reasonable Assurance Update, and to working with the public, private and regulatory Consortium partners in developing the 2009 Reasonable Assurance document.

Sincerely,

Holly Greening

Holly Greening
Tampa Bay Estuary Program

cc: Eric Livingston, FDEP
Jan Mandrup-Poulsen, FDEP
Tampa Bay Nitrogen Management Consortium

DECLARATION OF COOPERATION OF THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM

SUSTAINING THE RECOVERY OF THE TAMPA BAY ESTUARY

From the uppermost reaches of Old Tampa Bay and Hillsborough Bay to the mouth of the bay at Egmont Key, the Tampa Bay estuary is made up of a variety of habitats where fish and other wildlife find shelter and food. They range from lush underwater beds of seagrasses, to tidal marshes and mangrove swamps. Abundant and healthy habitats are critical to the health of the bay. Without them, Tampa Bay would lack the diversity of fish, birds and other wildlife that contribute to the natural wonder of the region and is essential to its economic vitality.

Environmental scientists who advise the Tampa Bay Estuary Program agree that submerged seagrass is among the most important habitats because it serves as shelter, nursery, and food source for a diverse variety of species and stabilizes the bay bottom. Restoration of seagrass habitat is the top priority goal of the Estuary Program. The key to restoring seagrass is improving and then maintaining adequate water clarity that allows light to penetrate into the shallow waters of the bay where seagrasses grow. And the key to maintaining water clarity is preventing excessive nitrogen – a nutrient necessary for plant growth – from entering the bay and stimulating the growth of microscopic algae that cloud the water and prevents light from reaching the seagrasses.

Water clarity in Tampa Bay declined markedly in the 1950s, 60s, and 70s as rapid population growth led to increased discharges of partially treated sewage with large amounts of nitrogen. Algae blooms and fish kills were common and almost 50% of seagrass in the bay died off as a result of insufficient light. Unregulated dredge and fill operations contributed to the problem by further clouding the water.

The year 1979 marked a turning point in the condition of the bay when the City of Tampa upgraded the Howard F. Curren Plant at Hookers Point to advanced wastewater treatment which increased nutrient removal and sharply reduced the amount of nitrogen being discharged into the bay. Across the bay, the City of St. Petersburg pioneered the country's first large-scale reclaimed wastewater program, reclaiming water for irrigation of lawns and golf courses rather than discharging it into the bay.

The quality of bay waters responded quickly to the sharp reduction in nitrogen loading. Concentrations of chlorophyll – an indicator of the amount of algae suspended in the water – dropped dramatically in all major segments of the bay between 1982 and 1984. In Hillsborough Bay alone, the average chlorophyll concentrations fell from 37 units of chlorophyll in 1982 to 13 units in 1984. Seagrasses responded more slowly to the improving water clarity, but expanded to 25,200 acres by 1990 from a low point of 21,600 acres in 1982.

The Tampa Bay National Estuary Program (NEP) was established in 1991 to help local governments, agencies, and other stakeholders in the Tampa Bay area develop a plan to sustain the recovery of Tampa Bay. The NEP partners adopted a Comprehensive Conservation and Management Plan in December 1996 that included measurable goals for restoring seagrasses and related targets for reducing nitrogen discharges to the bay. The parties unanimously adopted a "hold the line" target on nitrogen discharges that capped the load at a level that would ensure adequate water clarity and light to sustain seagrass recovery. Local government and agency partners in the NEP reinforced their commitment to achieving the goals through an Interlocal Agreement adopted in 1998.

In August 1996, the NEP's governmental partners joined with key industries in the Tampa Bay region to create a unique public/private partnership known as the Tampa Bay Nitrogen Management Consortium for the express purpose of developing a Consortium Action Plan to meet the "hold the line" target. The original Action Plan consisted of more than 100 projects which collectively reduced or precluded nitrogen discharges to the bay by an estimated 134 tons/year between 1995 and 1999. The Action Plan, entitled *Partnership for Progress*, was the core of a larger nitrogen management strategy that included: the baywide seagrass restoration/preservation goal; chlorophyll and nitrogen reduction targets for each major bay segment; apportionment of responsibility for meeting the nitrogen reduction targets; and a process to track whether the targets were being met.

In November 2002, the Florida Department of Environmental Protection (FDEP) concluded that the Tampa Bay Estuary Program's nitrogen management strategy provided reasonable assurance that the state water quality criteria for nutrients would be met. The U.S. Environmental Protection Agency (EPA) in the meantime continues to recognize a 1998 action by FDEP that proposed a total maximum load of nitrogen that could be discharged to the bay annually and still meet state standard water quality criteria. Both FDEP's reasonable assurance determination and the total maximum nitrogen loading recognized by EPA are based on statistical modeling and data analyses done by the Estuary Program and its partners.

The remarkable recovery of the Tampa Bay ecosystem after decades of decline is unprecedented among urban estuaries worldwide. The rebound in water quality and ecological health of the bay is even more remarkable in light of the strong population growth during the recovery period. FDEP, EPA, the Consortium and other partners in the Estuary Program want to continue the success of the collaborative nitrogen management strategy spearheaded by the Estuary Program and the Consortium. At the same time the regulated members of the Consortium recognize the duties of FDEP and EPA to administer the environmental regulations for which they are responsible and that FDEP and EPA may not issue discharge permits without limitations that ensure compliance with the total maximum nitrogen load recognized by EPA.

It is in the interest of all stakeholders to continue this successful approach to bay management and avoid a potential free-for-all of administrative challenges and lawsuits in which no one benefits and which risk derailing twenty-five years of progress toward the bay's recovery.

To help ensure continued recovery of vital seagrass habitat and the successful nitrogen management strategy that makes it possible, local governments, agencies, and industry members of the Nitrogen Management Consortium declare their intent to work together over the next 18 months to provide FDEP with an updated reasonable assurance document, ensuring that state water quality criteria for nutrients will continue to be met in the bay. The partners commit further to develop an equitable allocation of responsibility for achieving nitrogen reduction targets as well as the total maximum loading of nitrogen to each major bay segment. The amount of nitrogen discharge (i.e. load) allocated to each municipal and industrial facility will take into consideration expected growth in population and/or demand for manufactured products. The Consortium partners accept that the agreed-upon allocations of nitrogen load will be the basis for future permitting of nitrogen discharges from municipal and industrial facilities.

Additional background on the history and documentation of the Tampa Bay nitrogen management strategy may be found in Exhibit "A". The commitment of Consortium members to update the reasonable assurance document is provided in greater specificity below.

MEMBERS OF THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM SPECIFICALLY DECLARE THEIR INTENT TO COOPERATE AS FOLLOWS TO ENSURE CONTINUING RECOVERY OF THE TAMPA BAY ESTUARY:

Section 1: The Consortium hereby approves the 2007 Update to Reasonable Assurance Document attached as Exhibit "B" which documents reasonable progress toward bay segment-specific nutrient targets and seagrass restoration goals adopted by the Tampa Bay Estuary Program (formerly the NEP) and approved by FDEP; and

Section 2: Members of the Consortium pledge to participate in developing a 2009 Reasonable Assurance Document that includes revised allocations by major bay segment to categories of nonpoint sources of nitrogen (categorical load allocations -- LA) and to specific wastewater facilities and Municipal Separate Storm Sewer Systems (facility-specific wasteload allocations -- WLA) (Table 4 in Exhibit "B"). The cumulative total nitrogen load for all wasteload allocations (WLA) and load allocations (LA) will not exceed the assimilative capacity for a bay segment, as defined in the federally-recognized TMDL for Tampa Bay (Table 3 of Exhibit "B"). The revised allocations will be technically supported by an Assessment and Allocation Report; and

Section 3: The Consortium will submit the 2009 Reasonable Assurance Document to FDEP by July 31, 2009, which will include a request that FDEP approve continued implementation of the Tampa Bay nitrogen management strategy as reasonable assurance that potential impairment of designated uses related to nutrients in Tampa Bay are and will continue to be adequately addressed through 2012; and

Section 4: The Consortium will develop and implement a set of guiding principles in order to fairly and equitably establish wasteload allocations for affected entities, including new or expanded discharges due to growth; and it will include in the 2009 Reasonable Assurance Document a resolution signed by Consortium members accepting the revised load allocations established for Consortium members and acknowledging that the facility-specific wasteload allocations will be adopted by FDEP as Water Quality-Based Effluent Limitations; and

Section 5: The Consortium pledges to continue to identify and implement projects to achieve the cumulative nitrogen management targets for Tampa Bay; and

Section 6: FDEP will conduct an initial assessment of Reasonable Progress based on actual loads to each bay segment and will defer the evaluation of facility-specific loadings until July 2009 to allow TN load allocations to individual permitted sources and to categories of nonpoint sources to be developed and finalized for inclusion in the 2009 Reasonable Assurance Document addressing nutrient management in Tampa Bay major bay segments. Under this approach, FDEP would acknowledge that Reasonable Progress is being achieved as long as the Consortium's efforts to revise the allocations remain on schedule, pursuant to Florida Administrative Code 62-303.600; and

Section 7: The Consortium acknowledges that FDEP will use interim wasteload allocations to establish effluent limits for permits that come up for renewal before July 2009. The interim wasteload allocations will be based upon the most recent loading information available, taking into account recent growth and variability in discharge due to rainfall and other factors.

Section 8: To encourage voluntary efforts which further the attainment of the adopted nitrogen reduction/management goals, FDEP and the Southwest Florida Water Management District agree to exercise reasonable flexibility within the framework of their rules and regulations, including serious consideration of petitions for variances from applicants, in processing permit applications for projects implementing the Tampa Bay nitrogen management strategy. The U.S. EPA finds the Consortium's recommendations to develop preliminary and final reasonable assurance documents including nitrogen wasteload allocations for permitted facilities combined with FDEP's permitting strategy to be acceptable (Exhibit "C"); and

Section 9: Consistent with the Consortium's consensus approach, each member pledges to participate in funding the Assessment and Allocation Report to develop technically-sound, equitable allocations. The estimated total cost of $100,000 will be shared equally among Consortium members at a cost not to exceed $5,000 per member to be paid by January 31, 2008 or as soon thereafter as possible. To ensure the accuracy and completeness of the Assessment and Allocation Report and the Estuary Program's Action Plan Data Base, each member of the Consortium further pledges to provide the Estuary Program and the contractor responsible for preparing the Assessment and Allocation Report with information and data necessary to adequately describe the member's nitrogen reductions projects and to provide documentation supporting the estimated nitrogen reductions where additional documentation is necessary.

This Declaration shall take effect upon the last date of Execution.

EXHIBIT "A"

History: Tampa Bay NEP and Nitrogen Management Consortium

The Tampa Bay National Estuary Program (NEP) was established in 1991 to facilitate development of a clean-up and restoration plan for the 400 square-mile Tampa Bay estuary. The NEP is governed by a Policy Board (formerly the "Policy Committee") consisting of elected officials from the cities of Tampa, St. Petersburg, and Clearwater, the counties of Hillsborough, Pinellas, and Manatee, and appointees from the U.S. Environmental Protection Agency, the Florida Department of Environmental Protection, and the Southwest Florida Water Management District Governing Board. In December 1996, the NEP Policy Board of the Tampa Bay NEP unanimously adopted a Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay known as *Charting the Course*. The CCMP includes measurable goals for improving water quality and restoring fish and wildlife habitats vital to the health and productivity of the bay. The NEP involved local government and agency partners together with industry, environmental groups, and other stakeholders in developing the community-based plan for bay restoration

Restoration of vital seagrass habitat was then and is still the keystone goal of the CCMP. The key to seagrass recovery is improving water clarity to allow enough light to reach the shallow bottom of the bay to stimulate natural regrowth of seagrasses. And the key to maintaining water clarity is to reduce the amount of nitrogen entering the bay. Excessive loads of nitrogen cloud bay water by stimulating the growth of microscopic algae that in turn prevent light from reaching seagrasses rooted on the bay bottom. When adopted in 1996, the original CCMP included a goal of recovering 12,350 acres of seagrass that would be reached by capping nitrogen loading to the bay at the average 1992-1994 level. "Holding the line" on nitrogen loading required additional projects that reduced or precluded an average of 17 tons/year of nitrogen loading or 85 tons/year at the end of every 5-year period. This load reduction is needed to offset the estimated increase in nitrogen load resulting from the projected population growth in the bay area.

In August 1996, local governments and agencies comprising the Tampa Bay NEP Management Committee joined with key industries in the Tampa Bay region to create a unique public/private partnership known as the Tampa Bay Nitrogen Management Consortium. The purpose of the Consortium is to cooperatively develop a plan of action (the Consortium Action Plan) to meet the 85 ton/year nitrogen reduction target for 1995-1999.

In March 1998, the local governments and non-federal agencies represented on the TBNEP Policy Board entered into an Interlocal Agreement adopting the goals and priorities of the CCMP and defining the responsibilities of the parties including the development of action plans to achieve the CCMP goals. The US Army Corps of Engineers executed a joinder to the Interlocal Agreement and the US EPA executed a separate Memorandum of Understanding setting forth their commitments to the implementation of the CCMP. Article 4.4 of the Interlocal Agreement includes a commitment from Consortium members who are also Parties to the Interlocal Agreement (the Policy Board members) to incorporate appropriate elements of the Consortium

Action Plan into their own Action Plans.

Also in March 1998, the first Consortium Action Plan (for the years 1995-1999) was finalized and approved by the Consortium members. The Consortium Action plan includes project summaries (existing and future) and estimated nitrogen load reductions submitted by the Consortium partners, and a Resolution signed by the Consortium members adopting the 1995-1999 Nitrogen Management Action Plan and committing to its implementation. In addition to the commitment from the government partners of the Interlocal Agreement as noted above, the non-governmental members of the Consortium pledged to exercise their best efforts to implement in a timely manner, either individually or in cooperation with other Consortium members, the projects they offered to undertake as part of the Consortium Action Plan.

Federally-recognized TMDL for Tampa Bay

In 1998, FDEP submitted a TMDL for nitrogen for Tampa Bay to USEPA Region 4 as was required by the federal Clean Water Act. USEPA approved the submitted TMDL on June 18, 1998. The TMDL is based on the 1992-1994 annual average total nitrogen loading to major bay segments, as estimated by TBNEP. The TMDL also includes an "allocation" to major sources, which is also based on the 1992-1994 nitrogen loading to each bay segment as estimated by TBNEP (Janicki and Wade 1996). Comments in the TMDL note that "The TMDL is based on an adopted five year nitrogen management strategy to "hold the line" at existing annual nitrogen loadings to each segment of the bay in order to protect and restore seagrass meadows" and "The nitrogen load targets were developed for the major bay segments and not individual sources. This allows flexibility in the way the loads are controlled."

The 1998 federally-recognized TMDL allocations (in tons/year) are shown in Table 1. Note that these are not loading *reductions*, but total nitrogen loadings. The loading estimates are from the estimated loads in 1992-1994 (Janicki and Wade 1996). EPA considers the assimilative capacity of each bay segment to be the total TMDL load to that segment (e.g., 486 tons/year for Old Tampa Bay, etc).

Table 1. Existing conditions (1992-1994) annual total nitrogen loadings by source and bay segment. Source: Federally-recognized TMDL document for nutrients in Tampa Bay, 1998.

Source	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
Atmospheric deposition	227	115	306	288
Point sources	85	300	78	1
Material losses	0	233	0	24
Nonpoint sources	174	596	415	36
Groundwater and springs	0	207	0	0
TOTAL	**486**	**1451**	**799**	**349**

Tampa Bay Reasonable Assurance

The Florida State 1999 legislative session produced a TMDL bill, called the Florida Watershed Restoration Act, which establishes the TMDL process for the state. A provision approved in the Watershed Restoration Act recognizes that:

- If existing pollution control programs including the National Estuary Program or the Everglades restoration are deemed sufficient to achieve water quality compliance, no TMDL calculation is required.

Pursuant to the Florida Watershed Restoration Act, TBEP and the Consortium developed and submitted a Reasonable Assurance document to FDEP in 2002, based on the Consortium's Action Plan. The document provided FDEP with a complete description of the Tampa Bay nitrogen management strategy and enabled FDEP to conclude in November 2002, that "the nitrogen management plan developed by TBEP for Tampa Bay provides reasonable assurance that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed." Based on the submitted documentation, FDEP concluded that "there is sufficient reasonable assurance that:

> 1). Completed and proposed management actions in the nitrogen management plan will result in the continued attainment of the narrative nutrient criteria within Tampa Bay, and
>
> 2). Reasonable progress towards continued attainment of the narrative nutrient criteria and associated designated uses will be made through 2007, which is the year when the next 303(d) list of impaired waters for Tampa Bay is due to be submitted to the Environmental Protection Agency (EPA)." (letter to H. Greening from D. Joyner, dated November 5, 2002).

EXHIBIT "B"

Tampa Bay Nitrogen Management Strategy
2007 Update to Reasonable Assurance Document

The Tampa Bay Estuary Program and the Tampa Bay Nitrogen Management Consortium submitted the "Tampa Bay Watershed Management Summary" to the Florida Department of Environmental Protection (FDEP) on July 29, 2002. The purpose of that document (called the "2002 Tampa Bay Reasonable Assurance Document") was to summarize the nitrogen management plan developed by the TBEP for Tampa Bay and to outline the underlying scientific basis for the plan. The document was formatted to facilitate its use in demonstrating reasonable assurance that designated uses of waterbody segments within the Tampa Bay basin which are designated as potentially impaired for nutrients pursuant to Chapter 62-303, F.A.C. will be maintained or restored. The document also provided a basis for designation of alternative site-specific thresholds that more accurately reflect conditions beyond which an imbalance of flora and fauna may occur.

In November 2002, the FDEP Bureau of Watershed Management concluded that "the nitrogen management plan developed by TBEP for Tampa Bay provides reasonable assurance that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed." The basis for the FDEP determination is outlined in Attachment 2007-1.

The purposes of this document, the Tampa Bay Nitrogen Management Strategy 2007 Update to Reasonable Assurance Document (2007 RA Update) are 1) to provide an update on implementation of the Tampa Bay Nitrogen Management Strategy; 2) to provide adequate documentation to allow FDEP a finding of Reasonable Progress pursuant to Florida Administrative Code 62-303.600; and 3) to request an extension of the determination that the Strategy will continue to provide reasonable assurance that the Strategy will adequately address impairment of designated uses related to nutrients in Tampa Bay.

The 2007 RA Update will be followed with a 2009 Reasonable Assurance document by July 31, 2009, which will include TN loading allocations to categories of nitrogen sources by major bay segment, and facility-specific and MS-4 specific allocations within each major bay segment. Documented load reductions from permitted and non-permitted projects undertaken or planned will be incorporated into the allocation process.

The format of this 2007 Reasonable Assurance Update follows that provided in the draft "Guidance for Development of Documentation to Provide Reasonable Assurance that Proposed Pollution Control Mechanisms will Result in the Restoration of Designated Uses in Impaired Waters" provided by FDEP in February 2002. For each element, the July 2002 documentation is included, followed by the 2007 Update documentation.

1. Description of the Waterbody

2002 RA: The Tampa Bay estuary is located on the eastern shore of the Gulf of Mexico in Florida. At 882 km^2, it is Florida's largest open water estuary. More than 2 million people live in the 5700 km^2 watershed, with a 20% increase in population projected between 2002 and 2010. Land use in the watershed is mixed, with about 40% of the watershed undeveloped, 35% agricultural, 16% residential, and the remaining commercial and mining. Major habitats in the Tampa Bay estuary include mangroves, salt marshes and submerged aquatic vegetation.

Between 1950 and 1990, an estimated 40-50% of the seagrass acreage in Tampa Bay was lost due to excess nitrogen loading and related increases in algae concentration, causing light limitation to seagrass survival and growth. In 1980, all municipal wastewater treatment plants were required to provide Advanced Wastewater Treatment (AWT) for discharges directly to the bay and its tributaries. In addition to the significant reductions in nitrogen loadings from municipal wastewater treatment plants, stormwater regulations enacted in the 1980s also resulted in reduced nitrogen loads to the bay. Estimates for average annual total nitrogen loadings to Tampa Bay for 1976 are more than 2.5 times as high as current (1999) estimates.

A key focus of the TBEP has been to establish nitrogen loading targets for Tampa Bay to encourage seagrass recovery. In 1996, local government and agency partners in the TBEP approved a long-term goal to restore 95% of the seagrass coverage observed in 1950. Also in 1996, the Tampa Bay Nitrogen Management Consortium (NMC) was formed. The NMC includes local governments and agencies participating in the TBEP, and phosphate companies, electric utilities and agricultural interests in the Tampa Bay watershed. These entities have pledged to work cooperatively in a voluntary, non-regulatory framework to assist with the maintenance of nitrogen loads to support seagrass restoration in Tampa Bay.

2007 Update: Data and observations from Tampa Bay indicate that initial efforts to reduce nitrogen loading and the continuing efforts of the TBEP and NMC partners are resulting in adequate water quality for the expansion of seagrasses. Time series plots show that, with the exception of the 1995-96 and 1998 El Nino years, 2003-2004 in Old Tampa Bay, and 2005 in Lower Tampa Bay, chlorophyll *a* targets have been met in all four major bay segments since 1994 (Figure 1; Attachment 2007-2). In 2006, both chlorophyll *a* and light attenuation targets were met in all four bay segments for the first time since records began in 1974. Actions taken to address exceedances in 2003-2005 are described in Section 5.

Figure 1 a-d on following pages. Annual average chlorophyll *a* concentration in each of the four major bay segments, 1974-2006. The solid line represents the TBEP-adopted management target. The upper dotted line represents a "large magnitude difference" from the TBEP chlorophyll *a* target in each bay segment. The large magnitude difference values are the chlorophyll *a* thresholds FDEP will use as indicators of impairment, and are the designated alternative site-specific thresholds adopted by FDEP in 2002. Data source: EPCHC

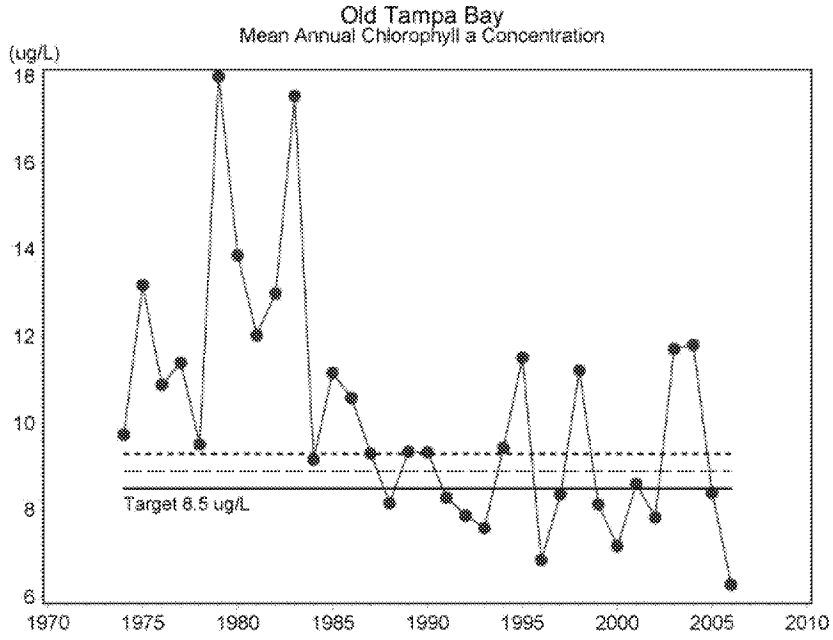

Figure 1-a. Old Tampa Bay mean annual chlorophyll *a* concentration.

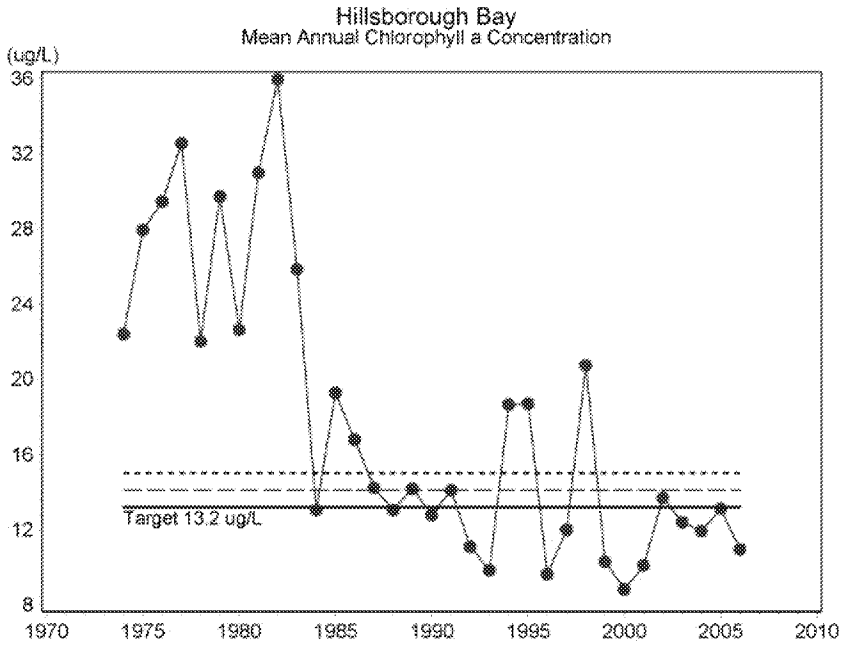

Figure 1.b. Hillsborough Bay mean annual chlorophyll *a* concentration.

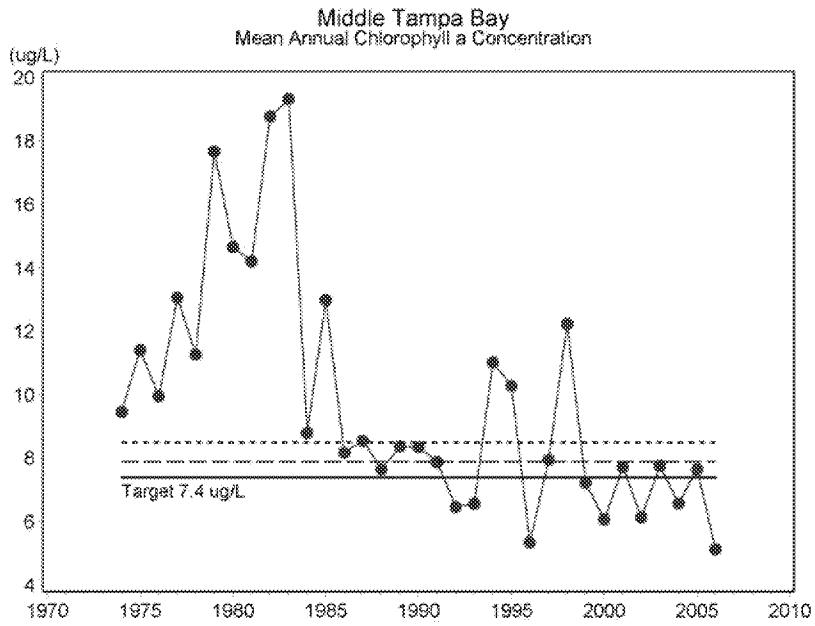

Figure 1.c. Middle Tampa Bay mean annual chlorophyll *a* concentration.

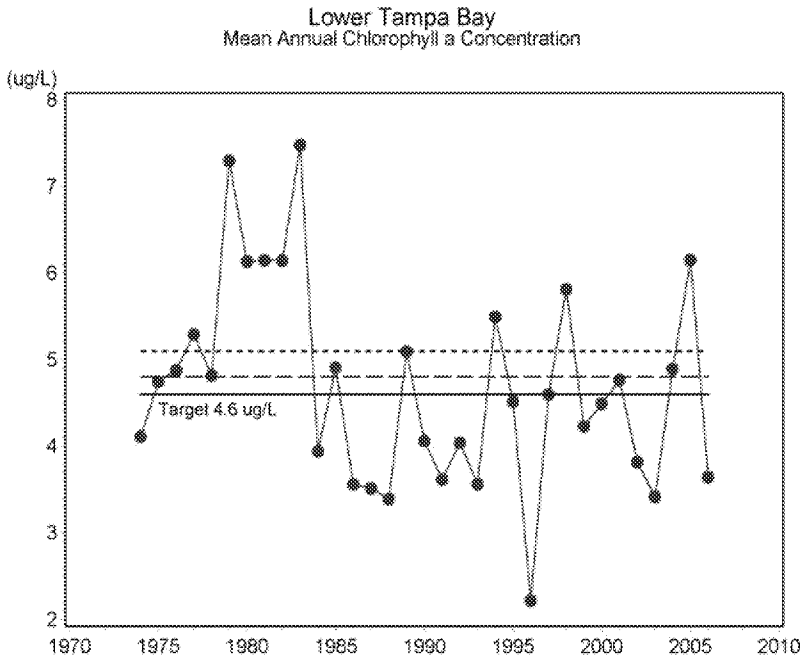

Figure 1.d. Lower Tampa Bay mean annual chlorophyll *a* concentration.

Seagrass acreage in Tampa Bay observed in 2002, 2004 and 2006 showed a similar pattern, with seagrass acreage increasing on a baywide basis (Figure 2; Attachment 2007-3). Seagrass acreage in Tampa Bay in 2006 was the highest recorded since 1950.

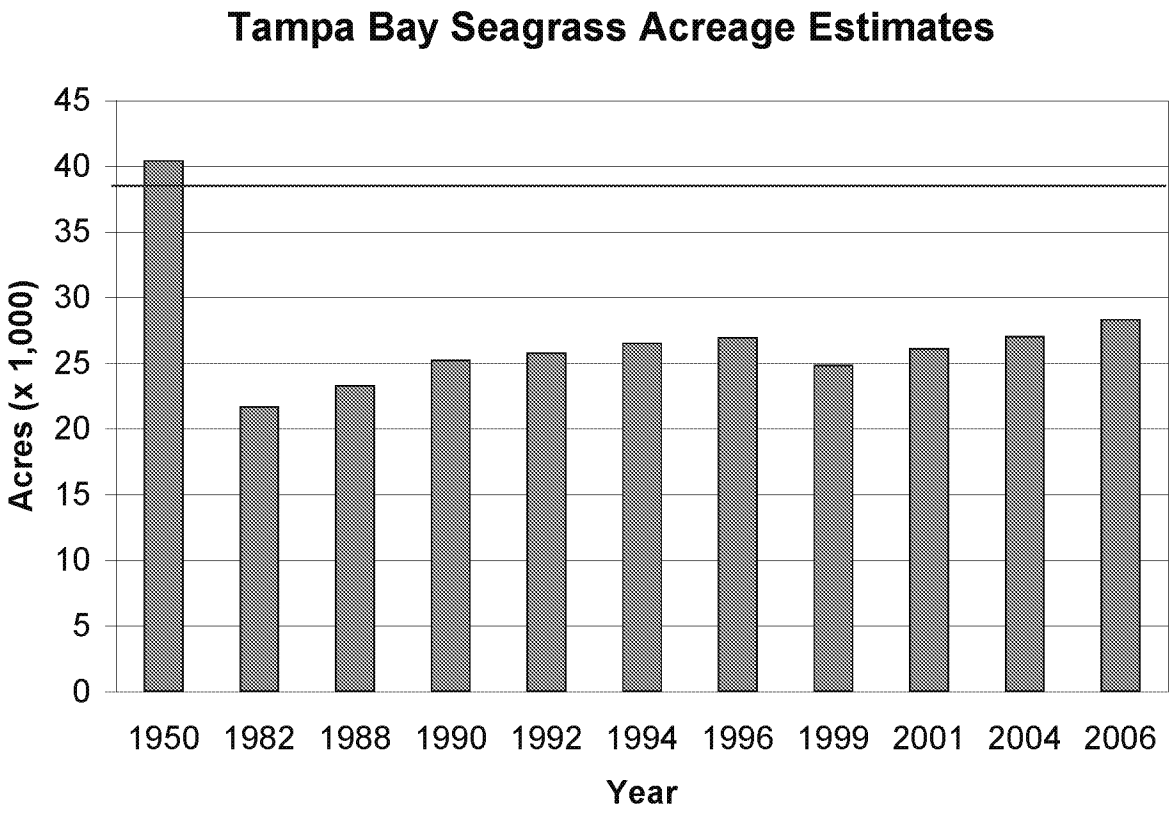

Figure 2. Baywide seagrass acreage estimates, 1950 through 2006. The adopted long-term goal (red line on the graph) is a total of 38,000 acres baywide. Data source: Southwest Florida Water Management District.

1.a. Name:
2002 RA: This document addresses the four major bay segments of Tampa Bay: Hillsborough Bay, Old Tampa Bay, Middle Tampa Bay and Lower Tampa Bay. Each bay segment includes between two and four individual waterbody segments (WBIDs) as defined in FDEP's 305(b) Report.

2007 Update: No change. Figure 3 shows the delineation of the four major bay segments as defined by TBEP. Figure 4 shows the delineation of FDEP's WBIDs for Tampa Bay.

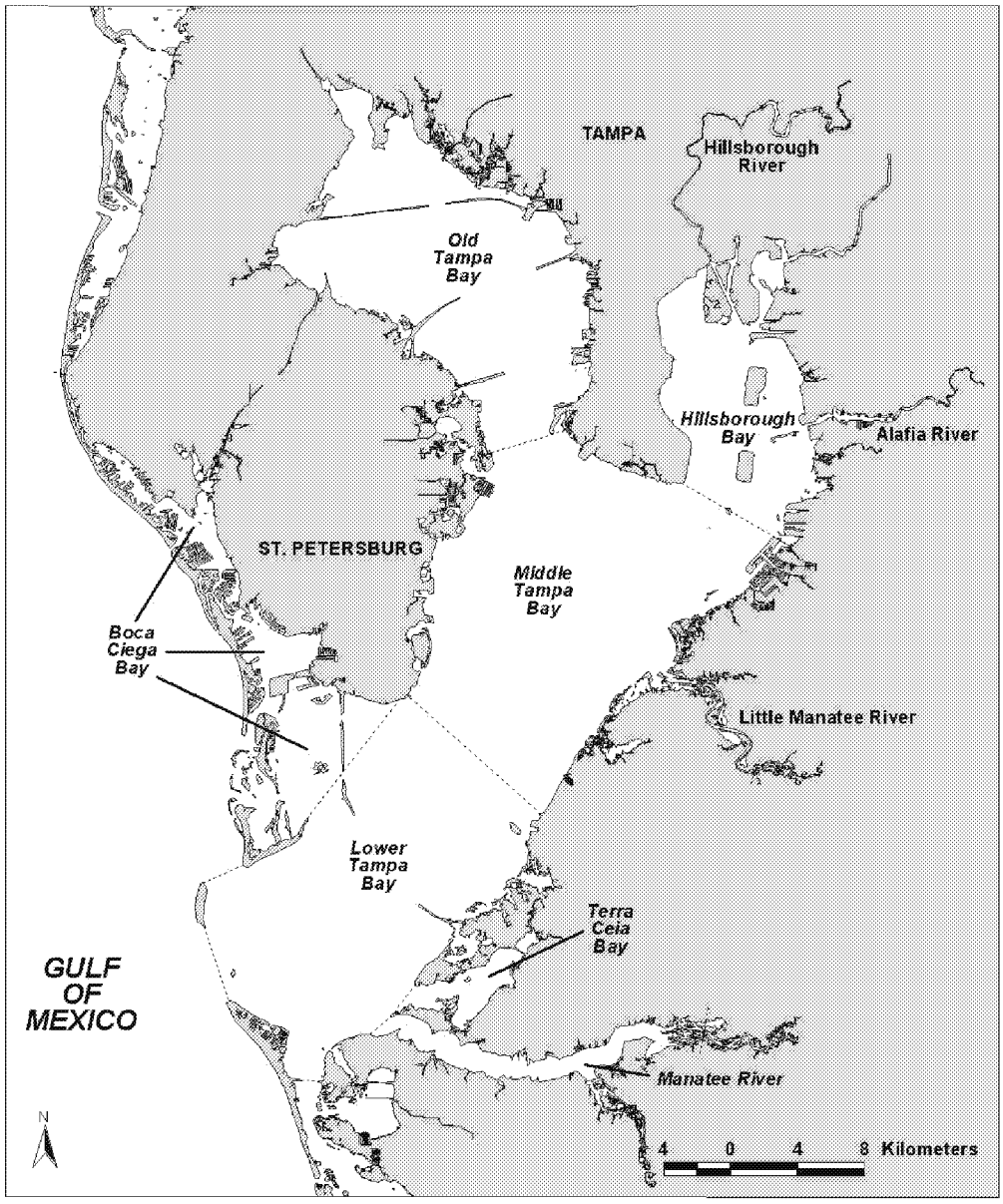

Figure 3. Four major bay segments of Tampa Bay (Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay) and three smaller segments (Boca Ciega Bay, Terra Ciea Bay and Manatee River).

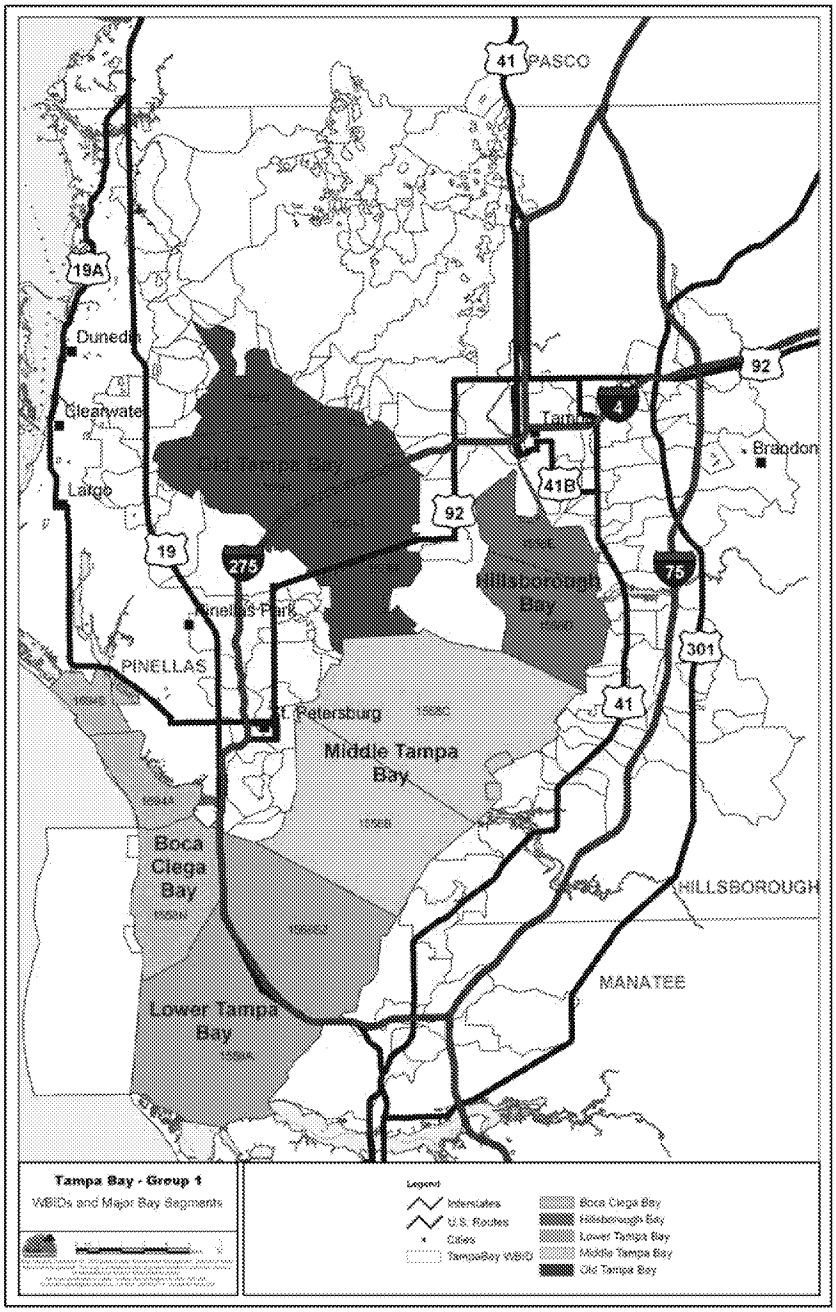

Figure 4. FDEP-defined WBIDs in Tampa Bay. Note that the northern portion of WBID 1558BZ in Lower Tampa Bay is identified as located in the Boca Ciega Bay segment by the Nitrogen Management Consortium. This difference will be addressed as an element of the adopted assessment and allocation process outlined in Section 3.f.

1.b. Location of the waterbody and watershed:
2002 RA: Please refer to Attachments A-1 and A-2.

2007 Update: No change.

1.c. Watershed/8-digit cataloging unit code:
2002 RA: 03100206 Tampa Bay and coastal areas

2007 Update: No change.

1.d. Type (lake, stream or estuary) of water:
2002 RA: Estuary

2007 Update: No change.

1.f. Water use classification:
2002 RA: Class II, Class III

Class II waters in Tampa Bay are defined in Attachment B (F.A.C. 62-302.400).

Class III: Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife. Applies to all remaining portions of the waterbody not designated as Class II.

2007 Update: No change.

1.g. Designated use of waterbody:
2002 RA: All of Hillsborough Bay, Old Tampa Bay, Middle Tampa Bay and Lower Tampa Bay are designated for the propagation and maintenance of a healthy, well-balanced population of fish and wildlife (also referred to as "Aquatic Life Use Support" or ALUS). Several FDEP-defined WBIDs are identified in the 2002 draft Verified List of Group 1 waterbodies in Tampa Bay as not meeting ALUS due to nutrient impairment. Such impairment is based on monitoring chlorophyll *a* relative to generic, statewide criteria developed under the Impaired Waters Rule (IWR), Chapter 63-303, F.A.C. However, all bay segments currently meet the site specific chlorophyll *a* targets established by the TBEP, which are based on many years of directed study and research within the major segments of Tampa Bay. Note that three of the four of these targets are actually lower (i.e., more stringent) than IWR thresholds (refer to Section 2.a.).

Note that this document does not address Class II shellfish harvesting impairment due to fecal coliforms.

For additional information, please refer to Attachment C.

2007 Update: As noted above, TBEP-adopted chlorophyll *a* targets in 2002, 2003, 2004 and 2005 were met in three of the four major bay segments, and all targets in all four major bay segments were met in 2006 (Figure 1; Attachment 2007-2). Actions taken to address exceedances in 2003-2005 are described in Section 5.

1.h. Area of the waterbody:
2002 RA: The total surface area of the four major bay segments in Tampa Bay is 882 km^2 (approximately 341 square miles).

2007 Update: No change.

1.i. Pollutant(s) of Concern:
2002 RA: The pollutant of concern has been identified as Total Nitrogen, which has been determined to be the limiting nutrient in Tampa Bay. Elevated nitrogen loading has been demonstrated to lead to excess algal growth (as indicated by chlorophyll *a* concentrations), which in turn leads to reduced light penetration and loss of seagrass in the bay.

2007 Update: No change.

1.j. Suspected or documented sources of pollutant of concern:
2002 RA: 1995-1998 average for all four bay segments combined:

Stormwater	62%
Direct Atmospheric Deposition	21%
Domestic Wastewater	8%
Groundwater and Springs	4%
Industrial Wastewater	4%
Fertilizer Terminal Losses	1%

For additional information, please refer to Attachment D.

2007 Update:
1999-2003 average for all four bay segments combined:

Stormwater	63%
Direct Atmospheric Deposition	21%
Domestic Wastewater	9%
Groundwater and Springs	3%
Industrial Wastewater	3%
Fertilizer Terminal Losses	1%

For additional information, please refer to Attachment 2007-4.

The 1999-2003 nitrogen loading update was completed in 2005 (Attachment 2007-4). The next scheduled and budgeted TBEP nitrogen loading update is planned for 2009-2010 (for the years 2004-2008).

However, to allow the FDEP designation cycle for Group 1 including Tampa Bay (every 5 years; 2002, 2007, 2012, etc) and the TBEP cycle of updated loadings to come into sync, at the request of TBEP, FDEP is funding an effort to update the Tampa Bay estimated and measured existing loadings (TN, TP and TSS) to bay segments from all sources for the years 2004, 2005, 2006 and 2007. This effort will provide the most recent information available for calculation of point source, MS4s, atmospheric deposition, non-permitted sources and groundwater and springs TN loading, for inclusion in the allocation process. The updated TN loadings will be included in the 2009 RA Update.

2. Description of Water Quality or Aquatic Ecological Goals

2.a. Water quality-based targets or aquatic ecological goals

2002 RA: The TBEP and its partners (see Section 3.a.) have adopted a goal of restoring seagrass in Tampa Bay to 95% of the areal extent estimated to have occurred in 1950. The adopted **minimum seagrass areal extent goal** is 38,000 acres of seagrass baywide. This goal includes the protection of existing 24,840 acres (1999 estimate) and restoration of an additional 13,160 acres.

The TBEP and its partners have also adopted chlorophyll *a* targets for Tampa Bay based on the light requirements of the seagrass species *Thalassia testudinum* (turtlegrass). The **average annual chlorophyll *a* targets** for each major bay segment are:

Old Tampa Bay	8.5 *u*g/L
Hillsborough Bay	13.2 *u*g/L
Middle Tampa Bay	7.4 *u*g/L
Lower Tampa Bay	4.6 *u*g/L

The IWR threshold for potential nutrient impairment based on chlorophyll *a* levels is 11 *u*g/L.

Based on modeling results, it appears that light and chlorophyll levels can be maintained at the TBEP target levels noted above by "holding the line" at average annual nitrogen loadings estimated for 1992-1994. However, increases in the watershed's human population and associated 7% increase in nitrogen loading are projected to occur over the next 10 years. These expected increases are addressed by the adoption by the TBEP and Nitrogen Management Consortium (NMC) partners of a **17 ton per year reduction target for total nitrogen**, necessary to offset expected increases in TN loading and maintain TN loading rates at average annual rates for 1992-1994.

See Attachment E for a summary of the technical aspects of the goal-setting process, and Attachment F for supporting documentation.

2007 Seagrass update: In January 2002, SWFWMD seagrass maps showed that seagrass had increased by 1,237 acres baywide over 1999 estimates. By January 2004, seagrass acreage had increased an additional 946 acres (Attachment 2007-3), and by January 2006, another increase of 1,297 acres was recorded, resulting in the highest observed acreage estimate (28,321 acres baywide) since 1950 (Figure 2). The adopted seagrass areal extent goal of a total of 38,000 acres includes protection of the existing 28,321 acres (2006 estimate) and restoration of an additional 9,679 acres. Estimated seagrass extent has increased by 3,480 acres since 1999 (the estimate available for the 2002 RA submittal).

2007 Chlorophyll *a* update: In the letter accepting the Tampa Bay Nitrogen Management Strategy as providing Reasonable Assurance for Tampa Bay water segments (Attachment 2006-1), FDEP stated that they will use the TBEP-defined "large magnitude difference thresholds" (expressed as annual averages and defined in TBEP Technical Report # 04-00, Attachment G-1) rather than the chlorophyll *a* management targets listed above, as indicators of impairment for future assessments of water segments in Tampa Bay. These are:

Old Tampa Bay	9.3 ug/l
Hillsborough Bay	15.0 ug/l
Middle Tampa Bay	8.5 ug/l
Lower Tampa Bay	5.1 ug/l

2.b. Averaging Period:
2002 RA: The TBEP uses annual average bay segment chlorophyll *a* levels for tracking water quality targets. See Attachment F: TBEP Technical Reports #06-96, 06-01 and 07-01.

2007 Update: No change.

2.c. How will goals result in restoration of impaired designated uses:
2002 RA: Maintaining chlorophyll *a* concentrations at target levels is expected to result in the maintenance of water clarity levels adequate to support eventual seagrass expansion to depths observed in1950, thereby ensuring that nutrient levels do not result in an imbalance in the flora or fauna of Tampa Bay. See documentation in Attachment F, particularly TBEP Technical Reports # 06-96 and 10-01.

2007 Update: No change.

2.d. Procedures to determine whether additional corrective actions are needed.
2002 RA: In 2000, a "decision matrix" process was developed by the TBEP Technical Advisory Committee and approved by the TBEP Management and Policy Boards to help determine if seagrass goals and water quality targets are remaining "within bounds," or if management action is required to get back on track. Recommended types of management actions if the process indicates deviation from targets are also identified. This process is applied on an annual basis to determine if water clarity and chlorophyll *a* concentrations are remaining at or near target levels.

2007 Update: No change. The decision matrix process has been applied on an annual basis since 2000. The 2006 application of the decision matrix (Figure 5; Attachment 2007-2) shows that both chlorophyll a and light attenuation targets were met in all four major bay segments for the first time since records began in 1974.

Figure 5. Application of the TBEP Decision Matrix, 1975-2006. Source: Janicki Environmental 2007 (Attachment 2007-2).

Decision matrix results.				
Year	**Old Tampa Bay**	**Hillsborough Bay**	**Middle Tampa Bay**	**Lower Tampa Bay**
1975	Red	Red	Red	Green
1976	Red	Red	Red	Yellow
1977	Red	Red	Red	Red
1978	Red	Red	Red	Yellow
1979	Red	Red	Red	Red
1980	Red	Red	Red	Red
1981	Red	Red	Red	Red
1982	Red	Red	Red	Red
1983	Red	Yellow	Red	Red
1984	Red	Green	Red	Yellow
1985	Red	Red	Red	Yellow
1986	Red	Yellow	Red	Green
1987	Red	Yellow	Red	Green
1988	Yellow	Green	Yellow	Green
1989	Red	Yellow	Red	Yellow
1990	Red	Green	Red	Yellow
1991	Green	Yellow	Yellow	Yellow
1992	Yellow	Green	Yellow	Yellow
1993	Yellow	Green	Yellow	Yellow
1994	Yellow	Yellow	Red	Red
1995	Red	Yellow	Red	Yellow
1996	Yellow	Green	Yellow	Green
1997	Yellow	Green	Red	Yellow
1998	Red	Red	Red	Red
1999	Yellow	Green	Yellow	Yellow
2000	Green	Green	Yellow	Yellow
2001	Yellow	Green	Yellow	Yellow
2002	Yellow	Green	Green	Green
2003	Red	Yellow	Green	Yellow
2004	Red	Green	Green	Yellow
2005	Green	Green	Yellow	Yellow
2006	Green	Green	Green	Green

The question of how long it will take to recovery seagrass to the adopted acreage goal is not

easily answered. The expected rate of seagrass recovery for dominant species in subtropical waters in response to maintained water quality conditions is unclear, and appears to be variable depending upon local conditions. A recent synthesis of seagrass communities of the Gulf Coast of Florida (Dawes and others 2004) found that four estuarine systems within this region for which historic aerial photographs are available (Charlotte Harbor, Tampa Bay, St. Joseph Sound, and Sarasota Bay) all showed a loss of seagrass coverage between 1950 and 1982. Dawes and others (2004) note that recent seagrass-coverage trends in this region appear somewhat irregular, apparently responding to site-specific situations within the different estuaries. Relative increases between 1988 and 2004 show that Tampa Bay seagrass experienced an estimated 13.8% increase (1513 ha), while Charlotte Harbor seagrass coverage decreased slightly (0.3% or 30 ha) and Sarasota Bay seagrass coverage increased by 6.4% (240 ha) (Tomasko and others 2005; Attachment 2007-3).

3. A Description of the Proposed Management Actions to be Undertaken

3.a. Participating Entities

2002 RA: Members of the Tampa Bay Estuary Program Policy Board include the following:

City of Tampa
City of Clearwater
City of St. Petersburg
Manatee County
Hillsborough County
Pinellas County
Florida Department of Environmental Protection
Southwest Florida Water Management District
U.S. Environmental Protection Agency (EPA serves as a non-voting advisory agency to the Tampa Bay Estuary Program)

2007 Update: No change in Policy Board membership.

The Tampa Bay Nitrogen Management Consortium includes the following public and private entities:

2002 Public Partners:

In addition to the nine TBEP Policy Board entities, public participants in the NMC include:

Manatee County Agricultural Extension Service
Environmental Protection Commission of Hillsborough County
Tampa Bay Regional Planning Council
Florida Fish and Wildlife Commission/Florida Marine Research Institute
U.S. Army Corps of Engineers
Tampa Port Authority
Florida Department of Agriculture and Consumer Services

2002 Private Partners:

Florida Phosphate Council
Florida Power & Light Company
Tampa Electric Company
Florida Strawberry Growers Association
IMC-Phosphate Company
Cargill Fertilizer, Inc.
CF Industries, Inc.
Pakhoed Dry Bulk Terminals (now Kinder-Morgan)
Eastern Associated Terminals Company
CSX Transportation, Inc.

2007 Update: The Tampa Bay Nitrogen Management Consortium is open to public and private entities wishing to participate in the Nitrogen Management Strategy. Public and private participants in the Tampa Bay Nitrogen Management Consortium (as of December 2007) include:

2007 Public Partners:

Hillsborough County
Manatee County
Pinellas County
City of Tampa
City of St. Petersburg
City of Clearwater
Southwest Florida Water Management District
US Environmental Protection Agency
Florida Department of Environmental Protection
Environmental Protection Commission of Hillsborough County
Tampa Bay Regional Planning Council
Agricultural Economic Development Council of Hillsborough County
Florida Fish and Wildlife Commission/Florida Marine Research Institute
Tampa Port Authority
Florida Department of Agriculture and Consumer Services
Florida Department of Health
Tampa Bay Water
City of Palmetto
City of Bradenton
City of Largo
City of Oldsmar
City of Gulfport

2007 Private Partners:

Eastern Terminals
Mosaic
CSX Transportation
Florida Power and Light Company
CF Industries
Tampa Electric Company
Kinder Morgan Bulk Terminals, Inc.
Progress Energy
Tropicana Products, Inc.

3.b. Existing and proposed management activities
2002 RA: Over 100 existing and proposed activities are included in the Tampa Bay Nitrogen Management Consortium Action Plan (see Attachment H-1). They include the following types of projects:

Stormwater facilities and upgrades
Land acquisition and protection
Wastewater effluent reuse
Air emissions reduction
Habitat restoration
Agricultural BMPs
Education/public involvement
Industrial treatment upgrades

NMC partners are currently updating projects in the Consortium Action Plan, which is being developed as an electronic database for 2001-2005 projects.

For additional information, please refer to Attachments H-1 and H-2.

2007 Update:
Revised apportionment: In 2002, following submittal of the 2002 Reasonable Assurance document, the Tampa Bay Nitrogen Management Consortium and TBEP Management and Policy Boards adopted a revision of the apportionment of total nutrient reduction (Attachment 2007-5). Under the revised apportionment, the 5-year reduction target is apportioned to major segments in direct proportion to the baseline load, future load, and existing load. Thus, all three loading conditions—baseline, existing and future- are considered in the apportionment decision. The weighting for the three conditions recognizes that the existing load represents the most recent and best estimate of nitrogen loading to the bay, and that the future load estimate is the least accurate. See Attachment 2007-5 for detailed process description and results of the revised apportionment. The revised apportionment also combines Terra Ceia Bay and Manatee River with Lower Tampa Bay.

The first Tampa Bay Nitrogen Consortium Action Plan *Partnership for Progress* established goals for nitrogen loading management that incorporated Manatee River and Terra Ceia Bay into

the Lower Tampa Bay segment (Table 1 in Attachment H-1). The 1992-1994 TN loadings estimates for Lower Tampa Bay used in the federally-recognized TMDL did not include loadings from Manatee River and Terra Ceia Bay (Table 3 in this document). Discrepancies between the federally-recognized TMDL and the nutrient reduction goals adopted by the Consortium for the Lower Tampa Bay segment will be addressed by the Consortium prior to July 31, 2009 as an element of the guiding principles (Section 3.f. of this document).

A comparison of the 1995-1999 apportionment and the revised apportionment adopted in 2002 is summarized in Table 1. See Attachment 2007-5 for detailed process and results.

Table 1. Comparison of 1995-1999 and adopted 5-year Bay Segment reduction targets. All reductions are in tons.

1995-1999			Re-apportioned 5-year	
	Reduction Target	Percent of Total	Reduction Target	Percent of Total
Old Tampa Bay	2.1	2.5	11.80	13.9
Hillsborough Bay	41.5	49.5	31.07	36.6
Middle Tampa Bay	11.05	13.2	16.29	19.1
Lower Tampa Bay, including TCB and MR	25.35	30.2	21.24	25.0
Boca Ciega Bay	3.9	4.6	4.62	5.4
TOTAL	83.9	100	85.02	100

Boca Ciega Bay is included in the Tampa Bay Nitrogen Management Strategy, but is not included in the federally-recognized TMDL.

Tracking Database: A Microsoft Access database has been created and populated with projects submitted by the TBEP and Nitrogen Management Consortium partners. The database performs all calculations necessary to determine pollutant load reductions based on several key factors such as land use type and treatment method. To accurately calculate pollutant load reductions, the database incorporates a linked Microsoft Excel table which contains the most recent nutrient loading rates by land use type. If a project has adequate documentation, site-specific information on treatment efficiencies is also acceptable. Once information is entered into the database customized pollutant load reduction reports for total nitrogen (TN) and total suspended solids (TSS) can be printed for specific areas such as county jurisdiction, bay segment and major basin.

Through February 2006, more than 250 load reduction or preclusion projects have been entered into the database. A summary of the projects (listed by drainage basin) is included in Attachment 2007-6. A summary of reductions by bay segment is shown in Table 2. Drainage basins contributing to each bay segment are also shown in Table 2. A copy of the full database, including project descriptions for each submitted project, can be requested from the TBEP Database Coordinator at misty@tbep.org.

A comprehensive review of the projects in the Action Plan Database through 2007 and expected TN load reductions associated with them is scheduled to be completed for inclusion in the revised detailed allocation and will be included in the 2009 RA Update. See Section 3.f. for the timeline and schedule of the detailed allocation process.

Table 2. Estimated TN loading reductions (as of December 2007) by bay segment. All loads are in tons/year.

BAY SEGMENT	5-Year TN Load Reduction Target	TN Load Reduction reported to date 1995-1999	TN Load Reduction reported to date 2000-2004	TN Load Reduction Planned 2005-2009
Hillsborough Bay (includes Alafia River basin, Hillsborough River basin and Coastal Hills. Bay basin)	31.07	112.70	51.60	57.61
Old Tampa Bay (includes Coastal Old Tampa Bay basin)	11.80	32.17	8.88	44.39
Middle Tampa Bay (includes Little Manatee River basin and Coastal Middle Tampa Bay basin)	16.29	16.44	5.45	4.08
Lower Tampa Bay (includes Manatee River basin, Terra Ceia Bay basin and Coastal Lower Tampa Bay basin)	21.24	3.85	44.56	10.05
Boca Ciega Bay (includes Coastal Boca Ciega Bay basin)	4.62	0.88	2.60	14.12
BAYWIDE TOTAL	85.02	166.04	113.09	130.25

As noted for Table 1., Boca Ciega Bay is included in the Tampa Bay Nitrogen Management Strategy, but is not included in the federally-recognized TMDL.

3. c. Geographic scope of any proposed management activity:
2002 RA: The NMC Action Plan projects are located throughout the Tampa Bay watershed. The updated Consortium Action Plan Database includes project location (subbasin), drainage basin and bay segment. See Attachments H-1 and H-2.

2007 Update: No change.

3.d. Estimated Pollutant Load Reduction Anticipated from each activity:
2002 RA: To ensure consistency, the Consortium Action Plan Database program includes a standardized method for electronically calculating both existing conditions (no treatment) TN, TP and TSS loading for each project, and estimated loadings after treatment is applied. Each treatment type (for example, wet retention pond) has been assigned a treatment efficiency based on best available data/information, and is applied within the database program to estimate the nitrogen load attenuation. Parameters included in these calculations are land use, soils, rainfall and hydrologic connectivity. The difference between the "treatment" and "no treatment" estimates is the load reduction anticipated for each activity. NMC partners may also propose site-specific load reduction estimates for specific projects, providing adequate documentation is provided.

2007 Update: no change.

3.e. Written agreements committing partners to actions:
2002 RA: The Tampa Bay Estuary Program government partners executed an Interlocal Agreement in 1998, pledging to assist in meeting the goals of the TBEP Comprehensive Conservation and Management Plan (Attachment I). Also in 1998, public and private members of the Tampa Bay Nitrogen Management Consortium pledged to exercise their best efforts to implement, either individually or in cooperation with other Consortium members, the projects they have offered to undertake as part of the Consortium Action Plan (Attachment H-1). Many of these projects have already been completed.

2007 Update: This document is "Exhibit B" of the 2007 Declaration of Cooperation. The Declaration is also included as Attachment 2007-7.

3.f. How will future growth and new sources be addressed:
2002 RA: The TN load reduction target of 17 tons per year needed to maintain TN loading at 1992-1994 levels assumes growth in population and the associated changes in stormwater, atmospheric deposition and point sources. In this manner, TN loading from future growth is anticipated and addressed. See Attachment G-3: TBEP Technical Report #08-01.

The TBEP Interlocal Agreement requires that the technical basis for estimating loads and establishing targets be reexamined every 5 years. The first five-year re-examination was complete in 2001. Results from the re-examination indicate that the models and assumptions used for the initial calculations continue to provide appropriate estimates of loading and resulting

chlorophyll *a* concentrations. See Attachments F and G.

The Nitrogen Management Consortium is currently examining how to address unexpected new point sources in the Consortium framework. This work is expected to be complete by 2003, and will be included in future updates to this documentation. However, it is important to note that nonpoint source discharges and atmospheric deposition are the dominant sources of nitrogen to Tampa Bay, comprising 83% of the total nitrogen load annually.

2007 Update:
To maintain the Tampa Bay Nitrogen Management Consortium's successful watershed approach and to allow the Consortium to collectively define nitrogen load allocations from point and nonpoint sources within the Tampa Bay watershed, in October 2007 the Consortium, FDEP and EPA agreed to the following:

1. Develop and submit to FDEP by January 31, 2008 a bay-wide Reasonable Assurance document *(this document)* defining the Tampa Bay nitrogen management strategy for 2008-2012 and providing documentation of reasonable progress during the 2002-2007 RA period.

2. Develop total nitrogen Waste Load Allocations and Load Allocations for each bay segment, taking into account the nitrogen load reductions (existing and future) that have been documented through projects submitted by Consortium partners and other sources; and (b) develop of total nitrogen WLAs for each point source permitted facility and MS4 stormwater system within each bay segment. The cumulative total nitrogen loading maximum for all WLAs together with Load Allocations will not exceed the assimilative capacity for a bay segment, as defined in the federally-recognized TMDL for Tampa Bay (Table 3). Detailed allocations will be developed by July 31, 2009.

Table 3. 1998 federally-recognized TMDL allocations (in tons/year). EPA considers the assimilative capacity of each bay segment to be the total load to that segment (e.g., 486 tons/year for Old Tampa Bay, etc). Source: Federally-recognized TMDL document for nutrients in Tampa Bay, 1998.

Source	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
Atmospheric deposition	227	115	306	288
Point sources	85	300	78	1
Material losses	0	233	0	24
Nonpoint sources	174	596	415	36
Groundwater and springs	0	207	0	0
TOTAL	**486**	**1451**	**799**	**349**

As noted in Section 3.b, discrepancies between the federally-recognized TMDL and the nutrient reduction goals adopted by the Consortium for the Lower Tampa Bay segment will be addressed by the Consortium prior to July 31, 2009 as an element of the guiding principles (Section 3.f. of this document).

3. Develop a supporting assessment document detailing background information and data analyses that will be needed to support the Consortium's development of revised bay-segment Waste Load Allocations and Load Allocations, and the Waste Load Allocations for individual permitted sources within each segment. A draft assessment document outline is shown in Attachment B.

4. Develop "guiding principles" for the collective determination of WLAs for individual facilities. Elements of the guiding principles may include:

- How to establish a minimum threshold for discharge volume and load for the establishment of total loading targets for smaller permitted sources
- How to incorporate small sources and others that are not members of the Consortium
- How to determine existing loads from MS4s
- How to average reporting periods
- How to incorporate new sources after the WLAs are defined for existing sources
- How to ensure consistency in determining loads within like sources
- How to incorporate residence time in estimating water quality response to load
- How to define the Consortium's role in implementation and maintenance of the WLAs
- How (and how much) to incorporate as a buffer of unallocated load for future growth
- How to account or give credit for reductions from entities that have already reduced their load

- How to define and estimate load "credits", given the existing reduction/preclusion target
- How to account for new sources vs. existing source expansion
- How to resolve differences between the federally-recognized TMDL loadings and the Nitrogen Management Consortium reduction goals for Lower Tampa Bay, including Manatee River and Terra Ceia Bay.
- How to resolve differences for the 1558BZ WBID definition. FDEP includes portions of this area in Lower Tampa Bay and the Consortium defines this area as part of Boca Ciega Bay.

5. Based on the results of Actions 3 and 4 above, the Consortium will develop revised Waste Load Allocations and Load Allocations for each bay segment, for FDEP and EPA review.

6. Based on the results of Actions 3, 4 and 5 above, by July 31, 2009 the Consortium will develop total nitrogen WLAs for each permitted facility (for facilities with discharges above the Consortium-established minimum loading threshold) within each bay segment, for FDEP and EPA review. The final allocation categories for each bay segment are shown in Table 4.

Table 4. Proposed revised allocation categories. The WLAs (point sources and MS4s) will include allocations to individual facilities.

Source	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
Permitted point source WLAs (WWTP, industrial)	TBD	TBD	TBD	TBD
Permitted MS4s WLAs	TBD	TBD	TBD	TBD
Unpermitted sources (LAs)	TBD	TBD	TBD	TBD
TOTAL	**486**	**1451**	**799**	**349**

The timeline and process for development of detailed allocations

Submit 2007 RA update to FDEP	by January 31, 2008
Interactions with individual Consortium entities	Jan 2008 – Dec 2008
Steering Group Allocation Guiding Principles Workshop	February 8, 2008
Draft Allocation Guiding Principles	March 2008
Develop basinwide allocations to WLAs and LAs	May 2008
Finalize Action Plan database	July 2008
Develop draft WLAs for individual sources	December 2008
Finalize WLAs for individual sources	February 2009
Draft Allocation and Assessment Report	March 2009
Final Resolution agreeing to allocations	March 2009
Final Allocation and Assessment Report	by July 31, 2009

FDEP will develop interim WLAs for facilities that are expected to come up for renewal before July 2009, in cooperation with those specific facilities. The interim WLAs will be based on the

"existing loading" of those facilities, which will be based on the most recent loading information available but will also take recent growth and variability into account (especially for industrial facilities where the discharge is related to rainfall). FDEP intends to include the interim WLAs for those facilities which are expected to come up for renewal prior to July 2009 in their response to this document. If a facility can meet the "interim WLA", the allocation will be the basis for a TN effluent limit for the facility, but the permit will include a re-opener clause allowing the limit to be revised when the final WLA is completed for the facility in July 2009. If the facility cannot meet its "interim allocation," the allocation will be the basis for a final TN effluent limit, but an Administrative Order will provide an interim permit limit and compliance schedule to meet either the interim WLA or the final WLA when it is available.

3.g. Confirmed sources of funding

2002 RA: Information on funding sources and amounts for projects included in the Action Plan are being provided voluntarily for projects in the Consortium Action Plan Database. Funding sources include local governments, the Southwest Florida Water Management District (SWFWMD) and private corporations. More detailed funding source information is being requested for the ongoing Action Plan Update, due for finalization in early 2003.

The Tampa Bay Estuary Program is funded by the signatories of the Interlocal Agreement, for funding amounts as defined in the IA (see attachment I).

2007 Update: The majority of projects in the updated Project Database include estimates of costs and funding sources.

The Assessment and Allocation process outlined in Section 3.f. will include technical analyses and the Assessment Report; support and organization of meetings with individual Consortium entities and agencies; analyzing issues and options to support the Consortium in the development of guiding principles; facilitation of Consortium meetings and Implementation Group meetings and workshops; support and documentation for draft and final bay-segment allocations; support and documentation for draft and final facility-specific allocations; and full documentation of analyses and process.

In keeping with the Tampa Bay Nitrogen Management Consortium's collective approach, each Consortium partner (government, private and agency) will contribute equally to the development of the Assessment and Allocation Report.

Advantages of collectively funding the allocation process:

- All Consortium members share the responsibility and benefits in the development of the allocations;
- Maintains collective approach that Consortium has used successfully to address issues;
- Sharing the cost allows each entity to benefit from a large effort with relatively small funding commitment

Entities which are not members of the Consortium by December 28, 2007 but wish to join the Consortium after this date will be assessed $5000 to participate in the allocation process.

3.h. Implementation schedule:
2002 RA: Chlorophyll *a* concentrations are currently meeting adopted site-specific targets. In addition, each project has an implementation schedule included in the Consortium Action Plan Database.

2007 Update: The updated Project Database includes a schedule for expected completion for each project.

3.i. Enforcement programs, if the management strategy is not voluntary.
2002 RA: Participation in the Tampa Bay Nitrogen Management Consortium is voluntary. The NMC partners will continue to encourage point and nonpoint sources who are not currently participating in the NMC to join this effort.

FDEP emphasizes that it and other regulatory agencies will continue to ensure that permitted facilities meet all permit requirements through existing regulatory and permit enforcement programs.

2007 Update: Participation in the Tampa Bay Nitrogen Management Consortium will continue to be voluntary, and the NMC partners will continue to encourage point and nonpoint sources who are not currently participating in the NMC to join this effort. The Assessment and Allocation process defined in Section 3.f. will define agreed-upon TN load allocations for Consortium member permits. The Assessment and Allocation will also recommend processes for new or expanded TN load sources or permitted entities not participating in the Consortium.

FDEP emphasizes that it and other regulatory agencies will continue to ensure that permitted facilities meet all permit requirements through existing regulatory and permit enforcement programs.

4. Procedures for Monitoring and Reporting Results:
2002 RA: 4.a. A description of the water quality monitoring program to be implemented
Existing water quality monitoring programs include ambient programs conducted by the Environmental Protection Commission of Hillsborough County, Manatee County, and Pinellas County. Water quality samples from over 100 stations baywide are collected and analyzed on a monthly basis through the collective efforts of these monitoring programs.

2007 Update: Monitoring by EPCHC and Manatee County continue as in 2002. Pinellas County has redesigned their bay water quality monitoring program to allow additional focus on shallow waters (less than 3 meters). Additional stations in all areas have been added within the watershed.

4.b. Quality Assurance/Quality Control elements of monitoring
2002 RA: All these programs and their laboratories have State-approved Quality Assurance Plans on file, and comply with DEP's QA rule, Chapter 62-160, including DEP approved Standard Operating Procedures. The participating laboratories have or are working to receive National Environmental Laboratory Accreditation Conference (NELAC) certification.

2007 Update: All participating laboratories have now received NELAC certification.

4.c. Procedures for entering all appropriate data into STORET:
2002 RA: The participating laboratories will continue to deliver all appropriate data to FDEP's SW District office in Tampa for uploading into STORET, pending development of each entity's capability for routine uploads to STORET. Upon finalization of this capability, each entity will submit data directly to STORET.

2007 Update: Although some problems with entering data directly into the state's STORET system remain, the participating laboratories either enter data directly to STORET or deliver all appropriate data to FDEP.

4.d. Responsible monitoring and reporting entity:
2002 RA: The four entities identified in 4.a. are responsible for collecting water quality data.

TBEP will be responsible for compiling bay-wide water quality monitoring data on an annual basis, and reporting the results of the "decision matrix" to the TBEP partners (including FDEP). See TBEP Technical Report #11-01 (Attachment C) for the Year 2001 annual report.

2007 Update: The three entities identified in 4.a. continue to be responsible for collecting water quality data. See Attachment 2007-2 for the most recent annual "decision matrix" update reporting progress towards water quality targets in each bay segment.

4. e. Frequency and reporting format for reporting monitoring results:
2002 RA: Reporting is done annually, as noted in 4.d. In addition, TBEP conducts a full revision and update of nitrogen loading estimates (current and estimated future loads) and model evaluations every 5 years. The next update is due in 2005.

2007 Update: The 1999-2003 nitrogen loading update was completed in 2005 (Attachment 2007-4). The next scheduled TBEP nitrogen loading update is planned for 2009-2010 (for the years 2004-2008).

However, to allow the FDEP designation cycle for Group 1 including Tampa Bay (every 5 years; 2002, 2007, 2012, etc) and the TBEP cycle of updated loadings to come into sync, FDEP is funding an effort to update the Tampa Bay TN, TP and TSS loadings from all sources for the following:

1. Estimated and measured existing loadings (TN, TP and TSS) to bay segments from all sources for the years 2004, 2005, 2006 and 2007. This will provide the most recent information available for calculation of point source, MS4s, atmospheric deposition, non-permitted sources and groundwater and springs, for inclusion in the allocation process.

2. Estimated future TN, TP and TSS loads to bay segments from all sources for 2020. This effort will allow assessment and re-evaluation of the Consortium's current strategy of reducing TN loadings by 17 tons/year to compensate for expected population growth. Our last future estimate was for the year 2010, and future growth estimates have changed since then.

These tasks will provide information for the Group 1 Tampa Bay waters and the Group 2 major drainage basins to Tampa Bay, thus supporting both the RA/TMDL allocation process and upcoming BMAPs for nutrient TMDLs throughout the Tampa Bay watershed.

If these loadings can be updated as requested, TBEP will be able to fund updated loadings in the future to support the next round of the IWR. TBEP will plan for funds for loading updates for 2008-2011, to be assessed in early 2012 to allow inclusion in the 2012 Group 1 assessment.

4.f. Frequency and format for reporting on the implementation of all proposed management activities:
2002 RA: The Consortium Action Plan Database will allow entry of new projects and summary queries at any time. The TBEP staff will solicit information on new projects (or revisions to existing projects) every 2 ½ years, and will enter this information into the Database. In addition, a NMC partner can request to revise an existing project or submit a new one at any time. A formal reporting of management activities by TBEP will take place every 5 years, to correspond with the model assumption re-evaluation and CCMP update. TBEP staff is responsible for Action Plan Database maintenance.

2007 Update: No change. Formal reporting of results will continue to occur every 5 years.

4. g. Methods for evaluating progress towards goals:
2002 RA: Progress towards water quality targets is evaluated annually by the application of the "decision matrix" (TBEP Technical Report #03-02, Attachment C). Progress towards seagrass acreage goals is evaluated every 2-3 years using the Southwest Florida Water Management District's seagrass aerial photography and digital mapping.

2007 Update: No change.

5. Description of Proposed Corrective Actions:
2002 RA: The "decision matrix"(TBEP Technical Report #04-00, Attachment G-1) outlines a process by which potential management actions may be determined. In this process, the magnitude and duration of deviations from chlorophyll *a* and light targets are used to help

determine the degree of the management response. Recommended management actions range from those associated with a "green" ranking in which all targets are met (maintain existing programs and actions); to "yellow", in which the TAC and Management Board review monitoring data and loading estimates and attempt to identify causes of target exceedences; to "red" for cases where magnitude and duration are large and a response appears necessary. Responses to "yellow" and "red" conditions will vary according to the specific conditions of the exceedences. The Management and Policy Boards will take actions they deem to be appropriate.

Because FDEP is a member of the TBEP and the Tampa Bay Nitrogen Management Consortium, the Department will be aware of all actions of the Management and Policy Boards and the Consortium, including any corrective actions that are proposed and implemented.

2007 Update: Since 1996, application of the decision framework has indicated two problematic time periods: in 1997 and 1998 all bay segments were in the "red" condition category (corresponding to high rainfall associated with a strong El Niño event), and in 2003 and 2004 the condition of one bay segment, Old Tampa Bay, resulted in a red category (Attachment 2006-2). Recommendations from the TBEP TAC for management response to the El Niño-associated period were to support immediate actions towards repair of sewer transport and pumping systems and industrial treatment water holding systems that had failed during periods with high rainfall amounts and/or rainfall rates. Actions were taken by municipalities and industrial facilities to address these failed systems. In addition to these immediate actions, the TAC recommendations were to continue monitoring to assess the need for further action following the El Niño event.

Recommendations for action in Old Tampa Bay in response to the decision matrix results in 2003-2004 were quite different than for the baywide El Niño-associated event. Following an extensive review of existing data and information, the TBEP TAC recommended an Old Tampa Bay Seagrass Recovery research program be implemented to examine factors potentially affecting seagrass recovery in this segment of Tampa Bay, followed by development of a recovery and management plan based on research results. Results and observations showed that some shallow areas in Old Tampa Bay had poorer water quality (and thus, less light available for seagrasses) than three other study areas within this bay segment. Epiphytes caused significant light reduction (25-32%) in all portions of Old Tampa Bay. Transplanted seagrass survival was very low; 0.9% after two growing seasons, compared with 21% in other areas of Tampa Bay. Additional factors, such as high wave energy or inputs of submarine groundwater, were examined; however, neither of these appears to be responsible for slower seagrass recovery rates (Griffin and Greening 2004; attachment 2007-8).

Further evaluations examined additional potential causes of poor water quality and slower seagrass recovery in Old Tampa Bay, as suggested by results of the initial study. Assessments (Attachment 2007-9) included examination of reduced circulation and slower flushing rates (possibly resulting in higher chlorophyll *a* concentrations), local sources of nitrogen loading, increased epiphyte loads, high rates of bioturbation (by stingrays and burrowing organisms), and possibly the influence of hydrogen sulfide concentrations. Results show that the Feather Sound

area of Old Tampa Bay is subject to multiple impacts, including nearshore nitrogen loading sources. Management recommendations include improved management of urban and residential stormwater runoff in the immediate watershed; conversion of septic systems to sewer in Feather Sound watershed areas ; additional planning and management for local golf courses; and restoring mosquito-ditched management areas so that water drains more slowly into the bay (thus allowing more time for nutrient uptake).

6. Summary of progress since 2002 Reasonable Assurance report

Data and observations from Tampa Bay indicate that initial efforts to reduce nitrogen loading and the continuing efforts of the TBEP and NMC partners are resulting in adequate water quality for the expansion of seagrasses. A summary of progress since the 2002 Tampa Bay Reasonable Assurance document includes the following:

Actions:

- More than 250 nitrogen reduction projects have been implemented by Consortium members since 1996, an increase of more than 100 projects since 2002.
- The baywide TN load reduction goal of 85 tons every five years has been met and exceeded for 1995-1999 (estimated 166 tons TN reduced) and 2000-2004 (estimated 113 TN tons reduced). Planned and budgeted projects for 2005-2009 are expected to reduce an additional 130 tons TN loading per year by 2009.
- The number of Tampa Bay Nitrogen Management Consortium members has increased by 5 local government entities and one private partner, to a total of 32 participating public and private partners in 2007.
- The Consortium local government and private partners have agreed to work with FDEP and EPA to develop fair and equitable TN load allocations to permitted and non-permitted sources throughout the watershed by July 2009, with the goal of meeting TN load management targets to support seagrass recovery.

Environmental Indicators

- Between January 2002 and January 2004, seagrass acreage baywide increased 946 acres, and by January 2006, another increase of 1,297 acres was recorded, resulting in the highest observed acreage estimate (28,321 acres baywide) since 1950. Estimated seagrass extent has increased by 3,480 acres since 1999 (the estimate available for the 2002 RA submittal).
- Time series plots show that, with the exception of 2003-2004 in Old Tampa Bay, and 2005 in Lower Tampa Bay, chlorophyll *a* targets have been met in all four major bay segments since 2002. In 2006, both chlorophyll *a* and light attenuation targets were met in all four major bay segments for the first time since records began in 1974.

Attachments (available at www.tbeptech.org (click on "2007 RA Update") unless noted below).

Attachment A:
(A-1): state map with Tampa Bay delineated

(A-2): Final Tampa Bay (Group 1) Status Report, developed by FDEP and dated May 9, 2002, including 305(b) bay segment boundaries, watershed boundaries and HUC codes.
Available from the FDEP website.

Attachment B:
Excerpts from F.A.C. 62-302.400 defining Class II waters for Hillsborough, Pinellas and Manatee counties.

Attachment C:
Tracking Chlorophyll-*a* and Light Attenuation in Tampa Bay: Application to 2001 Data. 2002. Technical Report #03-02 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki and R. Pribble)

Attachment D:
Estimates of Total Nitrogen, Total Phosphorus, Total Suspended Solids, and Biochemical Oxygen Demand Loadings to Tampa Bay, Florida. 2001. Technical Report #05-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (R. Pribble, A. Janicki, H. Zarbock, S. Janicki and M. Winowitch).

Attachment E:
Greening, H. 2001. Nutrient Management and Seagrass Restoration in Tampa Bay, Florida, USA. InterCoast; Fall 2001.

Attachment F:
(F-1): Final Action taken by TBNEP Management and Policy Committees, June 14, 1996, adopting goals for seagrass acreage, targets for segment-specific chlorophyll *a* concentrations, and a five-year nitrogen management strategy to "hold the line" at 1992-1994 nitrogen loadings for each bay segment.

(F-2): Final Action taken by TBEP Management and Policy Boards, May 11, 2001, extending through 2005 the previously adopted chlorophyll *a* concentrations for each bay segment, and the nitrogen management strategy to "hold the line".

(F-3): Estimating Critical Nitrogen Loads for the Tampa Bay Estuary: An Empirically Based Approach to Setting Management Targets. 1996. Technical Publication #06-96 of the Tampa Bay National Estuary Program. Prepared by Coastal Environmental, Inc. (A.J. Janicki and D.L. Wade).

(F-4): Tampa Bay Estuary Program Model Evaluation and Update: Chlorophyll *a*-Light Attenuation Relationship. 2001.Technical Report #06-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki and D. Wade).

(F-5): Tampa Bay Estuary Program Model Evaluation and Update: Nitrogen Load-Chlorophyll *a* Relationship. 2001.Technical Report #07-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki and D. Wade).

(F-6): Tampa Bay Estuary Program Tracking Progress Toward Its Nitrogen Management Goals: Fifth Year Assessment of Bay Water Quality Indicators and Models. 2001.Technical Report #10-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki).

Attachment G:
(G-1): Developing and Establishing a Process to Track the Status of Chlorophyll-*a* Concentrations and Light Attenuation to Support Seagrass Restoration Goals in Tampa Bay. 2000. Technical Report #04-00 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki, D.Wade and J.R. Pribble).

(G-2): Assessing the 2000 Chlorophyll *a* and Light Attenuation Conditions in Tampa Bay: Tracking Progress Toward TBEP Goals. 2001. Technical Report #11-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki and R. Pribble).

(G-3): Model-Based Estimates of Total Nitrogen Loading to Tampa Bay: Current Conditions and Updated 2010 Conditions. 2001.Technical Report #08-01 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Janicki, R. Pribble, H.Zarbock, S. Janicki, and M.Winowitch).

Attachment H:
(H-1): Partnership for Progress: The Tampa Bay Nitrogen Management Consortium Action Plan 1995-1999.

(H-2): 2002 Tampa Bay Nitrogen Management Consortium Action Plan Database. Available from TBEP, contact Misty Cladas at misty@tbep.org.

Attachment I:
Tampa Bay National Estuary Program Interlocal Agreement, February 1998

2007 Update: Attachments

Attachment 2007-1
Letter dated November 5, 2002 from D. Joyner (FDEP Bureau of Watershed Management) concluding that the Tampa Bay Nitrogen Management Strategy provides reasonable assurance that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed.

Attachment 2007-2
Tracking Chlorophyll-*a* and Light Attenuation in Tampa Bay: Application to 2006 Data. 2007. Technical Report #01-07 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc.

Attachment 2007-3
Tomasko, D.A., C.A. Corbett, H.S.Greening and G.E. Raulerson. 2005. Spatial and temporal variations in seagrass coverage in Southwest Florida: Assessing the relative effects of anthropogenic nutrient load reductions and rainfall in four contiguous estuaries. Marine Pollution Bulletin 50(2005) 797-805.

Attachment 2007-4
Estimates of Total Nitrogen, Total Phosphorus, Total Suspended Solids, and Biochemical Oxygen Demand Loadings to Tampa Bay, Florida: 1999 -2003. 2005. Technical Report #02-05 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc. (A. Poe, K. Hackett, S. Janicki, R. Pribble, and A. Janicki).

Attachment 2007-5
Nitrogen Loadings to Tampa Bay: Model Based Estimates of 1998 and 2010 Loads to Major Basins, and TN Load Reduction/Preclusion Apportionment. 2003. Technical Report # 04-03 of the Tampa Bay Estuary Program. Prepared by Janicki Environmental, Inc.(A. Janicki, R.Pribble and K. Hackett).

Attachment 2007-6
Summary tables of nitrogen load reduction projects in the Tampa Bay Project Database. Projects are listed by major drainage basin.

Attachment 2007-7
2007 Tampa Bay Nitrogen Management Consortium Declaration of Cooperation (this document)..

Attachment 2007-8
Griffen, L. and H. Greening. 2004. Factors Influencing Seagrass Recovery in Feather Sound, Tampa Bay, Florida. Final Report of the Feather Sound Seagrass Recovery Workgroup. Prepared for the Pinellas County Environmental Foundation. Including

technical appendices on CD. 29 pages.

Attachment 2007-10

Cross, L.M. 2007. Feather Sound Seagrass Recovery Project: Final Report and Management Recommendations for Feather Sound, Old Tampa Bay, Florida. Technical Report #03-07 of the Tampa Bay Estuary Program. Report to the Pinellas County Environmental Fund.

EXHIBIT "C" on following page

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

NOV 6 2007

Holly Greening
Senior Scientist
Tampa Bay Estuary Program
100 8th Ave Se
St Petersburg, FL 33701

Dear Ms. Greening:

On October 18, 2007 representatives from the Environmental Protection Agency's (EPA) Region 4 Water Management Division attended a meeting of the Tampa Bay Nitrogen Management Consortium (Consortium). The focus of the meeting was the Consortium's reasonable assurance (Category 4b) plan and its impact on the Florida Department of Environmental Protection's (FDEP) upcoming list of impaired waters.

As you are aware, in 1998 the FDEP developed a Total Maximum Daily Load (TMDL) for nitrogen, based upon water quality modeling coordinated through the National Estuary Program, and submitted that TMDL to EPA. On June 18, 1998, EPA approved the TMDL for four major segments of Tampa Bay. However, subsequent legislation (1999 Florida Watershed Restoration Act) required that all TMDLs be adopted by rule and FDEP did not adopt the TMDL after it placed the water in Category 4b, though it remains a federally approved TMDL.

The Consortium passed a recommendation to 1) develop and submit to FDEP by December 31, 2007 a bay-wide Reasonable Assurance document defining the Tampa Bay nitrogen management strategy for 2008-2012 and providing documentation of adequate progress during the 2002-2007 RA period, and 2) by July 2009 to submit total nitrogen waste load allocations (WLAs) for each permitted facility (for facilities with discharges above the established minimum loading threshold) within each bay segment for FDEP and EPA review. By these actions, the Consortium anticipates that FDEP will not include the Tampa Bay segments on its next list of impaired waters for the "Group 1" Basins, which includes Tampa Bay.

FDEP has indicated that the Consortium's approach will probably be acceptable to show adequate progress. It has also stated that permits which need renewal or revision before July 2009 will be renewed or revised to reflect existing nitrogen loadings. This permitting strategy will address EPA's concern with current permitted loadings exceeding the federally approved TMDL.

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2

The Consortium's recommendation combined with FDEP's permitting strategy is acceptable to EPA. If you have any questions, please feel free to contact me at 404-562-9967.

Sincerely,

Annie M. Godfrey

Annie M. Godfrey, Chief
East Standards, Monitoring, and
TMDL Section

cc: Daryll Joyner, FDEP

A.2. Letter to FDEP: Comments on the 2008 Group 1 Verified List and Developing Nitrogen Load Allocations for Tampa Bay in Conjunction With the Watershed (March 31, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

March 31, 2008

Mr. Daryll Joyner
Standards and Special Projects
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Mr. Jan Mandrup-Poulsen, Environmental Administrator
Watershed Assessment Section
Florida Department of Environmental Protection
Mail Station 3555
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Comments on the Group 1 Verified List and nitrogen load allocations for Tampa Bay and its watershed

Dear Mr. Joyner and Mr. Mandrup-Poulsen:

As you know, the Tampa Bay Nitrogen Management Consortium is currently developing recommendations regarding nitrogen load allocations for permitted sources in the Tampa Bay watershed. This work is being done in order to meet state and federal water quality requirements (FDEP reasonable assurance and the federally-recognized TMDLs), as well as TBEP resource management goals that have been adopted for the bay. The Consortium is working to finalize its recommendations regarding these allocations by July 31, 2009, in accordance with the Tampa Bay 2007 Reasonable Assurance document that was submitted to FDEP on January 31, 2008.

On a separate track, FDEP has recently proposed a verified list of nutrient-impaired estuarine and freshwater WBIDs (Group 1) in the Tampa Bay watershed, and will soon be developing TMDLs and nitrogen allocations for those WBIDs that are not covered by the pending Reasonable Assurance for Tampa Bay. Evaluation of Group 2 WBIDs is scheduled to follow shortly thereafter. Consortium members, who represent more than 30 public and private entities ranging from individual permittees to local environmental regulatory agencies, feel strongly that the nitrogen load allocations that are developed by the Department to address these nutrient-impaired WBIDs should be coordinated with the nitrogen load allocations that are developed to meet reasonable assurance requirements for the bay. With this in mind, we strongly encourage FDEP to adopt a watershed-based approach in which the three sets of nitrogen load allocations are developed concomitantly using consistent methods. Among other benefits, this should help to reduce the possibility that multiple, and potentially inconsistent, nitrogen load allocations be assigned to a given permittee and that regulatory oversight of these potentially inconsistent allocations would be diminished among local, regional, and state processes.

Consortium members look forward to working with FDEP to develop and implement a watershed-based nitrogen allocation approach, and would recommend that it include the following components:

1. The use of compatible and consistent load estimation and water quality modeling approaches to develop nitrogen load allocations for the bay and for nutrient-related impairments of WBIDs throughout the watershed;

2. The use of a consistent load accounting system, including provisions that allow actions taken by permittees to address nitrogen loadings to Tampa Bay to also be counted as part of the load allocations to address nitrogen-impaired WBIDs throughout the watershed;

3. The development and issuance of a single discharge permit to each permitted entity, which addresses its nitrogen load allocation from both a bay and watershed perspective.

We believe that addressing the nitrogen impairments in Tampa Bay and its watershed in a coordinated approach will benefit both the Department (by addressing TMDLs for Group 1 and Group 2 and reducing the potential for administrative challenges) and the Consortium (by eliminating the possibility of multiple allocations), as well as supporting the most critical reason for this approach – continuing the protection and restoration of nutrient-impaired waters of Tampa Bay and its watershed in a timely manner.

Consortium members will be pleased to work with Department staff in this effort, and look forward to the opportunity to continue to develop rigorous and technically-defensible nitrogen loading targets and allocations for the bay and its watershed.

Sincerely,

Rob Brown
TBNMC Local Government Co-Chair
Manatee County

Jeff Stewart
TBNMC Industry Co-Chair
Mosaic Fertilizer Company

cc: Tampa Bay Nitrogen Management Consortium members
Eric Livingston, FDEP
Fred Calder, FDEP
John Abendroth, FDEP
Terry Hansen, FDEP
Deborah Getzhoff, TBEP Policy Board Co-Chair
Tom Welborn, TBEP Policy Board Co-Chair
Holly Greening, TBEP Executive Director

Florida Department of
Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

July 11, 2008

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ESTUARY PROGRAM

Mr. Rob Brown, TBNMC Local Government Co-Chair
202 6th Avenue East
Manatee County
Bradenton, FL 34208

Mr. Jeff Stewart, TBNMC Industry Co-Chair
Mosaic Fertilizer Company
8813 Highway 41 South
Riverview, FL 33569

Dear Messrs. Brown and Stewart:

This is in response to your March 31, 2008 and June 4, 2008 letters regarding the nitrogen load allocations for Tampa Bay and its' tributaries. We appreciate the Nitrogen Management Consortium's (NMC) efforts to keep the Florida Department of Environmental Protection (FDEP) informed throughout the allocation process being conducted as part of the Reasonable Assurance demonstration, and would like to provide our position on the NMC's recommendations related to a) coordination of the allocation process for the bay and its tributaries, and b) the proposed conceptual approach for nutrient Total Maximum Daily Load (TMDL) development for the tributaries.

As requested in the March 31, 2008 letter, we are amenable to coordinating the allocation process for the tributary and bay TMDLs to the extent possible. This would, at a minimum, include use of compatible and consistent load estimation approaches and load accounting system. However, there remains a lot of uncertainty about the impairment status, the specific analytical approaches that will be used for the TMDLs for the tributaries, and the ability of the Department to redirect resources to expediting TMDLs and completing allocations through Basin Management Action Plan development (BMAP).

At this time, we do not know all the specific pollutants that will have to be addressed in the tributary TMDLs because the Group 2 Basin verified list will not be completed until later this year. Once impairment status is determined, we will need to start the TMDL planning process. At that time, we will consider the approaches to the tributary TMDLs proposed by the consortium, and of course engage stakeholders in that process. We are open to use of the statistical approach recommended by Dr. Janicki to determine nutrient TMDLs, or WQBELS, for the tributaries, but the statistical approaches contemplated may not be able to address impairments due to dissolved oxygen. Given the TMDL development demands of the Federal Consent Decree and the Department's commitment to adopt all TMDLs in lieu of the Environmental Protection Agency, it is unlikely that the FDEP will be able to commit substantial resources to expediting the tributary TMDLs.

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Our current approach to TMDL development involves completing TMDLs for all verified impairments subject to consent decree deadlines. In the Tampa Bay Group 1 and Tampa Bay Tributaries Group 2 Basins there are currently 120 impaired parameter listings on the verified lists scheduled for TMDL development (as shown on the enclosed table). Within this total, there are 81 nutrient-related impairments, of which 37 are due to be completed under the consent decree timelines. There are an additional 17 fecal coliform bacteria impairment listings subject to consent decree timelines.

With respect to the consent decree impairment listings, after the Group 2 Basin Cycle 2 verified list is completed later this year, the FDEP will work to establish TMDLs for consent decree waters within Calendar Year 2009. With respect to other waterbody impairments, FDEP's current plan is to schedule those for future years when the demands of the consent decree have subsided. However, FDEP is always open to local governments and third parties conducting the necessary analysis and making the allocation recommendations necessary to produce a TMDL that the Department can then potentially adopt into State rules. Should the TBNMC decide to take on this challenge, the Department will need to participate in an advisory capacity.

The Department remains keenly interested in resolving the long standing issues regarding the allocation of the Tampa Bay TMDL and moving forward with necessary permitting. With that in mind, we want to emphasize that the Department is not receptive to delaying the schedule for completion of the revised allocation for the bay (July 2009).

We appreciate all the hard work the NMC has done to improve water quality in Tampa Bay, and will do what we can to coordinate TMDL development and BMAP implementation activities throughout the watershed while still meeting our obligations for the TMDL Program. If you have any questions about this response, please call Daryll Joyner at (850) 245-8431.

Sincerely,

Eric H Livingston for

Drew Bartlett, Deputy Director
Division of Environmental Assessment
and Restoration

Enclosure

cc: Jim Giattina, USEPA Region IV
Holly Greening, Tampa Bay Estuary Program
Deborah Getzoff
Charles Kovach
Daryll Joyner
Jan Mandrup-Poulsen

Verified Impaired Listings in the Tampa Bay Watershed

(Rows in bold signify TMDLs currently scheduled under the consent decree)

Waterbody Segment	WBID	Waterbody Type	Impairment
BRUSHY CREEK	**1498**	**STREAM**	**Fecal Coliform**
SWEETWATER CREEK	**1516**	**STREAM**	**Fecal Coliform**
MOCCASIN CREEK TIDAL	**1530**	**ESTUARY**	**Fecal Coliform**
MULLET CREEK TIDAL	**1575**	**ESTUARY**	**Fecal Coliform**
CROSS CANAL (NORTH)	**1625**	**ESTUARY**	**Fecal Coliform**
LAKE TARPON CANAL	1541A	ESTUARY	Fecal Coliform
TROUT CREEK	1455	STREAM	Fecal Coliform
TWO HOLE BRANCH	1489	STREAM	Fecal Coliform
MILL CREEK	1542A	STREAM	Fecal Coliform
SOUTH FORK LITTLE MANATEE RIVER	1790	STREAM	Fecal Coliform
UNNAMED STREAM	1913	STREAM	Fecal Coliform
BRADEN RIVER ABOVE WARD LAKE	1914	STREAM	Fecal Coliform
RATTLESNAKE SLOUGH	1923	STREAM	Fecal Coliform
CEDAR CREEK	1926	STREAM	Fecal Coliform
TURKEY CREEK ABOVE LITTLE ALAFIA	1578B	STREAM	Fecal Coliform
LITTLE MANATEE RIVER	1742A	STREAM	Fecal Coliform
LAKE MANATEE RESERVOIR	1807B	LAKE	Fecal Coliform
BELLOWS LAKE OUTLET	**1579**	**STREAM**	**Dissolved Oxygen**
BLACK POINT CHANNEL	**1637**	**ESTUARY**	**Dissolved Oxygen**
TAMPA BYPASS CANAL	**1536C**	**STREAM**	**Dissolved Oxygen**
PALM RIVER	**1536E**	**ESTUARY**	**Dissolved Oxygen**
BULLFROG CREEK	**1666A**	**ESTUARY**	**Dissolved Oxygen**
SMACKS BAYOU	**1683**	**ESTUARY**	**Dissolved Oxygen**
COFFEEPOT BAYOU	**1700**	**ESTUARY**	**Dissolved Oxygen**
COCKROACH BAY	**1778**	**ESTUARY**	**Dissolved Oxygen**
DOUBLE BRANCH	**1513**	**ESTUARY**	**Dissolved Oxygen**
SWEETWATER CREEK	**1516**	**STREAM**	**Dissolved Oxygen**
MOCCASIN CREEK TIDAL	**1530**	**ESTUARY**	**Dissolved Oxygen**
LOWER ROCKY CREEK	**1563**	**ESTUARY**	**Dissolved Oxygen**
BISHOP CREEK TIDAL	**1569**	**ESTUARY**	**Dissolved Oxygen**
ALLIGATOR CREEK	**1574**	**STREAM**	**Dissolved Oxygen**
MULLET CREEK TIDAL	**1575**	**ESTUARY**	**Dissolved Oxygen**
ALLEN CREEK TIDAL	**1604**	**ESTUARY**	**Dissolved Oxygen**
CROSS CANAL (NORTH)	**1625**	**ESTUARY**	**Dissolved Oxygen**
LAKE TARPON CANAL	**1541B**	**STREAM**	**Dissolved Oxygen**
ALLIGATOR LAKE	1574A	LAKE	Dissolved Oxygen
UNNAMED STREAM	1913	STREAM	Dissolved Oxygen
RATTLESNAKE SLOUGH	1923	STREAM	Dissolved Oxygen
CEDAR CREEK	1926	STREAM	Dissolved Oxygen
HILLSBOROUGH RIVER	1443A	STREAM	Dissolved Oxygen
NORTH PRONG ALAFIA RIVER	1621E	STREAM	Dissolved Oxygen
ALAFIA RIVER ABOVE HILLSBOROUGH BAY	1621G	ESTUARY	Dissolved Oxygen
LAKE MANATEE RESERVOIR	1807B	LAKE	Dissolved Oxygen
TAMPA BYPASS CANAL	**1536C**	**STREAM**	**Nutrients**
BULLFROG CREEK	**1666A**	**ESTUARY**	**Nutrients**
BELLOWS LAKE OUTLET	**1579**	**STREAM**	**Nutrients**
PALM RIVER	**1536E**	**ESTUARY**	**Nutrients**

Verified Impaired Listings in the Tampa Bay Watershed

(Rows in bold signify TMDLs currently scheduled under the consent decree)

Waterbody Segment	WBID	Waterbody Type	Impairment
SMACKS BAYOU	**1683**	**ESTUARY**	**Nutrients**
COCKROACH BAY	**1778**	**ESTUARY**	**Nutrients**
LOWER ROCKY CREEK	**1563**	**ESTUARY**	**Nutrients**
LAKE TARPON CANAL	**1541A**	**ESTUARY**	**Nutrients**
ALAFIA RIVER ABOVE HILLSBOROUGH BAY	**1621G**	**ESTUARY**	**Nutrients**
TURKEY CREEK ABOVE LITTLE ALAFIA	**1578B**	**STREAM**	**Nutrients**
BULLFROG CREEK	1666	STREAM	Fecal Coliform
DELANEY CREEK TIDAL	1605D	ESTUARY	Fecal Coliform
LITTLE BAYOU - BASIN Q	1709D	ESTUARY	Fecal Coliform
ENGLISH CREEK	1552	STREAM	Fecal Coliform
BRADEN RIVER BEOW WARD LAKE	1876	ESTUARY	Fecal Coliform
UNNAMED DRAIN	1912	STREAM	Fecal Coliform
ITCHEPACKESASSA CREEK	1495B	STREAM	Fecal Coliform
NORTH FORK LITTLE MANATEE RIVER	1742B	STREAM	Fecal Coliform
MANATEE RIVER	1807A	STREAM	Fecal Coliform
COOPER CREEK	1930A	STREAM	Fecal Coliform
SIXMILE CREEK	1536F	STREAM	Dissolved Oxygen
DELANEY CREEK TIDAL	1605D	ESTUARY	Dissolved Oxygen
LITTLE BAYOU - BASIN Q	1709D	ESTUARY	Dissolved Oxygen
LAKE TARPON	1486A	LAKE	Dissolved Oxygen
TWO HOLE BRANCH	1489	STREAM	Dissolved Oxygen
POLEY CREEK	1583	STREAM	Dissolved Oxygen
BIRD BRANCH	1645	STREAM	Dissolved Oxygen
LAKE BRANCH	1697	STREAM	Dissolved Oxygen
ALDERMANN CREEK	1768	STREAM	Dissolved Oxygen
MILL CREEK	1872	STREAM	Dissolved Oxygen
HILLSBOROUGH RESERVOIR	1443E1	LAKE	Dissolved Oxygen
HILLSBOROUGH RIVER	1443E	ESTUARY	Dissolved Oxygen
ALAFIA RIVER ABOVE HILLSBOROUGH BAY	1621A	STREAM	Dissolved Oxygen
COOPER CREEK	1930A	STREAM	Dissolved Oxygen
DELANEY CREEK TIDAL	1605D	ESTUARY	Lead
LAKE HUNTER	1543	LAKE	Lead
SIXMILE CREEK	1536F	STREAM	Nutrients
DELANEY CREEK TIDAL	1605D	ESTUARY	Nutrients
LITTLE BAYOU - BASIN Q	1709D	ESTUARY	Nutrients
LAKE TARPON OUTLET	1486	STREAM	Nutrients
BUCK LAKE OUTLET	1493	STREAM	Nutrients
ALAFIA RIVER ABOVE HILLSBOROUGH BAY	1621A	STREAM	Nutrients
MANATEE RIVER BELOW DAM	1848B	ESTUARY	Nutrients
SWEETWATER CREEK	1516	STREAM	Nutrients
LAKE JUANITA	1473W	LAKE	Nutrients
MOUND LAKE	1473X	LAKE	Nutrients
CALM LAKE	1473Y	LAKE	Nutrients
CRESCENT	1474V	LAKE	Nutrients
LAKE REINHEIMER	1478H	LAKE	Nutrients
BRANT LAKE	1494B	LAKE	Nutrients
LAKE ESTES	1502A	LAKE	Nutrients
CHAPMAN LAKE	1502C	LAKE	Nutrients
LAKE CARROLL	1516A	LAKE	Nutrients

LAKE MADELENE	1516B	LAKE	Nutrients

Verified Impaired Listings in the Tampa Bay Watershed

(Rows in bold signify TMDLs currently scheduled under the consent decree)

Waterbody Segment	WBID	Waterbody Type	Impairment
BECKETT LAKE	1603C	LAKE	Nutrients
TWIN LAKE	1440D	LAKE	Nutrients
KEENE LAKE	1451B	LAKE	Nutrients
LAKE THONOTOSASSA	1522B	LAKE	Nutrients
CEDAR LAKE (EAST)	1523C	LAKE	Nutrients
LAKE ECKLES	1523D	LAKE	Nutrients
LAKE VALRICO	1547A	LAKE	Nutrients
LAKE WEEKS	1547C	LAKE	Nutrients
LAKE SILVER	1553A	LAKE	Nutrients
WARD LAKE	1914A	LAKE	Nutrients
LAKE HANNA	1451T	LAKE	Nutrients
BISHOPS HARBOR	1797B	ESTUARY	Shellfish
COCKROACH BAY	1778	ESTUARY	Shellfish
TAMPA BAY LOWER	1558A	ESTUARY	Shellfish
TAMPA BAY MIDDLE	1558B	ESTUARY	Shellfish
TAMPA BAY MIDDLE	1558BZ	ESTUARY	Shellfish
OLD TAMPA BAY LOWER	1558F	ESTUARY	Shellfish
OLD TAMPA BAY	1558G	ESTUARY	Shellfish
OLD TAMPA BAY	1558H	ESTUARY	Shellfish
OLD TAMPA BAY	1558I	ESTUARY	Shellfish
LAKE HUNTER	1543	LAKE	Turbidity

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUL 21 2008

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

JUL 2

Dear Ms. Greening:

Thank you for your June 5, 2008, letter updating the Environmental Protection Agency (EPA) regarding the Tampa Bay Nitrogen Management Consortium's (Consortium) proposed approach to reallocate the nitrogen loads for Tampa Bay and its tributaries. In your letter, you state that the Consortium would like to reallocate the nitrogen loads for Tampa Bay in concert with the development of the Total Maximum Daily Loads (TMDLs) for its tributaries.

As stated in our November 6, 2007 letter, EPA supports the Consortium's approach to reallocate the federally approved Tampa Bay TMDL by July 2009. EPA, with the Florida Department of Environmental Protection (FDEP), is looking forward to resolving the issues associated with the Tampa Bay TMDL. We anticipate the Consortium's approach to reallocate the Tampa Bay TMDL concomitantly with the tributary TMDLs will not delay the reallocation process for the Bay beyond 2009.

There are approximately 50 waterbodies located in Tampa Bay and its tributaries that still require TMDLs according to EPA's consent decree. The FDEP is completing its assessment of these waterbodies and has the responsibility to establish those TMDLs in accordance with the consent decree schedule under Section 303(d) of the Clean Water Act. FDEP will prioritize any impaired waterbody that is added to the previous Section 303(d) list for TMDL development on a schedule that does not conflict with the consent decree. We encourage the Consortium to work with FDEP in the development of these TMDLs.

We appreciate the Consortium's involvement in the development of TMDLs for the Tampa Bay watershed. We look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

Dee Stewart for

James D. Giattina, Director
Water Management Division

ED_002491_00001148-00155

A.3. Allowable Temporal Scales to Express Wasteload Reallocation

re DEPEPA consensus on 5-year rolling avg and annual limits for Tampa Bay TN TMDL.txt
From: Hyatt.Marshall@epamail.epa.gov
Sent: Tuesday, May 27, 2008 4:24 PM
To: hgreening@tbep.org; esherwood@tbep.org
Cc: elsa.potts@dep.state.fl.us; daryll.joyner@dep.state.fl.us;
jeff.greenwell@dep.state.fl.us; Burks.Felicia@epamail.epa.gov;
Godfrey.Annie@epamail.epa.gov; Buff.Virginia@EPA.GOV;
Eason.Jennifer@epamail.epa.gov; JanickiEnv@aol.com
Subject: re DEP/EPA consensus on 5-year rolling avg and annual limits
for Tampa Bay TN TMDL

Based on today's discussion,, both DEP and EPA agree that any five-year rolling average loadings developed as part of the wasteload reallocation process will be implemented as both five-year rolling average permit limits and annual average permit limits. Flexibility exists for how the annual average permit limits are translated from the five-year rolling average wasteload allocation - consideration can be given for rainfall-related limits, etc.

A.4. Final Small Source Allocations for Groundwater NPDES Permittees Cumulatively Assigned by Bay Segment (Oct. 15, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: October 15, 2008

SUBJECT: Allocation to small sources

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium Co-Chairs, please find attached a summary of the NMC recommendation for TN load allocations for small groundwater sources in the Tampa Bay watershed, as an element of the Reasonable Assurance process. On October 2, 2008, based on the background provided by FDEP, the Consortium recommended allocating a baywide total of 15 tons TN/year for small groundwater sources. Please see the attached document for details and small source allocations for each bay segment.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

We request that FDEP and EPA provide concurrence or alternative recommendations regarding the Consortium's recommendation for TN allocations to small groundwater sources via email or in writing no later than October 29, 2008. Thank you for considering our very tight timeline for development of recommendations through this process.

Small Source Allocation

Action Approved October 2, 2008
The Tampa Bay Nitrogen Management Consortium recommends that cumulative allocations for small groundwater sources (i.e., entities discharging <0.1 MGD) be assigned to the major bay segments from the groundwater/springs source category according to the table listed below. Approved by consensus of those present (no nays recorded).

Background:

Following an estimation that the multiple small facilities located within the Tampa Bay watershed collectively discharged less than 1% of the total TN load to Tampa Bay, nitrogen loads estimated from small sources (<0.1 MGD) were not included in the 1992-1994 TN loading estimates generated by the Tampa Bay National Estuary Program as part of the goal setting process in 1996. Therefore, these small facilities and loads were not included in the 1998 federally-recognized TMDL, which adopted the TBNEP 1992-1994 estimated loads as the nitrogen TMDL for the four major bay segments.

FDEP has suggested that bay segment-specific allocations for TN loads from small sources be held back from the total segment allocation, to account for their cumulative loads. On August 26, 2008, the TBNMC agreed in concept to allocate bay segment-specific TN loads to small sources, pending review of FDEP's estimated cumulative loads from those sources.

Methods and results of FDEP's estimates are shown on the following pages. Recommended bay segment cumulative TN allocations for small sources are as follows:

BAY SEGMENT	CUMULATIVE SMALL SOURCE ALLOCATION (TONS TN/YEAR)	FEDERALLY-RECOGNIZED TMDL (TONS TN)	SMALL SOURCE ALLOCATION PERCENT OF TOTAL TMDL
Hillsborough Bay	11.5	1451	0.8%
Old Tampa Bay	1.0	486	0.2%
Middle Tampa Bay	2.4	799	0.3%
Lower Tampa Bay	0.3	349	0.1%

FDEP Estimate of Small Source (<0.1 MGD) Nitrogen Load to Tampa Bay

A review of FDEP permitted small source dischargers (<0.1 MGD) was conducted in order to better quantify the total nitrogen load to Tampa Bay attributable to these facilities. The majority of these sources are permitted as groundwater applications with effluent being discharged to either spray fields or percolation ponds.

Annual total nitrogen loads, in tons/year, were computed utilizing the permitted design flow for each facility, the maximum allowable nitrogen concentration of 10 mg/L at the edge of the Zone of Discharge, and the appropriate attenuation factor (70% for percolation ponds, 90% for spray fields). Facilities were than grouped by Bay segment so that small source nitrogen loads could be calculated for each of the four Bay segments.

Following is an example of how the annual nitrogen load for a single small source facility was calculated:

Facility X: discharges to a perc pond

Permitted design flow: 0.012 MGD
Assumed total nitrogen concentration: 10 mg/L

$$\frac{12{,}000\ \text{gallons}}{\text{Day}} \times \frac{3.785\ \text{liters}}{\text{gallon}} \times \frac{10\ \text{mg}}{\text{liter}} \times \frac{1\ \text{gram}}{1000\ \text{mg}} \times \frac{1\ \text{kg}}{1000\ \text{grams}} \times \frac{2.2\ \text{LB}}{1\ \text{kg}} \times \frac{1\ \text{ton}}{2000\ \text{LB}} \times \frac{365\ \text{days}}{\text{year}} =$$

$$\mathbf{0.18\ \frac{tons}{year}}$$

Facility discharges to a percolation pond resulting in 70% attenuation (conversely 30% of the load is assumed to reach Tampa Bay):

$$0.18\ \frac{\text{tons}}{\text{year}} \times 0.30 = 0.054\ \frac{\text{tons}}{\text{year}}$$

Therefore, for the purpose of this exercise, the total nitrogen load for this facility would be reported as:

0.054 tons/year

Had this facility discharged to a spray field (90% attenuation) the reported nitrogen load would be:

$$0.18\ \frac{\text{tons}}{\text{year}} \times 0.10 = \mathbf{0.018\ \frac{tons}{year}}$$

	County	Bay Segment	Facility ID	Name	MGD	Tons/Year @ 10mg/L	Attenuation Rate	Annual Load	FREQ	Type
1	????	Hillsborough Bay	FLA364673	Santa Sweets	0.043	0.79	90%	0.079		
2	Polk	Hillsborough Bay	FLA013024	Twin Lakes MHP	Off-Line					Off-Line
3	Hillsborough	Hillsborough Bay	FLA012172	Florida Engineered Construction Pro	0.005	0.09				industrial reuse
4	Hillsborough	Hillsborough Bay	FLA012180	Mosaic Fertilizer, LLC - Lonesome M	0.015	0.27				industrial reuse
5	Hillsborough	Hillsborough Bay	FLA012137	Tampa East RV Resort	0.015	0.27	70%	0.082		Perc
6	Hillsborough	Hillsborough Bay	FLA012178	Waterside MHP	0.012	0.22	70%	0.066		perc
7	Hillsborough	Hillsborough Bay	FLA012161	Eastwood Estates MHP WWTP	.01/0.025		70%/90%	0.101	3M	Both
8	Hillsborough	Hillsborough Bay	FLA012138	Windermere Utilities	0.185166	2.81	70%	0.844	3M	Perc
9	Hillsborough	Hillsborough Bay	FLA012162	Lamplighter MHP	0.0961	1.46	70%	0.438	AA	Perc
10	Hillsborough	Hillsborough Bay	FLA012185	Davpam MHP	0.095	1.44	70%	0.433	3M	Perc
11	Hillsborough	Hillsborough Bay	FLA012190	Featherock	0.08	1.22	70%	0.365	3M	Perc
12	Hillsborough	Hillsborough Bay	FLA012168	Paradise Village MHP	0.077	1.17	70%	0.351	AA	Perc
13	Pasco	Hillsborough Bay	FLA012820	Hillcrest RV Resort WWTF	0.07	1.06	70%	0.319	AA	Perc
14	Hillsborough	Hillsborough Bay	FLA122246	Country Meadows-Golden Lakes W	0.064	0.97	70%	0.292	AA	Perc
15	Pasco	Hillsborough Bay	FLA012803	Ramblewood MHP WWTF	0.06	0.91	90%	0.091	AA	2 Fields (56,628 sq ft); 1 pond (5,500 sq ft)
16	Hillsborough	Hillsborough Bay	FLA012208	Harmony Ranch MHP WWTP	0.06	0.91	90%	0.091	3M	SF Subsurface Irrigation Field
17	Hillsborough	Hillsborough Bay	FLA012608	Hillsborough Correctional Institute	0.06	0.91	90%	0.091	AA	SF and 600,000 sqf Holding Pond
18	Hillsborough	Hillsborough Bay	FLA012219	Southern Aire RVP	0.045	0.68	70%	0.205	3M	Perc
19	Pasco	Hillsborough Bay	FLA012778	Country Aire Village WWTF	0.04	0.61	70%	0.182	AA	Perc
20	Pasco	Hillsborough Bay	FLA012829	Palm Tree Acres MHP	0.04	0.61	70%	0.182	3M	Perc
21	Hillsborough	Hillsborough Bay	FLA012189	Paradise Village #2-South	0.04	0.61	70%	0.182	AA	Perc
22	Hillsborough	Hillsborough Bay	FLA012232	Parkwood Estates Mobile home Park	0.04	0.61	70%	0.182	3M	Perc
23	Hillsborough	Hillsborough Bay	FLA012128	Briarwood MHP	0.035	0.53	70%	0.160	3M	Perc
24	Hillsborough	Hillsborough Bay	FLA012175	Riverwalk Village MHP	0.035	0.53	70%	0.160	3M	0.35 Perc
25	Hillsborough	Hillsborough Bay	FLA012200	Spanish Main Travel Resort	0.035	0.53	70%	0.160	3M	Perc
26	Hillsborough	Hillsborough Bay	FLA012113	Durrant High School WWTP	0.033	0.50	70%	0.150	3M	Perc
27	Hillsborough	Hillsborough Bay	FLA012229	Madison Lane Estates MHP	0.032	0.49	70%	0.146	3M	Perc
28	Polk	Hillsborough Bay	FLA012957	Kathleen Middle School	0.03	0.46	70%	0.137	AA	Perc
29	Hillsborough	Hillsborough Bay	FLA012223	Eastfield Slopes	0.03	0.46	70%	0.137	AA	Perc
30	Hillsborough	Hillsborough Bay	FLA012254	Hidden River Travel Resort	0.03	0.46	70%	0.137	3M	Perc
31	Hillsborough	Hillsborough Bay	FLA012139	Strawberry Fields MHP WWTP	0.027	0.41	70%	0.123	3M	Perc
32	Hillsborough	Hillsborough Bay	FLA012186	Windward Knoll	0.026	0.40	70%	0.119	3M	Perc
33	Pasco	Hillsborough Bay	FLA023933	Arbor Oaks	0.025	0.38	70%	0.114	3M	Perc
34	Pasco	Hillsborough Bay	FLA012836	Grove Ridge Estates	0.025	0.38	70%	0.114	AA	Perc
35	Hillsborough	Hillsborough Bay	FLA012263	Bay Hills Village Mobile Home Park	0.025	0.38	70%	0.114	3M	Perc
36	Hillsborough	Hillsborough Bay	FLA012218	Camp Lemora RVP	0.025	0.38	90%	0.038	3M	SF
37	Hillsborough	Hillsborough Bay	FLA012209	King Richards Court MHP	0.025	0.38	70%	0.114	3M	Perc
38	Hillsborough	Hillsborough Bay	FLA012173	Oakhill MobileHome Park	0.025	0.38	70%	0.114	3M	Perc
39	Hillsborough	Hillsborough Bay	FLA012246	Magnolia Hill	0.0249	0.38	70%	0.114	3M	Perc
40	Hillsborough	Hillsborough Bay	FLA012145	Sunburst Tampa EAST No.2	0.0233	0.35	70%	0.106	AA	0.33 Perc
41	Hillsborough	Hillsborough Bay	FLA012136	Happy Traveler RVP	0.0225	0.34	70%	0.103	3M	Perc
42	Pasco	Hillsborough Bay	FLA012807	Happy Days RV Park WWTF	0.022	0.33	70%	0.100	AA	Perc
43	Polk	Hillsborough Bay	FLA013056	Scenic View MHP	0.022	0.33	70%	0.100	AA	Perc
44	Hillsborough	Hillsborough Bay	FLA012238	Alafia Riverfront, Inc	0.022	0.33	70%	0.100	3M	Perc
45	Hillsborough	Hillsborough Bay	FLA012177	Camelot MHP	0.022	0.33	70%	0.100		Perc
46	Hillsborough	Hillsborough Bay	FLA012253	Robinson's Orange Park	0.021	0.32	70%	0.096	3M	Perc
47	Hillsborough	Hillsborough Bay	FLA012099	Turkey Creek Jr H S & Robinson El Sh	0.021	0.32	70%	0.096	3M	Perc
48	Pasco	Hillsborough Bay	FLA012818	Fisherman's Cove WWTF	0.02	0.30	70%	0.091	AA	Perc
49	Hillsborough	Hillsborough Bay	FLA012154	Alafia Mobile Plaza	0.02	0.30	70%	0.091	3M	Perc
50	Hillsborough	Hillsborough Bay	FLA012158	Bullfrog Creek MHP	0.02	0.30	90%	0.030	3M	SF
51	Hillsborough	Hillsborough Bay	FLA012176	Chatteau Forrest MHP	0.02	0.30	70%	0.091	3M	Perc
52	Hillsborough	Hillsborough Bay	FLA023336	Country Aire Mobile home Park WWTF	0.02	0.30	70%	0.091	3M	Perc
53	Hillsborough	Hillsborough Bay	FLA012227	Grand Oaks Apartments WWTP	0.02	0.30	70%	0.091	3M	Perc
54	Hillsborough	Hillsborough Bay	FLA012212	Pine Oaks MHP	0.02	0.30	70%	0.091	3M	0.2 Perc
55	Hillsborough	Hillsborough Bay	FLA012261	Riverview Oaks Shopping Center	0.02	0.30	70%	0.091	3M	0.2 Rapid Rate Subsurface Absorption
56	Hillsborough	Hillsborough Bay	FLA012194	Speer MHP	0.02	0.30	70%	0.091	3M	Perc
57	Polk	Hillsborough Bay	FLA016595	Lakeland Cold Storage	0.018	0.27	70%	0.082	AA	Perc
58	Hillsborough	Hillsborough Bay	FLA012121	Maniscalco Elementary School	0.018	0.27	70%	0.082	3M	Perc
59	Hillsborough	Hillsborough Bay	FLA012192	Plantation Oaks MHP	0.0164	0.25	70%	0.075	3M	Perc
60	Pasco	Hillsborough Bay	FLA012739	Centential Elementary School	0.016	0.24	70%	0.073	AA	Perc
61	Hillsborough	Hillsborough Bay	FLA012152	Nistal Park	0.016	0.24	70%	0.073	3M	0.16 Subsurface Absorption Field
62	Polk	Hillsborough Bay	FLA012999	Briarwood Estates	0.015	0.23	70%	0.068	3M	Perc
63	Polk	Hillsborough Bay	FLA013052	Country Villa MHC	0.015	0.23	70%	0.068	AA	Perc
64	Polk	Hillsborough Bay	FLA012964	R Clem Churchwell Elementary School	0.015	0.23	70%	0.068	AA	Perc
65	Polk	Hillsborough Bay	FLA012971	Socrum Loop Elementary School	0.015	0.23	70%	0.068	AA	Perc
66	Hillsborough	Hillsborough Bay	FLA012148	Brandon Trailer Park	0.015	0.23	70%	0.068	3M	Perc
67	Hillsborough	Hillsborough Bay	FLA012174	Charlie's MHP	0.015	0.23	70%	0.068	3M	Perc
68	Hillsborough	Hillsborough Bay	FLA012247	Citrus Hills RV Park	0.015	0.23	90%	0.023	3M	SF
69	Hillsborough	Hillsborough Bay	FLA012233	Country Haven on Bullfrog Creek	0.015	0.23	70%	0.068	AA	Perc
70	Hillsborough	Hillsborough Bay	FLA012091	Knights Elementary School	0.015	0.23	70%	0.068	3M	Perc
71	Hillsborough	Hillsborough Bay	FLA012101	Mcdonald Elem Sch	0.015	0.23	70%	0.068	3M	Perc
72	Hillsborough	Hillsborough Bay	FLA012092	Dover Elem Sch	0.014	0.21	70%	0.064	3M	Perc
73	Hillsborough	Hillsborough Bay	FLA012135	Branch Ranch Restaurant	0.013	0.20	70%	0.059	3M	Perc
74	Pasco	Hillsborough Bay	FLA012722	San Antonio Elementary School WWTF	0.0123	0.19	70%	0.056	3M	Perc
75	Pasco	Hillsborough Bay	FLA012774	Wooddale MHP WWTF	0.012	0.18	70%	0.055	AA	Perc
76	Hillsborough	Hillsborough Bay	FLA012156	Oakside MHP	0.012	0.18	70%	0.055	3M	0.12 Absorbtion drain field
77	Hillsborough	Hillsborough Bay	FLA012108	Pinecrest Elementary School	0.012	0.18	70%	0.055	3M	Perc
78	Hillsborough	Hillsborough Bay	FLA012240	Rainbow Rock Mobile Home Park	0.012	0.18	70%	0.055	3M	0.12 Perc
79	Hillsborough	Hillsborough Bay	FLA012096	Springhead Elem Sch	0.012	0.18	70%	0.055	3M	Perc
80	Hillsborough	Hillsborough Bay	FLA012059	Town and Country MHP	0.012	0.18	70%	0.055	AA	0.12 Perc
81	Hillsborough	Hillsborough Bay	FLA012098	Trappnell Elem Sch	0.012	0.18	70%	0.055	3M	Perc
82	Hillsborough	Hillsborough Bay	FLA012097	Thonotosassa Elem School	0.011	0.17	70%	0.050	3M	Perc
83	Hillsborough	Hillsborough Bay	FLA012181	Twin Oaks Plaza	0.0105	0.16	70%	0.048	3M	Perc
84	Polk	Hillsborough Bay	FLA013007	Elim Mobile Home Park	0.01	0.15	70%	0.046	AA	Perc
85	Pasco	Hillsborough Bay	FLA012783	Florida Villas MHP WWTF	0.01	0.15	70%	0.046	AA	Perc
86	Polk	Hillsborough Bay	FLA012404	Hines Energy Complex WWTF	0.01	0.15			3M/AA	Cooling water recirculation system incorporated
87	Pasco	Hillsborough Bay	FLA012825	Lakeside Oaks MHP WWTF	0.01	0.15	70%	0.046	AA	Perc
88	Pasco	Hillsborough Bay	FLA012828	Lakeview in the Hills MHP	0.01	0.15	70%	0.046	AA	Perc
89	Polk	Hillsborough Bay	FLA013039	Lazy Day Retreat	0.01	0.15	70%	0.046	AA	Perc
90	Polk	Hillsborough Bay	FLA012994	Spring Hill MHP	0.01	0.15	70%	0.046	AA	Perc
91	Hillsborough	Hillsborough Bay	FLA012191	Carousel Village MHP	0.01	0.15	70%	0.046	3M	Perc
92	Hillsborough	Hillsborough Bay	FLA012109	Cork Elem Sch	0.01	0.15	70%	0.046	3M	Perc
93	Hillsborough	Hillsborough Bay	FLA012217	Countryside Plaza	0.01	0.15	70%	0.046	3M	Perc
94	Hillsborough	Hillsborough Bay	FLA012239	Little Tadpole MHP	0.01	0.15	70%	0.046	3M	Perc
95	Hillsborough	Hillsborough Bay	FLA012199	Livingston MHP	0.01	0.15	70%	0.046	3M	Perc
96	Hillsborough	Hillsborough Bay	FLA012252	Chapparal MHP WWTP	0.0087	0.13	70%	0.040	3M	Perc
97	Hillsborough	Hillsborough Bay	FLA012187	Prevatt MHP	0.0083	0.13	70%	0.038	3M	Perc
98	Pasco	Hillsborough Bay	FLA012765	Hillside MHP WWTF	0.00825	0.13	70%	0.038	AA	Perc
99	Pasco	Hillsborough Bay	FLA012782	Mockingbird MHP WWTF	0.0075	0.11	70%	0.034	AA	Perc
100	Hillsborough	Hillsborough Bay	FLA012222	Breman Apartments	0.0075	0.11	70%	0.034	3M	Perc
101	Hillsborough	Hillsborough Bay	FLA012131	East Bay Raceway	0.0075	0.11	70%	0.034	3M	Perc
102	Hillsborough	Hillsborough Bay	FLA012206	Providence Baptist Church	0.0075	0.11	70%	0.034	3M	Perc
103	Polk	Hillsborough Bay	FLA013116	Evergreen Motel & MHP	0.007	0.11	70%	0.032	AA	Perc
104	Hillsborough	Hillsborough Bay	FLA012195	Hartz Mountain Industried, Inc	0.006	0.09	70%	0.027	3M	Perc
105	Hillsborough	Hillsborough Bay	FLA012610	Hillsborough River State Park WWTP #1	0.006	0.09	90%	0.009	AA	SF
106	Hillsborough	Hillsborough Bay	FLA012607	Hillsborough River State Park WWTP #2	0.006	0.09	90%	0.009	AA	SF
107	Hillsborough	Hillsborough Bay	FLA012188	Rainbow Forest Mobile home Parkk	0.006	0.09	90%	0.009	3M	0.02 Subsurface Irrigation System
108	Polk	Hillsborough Bay	FLA013030	Southwinds MHP	0.005	0.08	70%	0.023	AA	Perc
109	Hillsborough	Hillsborough Bay	FLA012146	Crawfords 3 B's MHP	0.005	0.08	70%	0.023	3M	Perc
110	Hillsborough	Hillsborough Bay	FLA012171	Riverlawn Mobile Home and RV Park	0.00472	0.07	70%	0.022	3M	0.047 Perc
111	Hillsborough	Hillsborough Bay	FLA012157	Gaf Materials Corporation	0.003	0.05	70%	0.014	3M	Perc
112	Hillsborough	Hillsborough Bay	FLA012235	People For Christ Ministries, Inc	0.00075	0.01	70%	0.003	3M	Perc
113	Hillsborough	Hillsborough Bay	FLA012215	Florida Light & Life Camp	0.045	0.68	70%	0.205	3M	0.45 Perc
114	Hillsborough	Hillsborough Bay	FLA012170	Mystery Economy Inc	0.075	0.10	70%	0.114	3M	Perc

	County	Bay Segment	Facility ID	Name	MGD	Tons/Year @ 10mg/L	Attenuation Rate	Annual Load	FREQ	Type	
1	Manatee	Lower Tampa Bay	FLA012625	FPL - Manatee Power Plant	0.005	0.08	70%	0.023	AA	Single cell absorption bed and cooling pond	
2	Manatee	Lower Tampa Bay	FLA012654	Lake Manatee Recreation Area WWTF	0.005	0.08	70%	0.023	AA	absorption field	
3	Manatee	Lower Tampa Bay	FLA012622	Wingate Creek Mine WWTF	0.005	0.08	70%	0.023	AA	Polishing pond then to clay settling pond	
4	Manatee	Lower Tampa Bay	FLA613461	Pacific Tomato Growers	0.05	0.76	90%	0.076		SF	
5	Manatee	Lower Tampa Bay	FLA177920	Taylor & Fulton Packing House	0.12	1.82	90%	0.182		SF	
					SUM	**2.81**	**SUM**	**0.33**			
1	Hillsborough	Middle Tampa Bay	FLA012169	Riverside Club WWTP	0.12	1.82	70%	0.547	3M	Perc	
2	Hillsborough	Middle Tampa Bay	FLA012255	Hawaiian Isles MHP	0.099	1.50	70%	0.451	AA	Perc	
3	Hillsborough	Middle Tampa Bay	FLA012609	Hillsborough County Rest Area I-75n	0.04	0.61	70%	0.182	3M	subsurface absorption fields	
4	Hillsborough	Middle Tampa Bay	FLA012170	Little Manatee Springs MH&RV Resort	0.04	0.61	70%	0.182	3M	Perc	
5	Hillsborough	Middle Tampa Bay	FLA012144	Manatee RV Park	0.035	0.53	70%	0.160	3M	Perc	
6	Hillsborough	Middle Tampa Bay	FLA012203	Little Manatee Isles MHP	0.03	0.46	70%	0.137	3M	Perc	
7	Hillsborough	Middle Tampa Bay	FLA012260	Neptune Mv	0.0265	0.40	70%	0.121	AA	Perc	
8	Hillsborough	Middle Tampa Bay	FLA012210	Chula Vista Mobile Home Park WWTP	0.025	0.38	70%	0.114	AA	Perc	
9	Hillsborough	Middle Tampa Bay	FLA012264	Tampa South RV Resort	0.0121	0.18	70%	0.055	3M	subsurface absorption fields	
10	Hillsborough	Middle Tampa Bay	FLA012143	Holiday Palms RVP	0.01	0.15	70%	0.046	3M	Perc	
11	Hillsborough	Middle Tampa Bay	FLA012231	River Oaks RV Resort	0.01	0.15	70%	0.046	AA	Perc	
12	Hillsborough	Middle Tampa Bay	FLA012221	Suncoast Community Health Centers	0.0075	0.11	70%	0.034	3M	Perc	
13	Hillsborough	Middle Tampa Bay	FLA177342	Dimare of Ruskin Inc	0.01	0.18	90%	0.018		SF	EPC Delegated
14	Hillsborough	Middle Tampa Bay	FLA012540	Pacific Tomato Grower, Inc	0.0289	0.53	90%	0.053		SF	EPC Delegated
15	Hillsborough	Middle Tampa Bay	FLA017345	Ruskin Vegetable Corpration	0.018	0.33	90%	0.033		SF	EPC Delegated
16	Hillsborough	Middle Tampa Bay	FLA016526	Speedling, Inc (#2)	0.01	0.18	90%	0.018		SF	EPC Delegated
17	Hillsborough	Middle Tampa Bay	FLA177351	Tomatoes of Ruskin	0.018	0.33	90%	0.033		SF	EPC Delegated
18	Hillsborough	Middle Tampa Bay	FLA012534	US 92 Speedway	0.0036	0.07	70%	0.020		Perc	EPC Delegated
19	Hillsborough	Middle Tampa Bay	FLA012133	Hide-A-Way Campground	0.03	0.55	70%	0.165			
20	Hillsborough	Middle Tampa Bay	FLA356883	Hobbs Road Residuals Site		0.00					
					SUM	**9.08**	**SUM**	**2.41**			
1	Hillsborough	Old Tampa Bay	FLA012165	Sunset Plaza Shopping Center	0.05	0.76	70%	0.228	3M	Perc	
2	Hillsborough	Old Tampa Bay	Fla012140	Silver Dollar Resort	0.0485	0.74	70%	0.221	3M	SF and Perc	
3	Hillsborough	Old Tampa Bay	FLA012205	Sunrise Mobile Home Park	0.025	0.38	70%	0.114	3M	Perc	
4	Hillsborough	Old Tampa Bay	FLA012094	Lutz Elementary School	0.024	0.36	70%	0.109	3M	Perc	
5	Pasco	Old Tampa Bay	FLA012791	Linda Lakes	0.02	0.30	70%	0.091	AA	Perc	
6	Hillsborough	Old Tampa Bay	FLA012164	Bearss Park	0.015	0.23	70%	0.068	3M	Perc	
7	Pinellas	Old Tampa Bay	FLA012901	Southern Comfort Mobile Home Park	0.015	0.23	70%	0.068	12M	Absorption Field	
8	Pinellas	Old Tampa Bay	FLA012907	Tarponaire Mobile Resort	0.0125	0.19	70%	0.057	AA	Perc	
9	Hillsborough	Old Tampa Bay	FLA012193	Ray Mar MHP	0.0062	0.09	70%	0.028	3M	Perc	
10	Hillsborough	Old Tampa Bay	FLA012257	Crenshaw Lake Road Mh Court	0.005	0.08	70%	0.023	AA	Perc	
					SUM	**3.36**	**SUM**	**1.01**			

SUM (NOT ATTENTUATED) **56** **SUM (ATTENUATED, ALL BAY SEGMENTS)** **15**

ED_002491_00001148-00163

From: Bartlett, Drew [Drew.Bartlett@dep.state.fl.us]
Sent: Wednesday, October 29, 2008 5:08 PM
To: holly greening; annie godfrey; Kovach, Charles; Joyner, Daryll; ed sherwood; Livingston, Eric; Felicia Burks; Mandrup-Poulsen, Jan; Greenwell, Jeff; jeff stewart; jennifer eason; Jim Giattina; Petrus, Kevin; marshall hyatt; Drew, Richard; Rob Brown; Hansen, Terry; Tony Janicki ; virginia buff
Subject: TBNMC Decision Memos # 4 and #5

Holly,

Thank you for your two October 15, 2008, memos updating the Florida Department of Environmental Protection (FDEP) on the Tampa Bay Nitrogen Management Consortium's (Consortium) recommendations to reallocate the total nitrogen Total Maximum Daily Load in the Tampa Bay Watershed as part of Florida's Reasonable Assurance process. In the first memo, the Consortium provides a recommendation not to allocate to future unanticipated sources during the reallocation process. In the second memo, the Consortium provides a recommendation to allocate 15 tons/year of total nitrogen to small groundwater sources in the Tampa Bay Watershed.

With regard to the Consortium's first recommendation, FDEP accepts this recommendation not to allocate to unanticipated future sources (i.e., additional loads not accounted for based on current growth projections used by TBEP, and not currently permitted) in the Tampa Bay Watershed. It is our understanding that any future source will not increase the total allowable load allocated to the Tampa Bay Watershed. If an unanticipated future source is introduced into the Tampa Bay Watershed, the Consortium will address it thorough a strategy that is being developed as part of the Reasonable Assurance document.

With regard to the Consortium's second recommendation, FDEP accepts the proposed approach for allocating loads to small groundwater discharges (i.e., NPDES discharges of < 100,000 gallons per day to percolation ponds or spray irrigation). The recommended process which calculates the load using the maximum allowable nitrogen concentration (12 mg/L Total Nitrogen at discharge, 10 mg/L Total Nitrogen at the edge of the Zone of Discharge) and attenuation factors (70% for percolation ponds and 90% for spray irrigation sites) produces appropriately conservative estimates of the load that reaches Tampa Bay from these facilities. We look forward to continuing to work with the Consortium in estimating and tracking the loads from these small groundwater sources.

We appreciate the Consortium's efforts to keep us informed as we move through the reallocation process, and look forward to continuing our work with the Consortium.

Drew Bartlett, Deputy Director
Division of Environmental Assessment and Restoration

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your two October 15, 2008, letters updating the Environmental Protection Agency (EPA) on the Tampa Bay Nitrogen Management Consortium's (Consortium's) recommendations to reallocate the total nitrogen Total Maximum Daily Load in the Tampa Bay Watershed as part of Florida's Reasonable Assurance process. In the first letter, the Consortium provides a recommendation to not allocate to future unanticipated sources during the reallocation process. In the second letter, the Consortium provides a recommendation to allocate 15 tons/year of total nitrogen to small groundwater sources in the Tampa Bay Watershed. As requested, this letter provides the Consortium with our feedback regarding these two recommendations.

With regards to the Consortium's first recommendation, EPA accepts this recommendation to not allocate to unanticipated future sources in the Tampa Bay Watershed. It is our understanding that any future source will not increase the total allowable load allocated to the Tampa Bay Watershed. If an unanticipated future source is introduced into the Tampa Bay Watershed, the Consortium will address it thorough a strategy that is being developed as part of the Reasonable Assurance document.

With regards to the Consortium's second recommendation, EPA accepts the allocation of 15 tons/year of total nitrogen to small ground water sources in the Tampa Bay Watershed. We encourage the Consortium to continue to work with FDEP in estimating and tracking the loads from these small groundwater sources.

We appreciate the Consortium's efforts to keep EPA informed as you move through the reallocation process. We look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Management Division

A.5. No Allocation will be Provided for Unanticipated Future Loads in Developing Reasonable Assurance Reallocations (Oct. 15, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: October 15, 2008

SUBJECT: Allocations for unanticipated future loads

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason
(EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium Co-Chairs, this NMC Action is forwarded to you for your concurrence. On August 26, 2008, the Consortium recommended by consensus that no allocation be provided for unanticipated future loads in developing Reasonable Assurance for nitrogen loading to Tampa Bay's four major bay segments. The Consortium's intent is to develop a recommended strategy for addressing unanticipated permitted future loads as an element of the Reasonable Assurance document due in July 2009, but this strategy would not require additional N load allocation.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

We request that FDEP and EPA provide concurrence or alternative recommendations regarding the Consortium's recommendation for unanticipated future loads via email or in writing no later than October 29, 2008. Thank you for considering our very tight timeline for development of recommendations through the Consortium's process.

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From: Bartlett, Drew [Drew.Bartlett@dep.state.fl.us]
Sent: Wednesday, October 29, 2008 5:08 PM
To: holly greening; annie godfrey; Kovach, Charles; Joyner, Daryll; ed sherwood; Livingston, Eric; Felicia Burks; Mandrup-Poulsen, Jan; Greenwell, Jeff; jeff stewart; jennifer eason; Jim Giattina; Petrus, Kevin; marshall hyatt; Drew, Richard; Rob Brown; Hansen, Terry; Tony Janicki ; virginia buff
Subject: TBNMC Decision Memos # 4 and #5

Holly,

Thank you for your two October 15, 2008, memos updating the Florida Department of Environmental Protection (FDEP) on the Tampa Bay Nitrogen Management Consortium's (Consortium) recommendations to reallocate the total nitrogen Total Maximum Daily Load in the Tampa Bay Watershed as part of Florida's Reasonable Assurance process. In the first memo, the Consortium provides a recommendation not to allocate to future unanticipated sources during the reallocation process. In the second memo, the Consortium provides a recommendation to allocate 15 tons/year of total nitrogen to small groundwater sources in the Tampa Bay Watershed.

With regard to the Consortium's first recommendation, FDEP accepts this recommendation not to allocate to unanticipated future sources (i.e., additional loads not accounted for based on current growth projections used by TBEP, and not currently permitted) in the Tampa Bay Watershed. It is our understanding that any future source will not increase the total allowable load allocated to the Tampa Bay Watershed. If an unanticipated future source is introduced into the Tampa Bay Watershed, the Consortium will address it thorough a strategy that is being developed as part of the Reasonable Assurance document.

With regard to the Consortium's second recommendation, FDEP accepts the proposed approach for allocating loads to small groundwater discharges (i.e., NPDES discharges of < 100,000 gallons per day to percolation ponds or spray irrigation). The recommended process which calculates the load using the maximum allowable nitrogen concentration (12 mg/L Total Nitrogen at discharge, 10 mg/L Total Nitrogen at the edge of the Zone of Discharge) and attenuation factors (70% for percolation ponds and 90% for spray irrigation sites) produces appropriately conservative estimates of the load that reaches Tampa Bay from these facilities. We look forward to continuing to work with the Consortium in estimating and tracking the loads from these small groundwater sources.

We appreciate the Consortium's efforts to keep us informed as we move through the reallocation process, and look forward to continuing our work with the Consortium.

Drew Bartlett, Deputy Director
Division of Environmental Assessment and Restoration

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your two October 15, 2008, letters updating the Environmental Protection Agency (EPA) on the Tampa Bay Nitrogen Management Consortium's (Consortium's) recommendations to reallocate the total nitrogen Total Maximum Daily Load in the Tampa Bay Watershed as part of Florida's Reasonable Assurance process. In the first letter, the Consortium provides a recommendation to not allocate to future unanticipated sources during the reallocation process. In the second letter, the Consortium provides a recommendation to allocate 15 tons/year of total nitrogen to small groundwater sources in the Tampa Bay Watershed. As requested, this letter provides the Consortium with our feedback regarding these two recommendations.

With regards to the Consortium's first recommendation, EPA accepts this recommendation to not allocate to unanticipated future sources in the Tampa Bay Watershed. It is our understanding that any future source will not increase the total allowable load allocated to the Tampa Bay Watershed. If an unanticipated future source is introduced into the Tampa Bay Watershed, the Consortium will address it thorough a strategy that is being developed as part of the Reasonable Assurance document.

With regards to the Consortium's second recommendation, EPA accepts the allocation of 15 tons/year of total nitrogen to small ground water sources in the Tampa Bay Watershed. We encourage the Consortium to continue to work with FDEP in estimating and tracking the loads from these small groundwater sources.

We appreciate the Consortium's efforts to keep EPA informed as you move through the reallocation process. We look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Management Division

A.6. TBEP Request for TN load Reduction Credit with Fertilizer Restriction Implementation (Nov. 5, 2008)

November 5, 2008

Drew Bartlett
Deputy Director, Environmental Assessment & Restoration
Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399

Jim Giattina
Director, Region 4 Water Management Division
US Environmental Protection Agency
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

RE: Estimated Total Nitrogen Load Reductions Associated with TBEP Regional Fertilizer Restriction Recommendations

Dear Messrs. Bartlett and Giattina,

At the request of the Tampa Bay Estuary Program Policy Board, the TBEP staff coordinated a series of workshops on residential fertilizer use guidelines from April – June 2008. The intent of this effort was to develop regionally appropriate guidelines that could be incorporated into a local ordinance, should a local government elect to do so. A full copy of the final report from the workshops can be found here: http://www.tbeptech.org/Fertilizer/Res%20Fertilizer%20final%20report-August%2014_%202008.pdf

On August 22nd, the TBEP Management and Policy Boards endorsed the regional recommendations developed by the stakeholder workgroup, including a June 1-Sept. 30 rainy season ban on non-agricultural nitrogen fertilizer applications. Consequently, the TBEP Policy Board directed staff to develop the following, for their consideration at the TBEP's next Policy Board meeting scheduled for November 14th, 2008:

- draft model ordinance, developed with legal staff from local partners;
- technical background and potential benefits of the draft ordinance; and
- request FDEP and EPA provide comment regarding possible TMDL and RA nitrogen reduction credit for adoption of the draft ordinance.

TBEP staff have developed a draft technical document summarizing the potential nitrogen load reductions associated with implementation of application restrictions of non-agricultural fertilizer in the Tampa Bay watershed which can be found here: http://www.tbeptech.org/NitrogenMgmtConsort/November32008/Final_Reduction_Credits_TBEP_Regional_Fertilizer_Guideline_Recommendations.pdf

Based on modeling results and guidance from other studies as summarized in the assessment report, TBEP staff recommends a conservative approach to estimating anticipated fertilizer ordinance implementation reductions associated with a wet-season prohibition of non-agricultural nitrogen fertilizer application. The proposed reductions are based on a modeled 25% contribution of fertilizer to wet-season urbanized runoff and a resulting compliance level of 50% of urbanized areas where any enacted ordinance restricting wet-season application would be anticipated to be implemented. Given these constraints, the baywide average estimated total nitrogen load reduction based upon 2006 urbanized land uses where fertilizer application restrictions are anticipated to be implemented would be 4.1% of baseline loads from these specific nonpoint sources.

Reduction estimates based on the constraints listed above were generated for the major bay segments of Tampa Bay according to the spatial distribution of urbanized land uses within the bay segment watershed boundaries. These percent reductions associated with ordinance implementation within the bay segment watersheds were as follows (please refer to the technical document for additional background information):

- Old Tampa Bay: 4.3%
- Hillsborough Bay: 4.1%
- Middle Tampa Bay: 3.9%
- Lower Tampa Bay: 4.2%
- Boca Ciega Bay: 4.1%
- Manatee River: 4.3%
- Terra Ceia Bay: 4.3%

Further, TBEP staff recommends that the percent reduction estimates summarized above be applied in addition to any education credits as specified in FDEP's most recent guidance contained in the Lower St. John's River Basin Management Action Plan, if the regional non-agricultural fertilizer application recommendations (including a June 1 - Sept. 30 ban on nitrogen fertilization application) are incorporated and implemented through adoption of a local ordinance. This would potentially result in up to a 5% TN load reduction credit for education (as currently provided for by FDEP) and an additional 4.1% reduction credit (on average baywide) for implementation of the TBEP regional fertilizer restriction recommendations.

Following your review, TBEP requests FDEP and EPA provide concurrence with the estimated reductions proposed here in or provide alternative reduction credits for ordinance implementation by November 30th, 2008. If you have any questions regarding this request, please do not hesitate to contact me directly at (727)893-2765. As always, the TBEP stands ready to offer any support to either the FDEP or EPA in providing information to justify these proposed reductions.

Sincerely,

Holly Greening

Executive Director

T A M P A B A Y E S T U A R Y P R O G R A M
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POLICY BOARD: HILLSBOROUGH COUNTY, MANATEE COUNTY, PINELLAS COUNTY, CITY OF CLEARWATER, CITY OF ST. PETERSBURG, CITY OF TAMPA
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, U.S. ENVIRONMENTAL PROTECTION AGENCY

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen, Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
TBEP Management and Policy Boards
Ed Sherwood (TBEP)

Technical Memorandum: Model-Based Estimates of Nitrogen Load Reductions Associated with Fertilizer Restriction Implementation

November 2008
FINAL REPORT

Prepared and Submitted by:

Tampa Bay Estuary Program
100 8th Ave SE
St. Petersburg, FL 33701

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SCOPE AND INTENT

At the request of its Policy Board, the Tampa Bay Estuary Program (TBEP) coordinated four workshops on residential fertilizer use guidelines from April 8 – June 10, 2008. The intent was to develop regionally appropriate guidelines that could be incorporated into a local ordinance, should a local government elect to do so. It is hoped that implementation of fertilizer application guidelines specific for this region may reduce stormwater runoff pollutant loads to Tampa Bay – a key goal of TBEP's overall nitrogen reduction strategy. This would support local government efforts to meet regulatory requirements to reduce nutrient loading in designated Impaired Waters of the Tampa Bay watershed.

Several regional recommendations were developed from these workshops (Table 1), summarized in a final report (TBEP 2008), and subsequently presented to the TBEP's Management and Policy Boards for adoption at their August 22, 2008 meetings. At these meetings, the TBEP Management and Policy Boards endorsed the regional recommendations developed through the stakeholder workgroup meetings, including the June 1 - Sept. 30 rainy season ban on non-agricultural nitrogen fertilizer applications.

Consequently, the TBEP Policy Board also directed staff to develop a technical background document summarizing the relative contribution of non-agricultural fertilizer application in the Tampa Bay watershed and provide estimates (best available based on existing literature) of potential nitrogen load reductions associated with implementation of the application recommendations. This document serves as the technical background document requested by the TBEP Policy Board, and upon review by the TBEP Nitrogen Management Consortium, will be provided to the FDEP and EPA for their review in order to establish load reduction credits for any municipality in the Tampa Bay watershed who implements these regional recommendations. Also at the direction of the TBEP Policy Board, TBEP staff will recommend that the NMC request that FDEP and EPA provide concurrence with the findings of this report, here in, to establish nitrogen load reduction credits based upon these analyses or to provide alternative recommendations of fertilizer application restriction implementation credits.

SUMMARY OF RECOMMENDATIONS

It is recommended that the reduction percentage estimates summarized for fertilizer restrictions in this document be applied in addition to any education credits as provided under FDEP directive, if the regional non-agricultural fertilizer application recommendations (including a June 1-Sept 30 ban on N fertilization application) are incorporated and implemented through adoption of a local ordinance. This would potentially result in a 5% TN load reduction credit for education and an additional 4.1% reduction credit (on average) for implementation of the recommended ordinance. Either bay segment-specific or

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jurisdiction-specific TN load reduction estimates, as listed in the Recommendations section of this document, can be used in place of the baywide average, if an entity feels these modeled reduction estimates are more applicable to their jurisdiction. In the absence of updated land use information or boundary specific distributions of urbanized land uses, it is recommended that the baywide average be used to apply fertilizer restriction implementation reduction credits to total nitrogen loads attributed to specific entities.

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Table 1: Summary of regional fertilizer guidelines as developed through the TBEP sponsored workshops. *Non-agricultural fertilizer application was recommended by TBEP Management Board instead of "residential fertilizer."

Key Issue		Recommendation(s)
Licensing/Certification of Lawn Care Professional	**1**	All site supervisors and managers of professional lawn care companies should be required to attaincertification in the Florida Green Industries Best Management Practices (BMPs) for Protection of Water Resources in Florida training coordinated by the Florida Department of Environmental Protection and taught by professionals with the University of Florida's Institute of Food and Agricultural Sciences. Other employees of lawn and landscape maintenance companies should be required to complete less intensive, task-specific training (i.e., proper mowing, proper fertilization, mulching, debris cleanup, etc) within 90 days of hiring. This less intensive training could be provided by BMP-certified trainers within the company and provided annually or whenever an update is needed due to changes in the state-approved BMPs or local ordinances.
	2	Certification of additional Spanish-speaking BMP trainers and BMP courses taught in Spanish should be strongly encouraged.
	3	A baywide or Tampa Bay region" license or certificate should be created, encompassing Hillsborough, Manatee and Pinellas counties, so that commercial fertilizer applicators would not have to obtain separate BMP certification in each community in which they do business. Reciprocity should be strongly encouraged so that any Tampa Bay community with a fertilizer ordinance recognizes and accepts the regional certification. A special decal denoting this regional certification should be created, and all lawn care/landscape companies who have obtained BMP certification should be required to display this decal on their service vehicles.
Buffer Zones	**1**	Fertilizer should not be applied by either professional applicators or homeowners within 10 feet of a waterway (defined as a bay, river, lake, stream, pond, canal, wetland or any other water body), unless a deflector shield is used. With a deflector shield, fertilizer may be applied as close as 3 feet from a water body.
	2	Waterfront property owners should be encouraged to establish a 6-foot low-maintenance or no mow" zone of plants instead of turfgrass adjacent to waterways to reduce the potential for fertilizer residues entering bodies of water.
Application Timing (Two Alternative Options Developed from Workshops)	**1a**	Ban non-agricultural nitrogen fertilizer application* from June 1 - September 30
	1b	Allow a one-time, slow-release nitrogen fertilizer application (non-agricultural)* from June 1 - September 30 upon a professional determination of nitrogen deficiency.
Reclaimed Water	**1**	Educational information about the amount of nitrogen contained in reclaimed water (treated wastewater) should be provided to homeowners in communities where reclaimed water is provided for irrigation of residential lawns.
Additional Issues Related to Public Education, Outreach & Application Guideline Compliance	**1**	Education about proper fertilizer use is critically needed
	2	Education about slow-release nitrogen fertilizer is important to make homeowners aware that use of these products may not produce an immediate "greening" response in their lawns
	3	Proper irrigation management is critical and inextricably linked to proper fertilization
	4	Controlling spillage of fertilizer and organic debris on non-vegetated areas (including impervious surfaces) is critical
	5	Use of deflector shields is an important element of fertilizer BMPs
	6	No phosphorous fertilizer should be applied at any time of year in the Tampa Bay region without a soil test showing a phosphorous deficiency
	7	No Nitrogen fertilizer should be applied on newly established turf for the first 30 days
	8	Consistent guidelines for fertilizer application are needed for the Tampa Bay region
	9	Adequate enforcement is a key issue that needs to be addressed
	10	Guidelines should encourage the use of trained, certified professionals to apply fertilizer
	11	All landscape maintenance contracts should specify compliance with the DEP Green Industries Best Management Practices
	12	Improve timing and dissemination of public educational materials

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ADDITIONAL BACKGROUND INFORMATION

Contribution of Fertilizer in Stormwater Runoff

Soil infiltration (Kelling and Peterson 1975), fertilizer application rate (Barth 1995), and irrigation practices/storm event timing (Linde and Watschke 1997; Shuman 2004) all affect the resulting percentage of fertilizer composed in runoff from urbanized areas where nutrient fertilization through landscape management practices takes place. Most urbanized areas tend to have highly compacted soils and/or a higher degree of impervious surfaces than more natural lands. As a result, the fraction of rainfall which becomes surface water runoff and therefore the total nutrient loading from these areas tends to be high. Added to this is the degree of saturation of the underlying soils both in terms of its nutrient and hydrologic adsorption. If soils are saturated during fertilizer application, then the propensity for nutrient fertilizer and decomposing lawn material to contribute towards runoff concentrations is greater upon subsequent rain events (Linde and Watschke 1997). The combination of these factors tends to "mean that lawn runoff is probably a major source, if not the major source, of nutrients in watersheds with high percentages of residential land" (Table 1; Baker 2007).

Table 1: Comparison of nutrient concentrations of lawn runoff to treated and untreated sewage and lower concentration limits causing lake eutrophication (Adapted from Baker 2007).

	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
Lawn runoff	3-5	0.5-2.0
Raw sewage	38	6.5
Effluent from a typical US metropolitan treatment plant	4.2	0.4
Tampa Bay Estuary direct discharges	3 max	-
Effluent from secondary treatment plant	3-5	2-7
Concentrations typical of eutrophic lakes	1	<0.1

In the Tampa Bay watershed, few studies have investigated the underlying contribution of fertilizer to total nutrient loads to the bay or to surface water runoff from various land uses. One study of the Lake Tarpon watershed found that an estimated 79% of the groundwater nitrogen load to the lake was derived from fertilizer sources (LBG 2004). The land uses within the Lake Tarpon watershed are fairly urbanized (>48%) compared to other areas of the bay and were historically converted from citrus agriculture, so this estimate of fertilizer contribution to groundwater nitrogen loadings is likely at the higher range of estimates.

In other areas of the country, typical ranges of fertilizer contribution within stormwater runoff are between 10 – 25% depending on soil conditions and

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application timing prior to storm events (Linde and Watschke 1997; Groffman et. al 2004; Schuman 2004). As such, these values tend to be conservative estimates of potential fertilizer derived nutrient contributions in typical wet-season, urbanized runoff. Because relatively little information exists for the exact contribution of fertilizer in urbanized runoff, especially for the Tampa Bay watershed, a range of values from 10% (conservative) to 79% (liberal) were used to develop estimates of reductions associated with a rainy season prohibition of fertilizer application.

Estimated Compliance of Fertilizer Ordinances

Likewise, with the recent enactment of new fertilizer ordinances in several municipalities in Florida (Lee, Charlotte, Sarasota, and St. Johns counties, and the city of Sanibel) (TBEP 2008) in 2007 and 2008, information regarding expected compliance rates of fertilizer application prohibitions – if the ordinance includes these stipulations – has not yet been generated. These enacted ordinances rely strongly on education of the public and retail fertilizer sales outlets to convey the proper fertilization maintenance schedules to their customers in order to achieve compliance of any prohibitions. Recently the Florida Department of Environmental Protection (FDEP 2008) provided for load reduction credits (≤5%) to be granted towards efforts that could include fertilizer application education; however, the expected rates of implementation and compliance of any educational efforts was still widely unknown.

In Minnesota, regional and state phosphorus fertilizer restriction laws were enacted in 2004 and 2005, respectively (MDA 2007). In 2006, it was estimated that phosphorus fertilizer use (in tons) decreased by 48% after adoption of these laws. Much of these anticipated reductions in use were associated with the replacement and availability of phosphorus-free fertilizers at retail sales outlets. As of this writing, no other estimates of expected compliance rates for fertilizer ordinance implementation are known for similar rule enactments prohibiting the use of nutrient fertilizers.

Based on the available information regarding expected compliance rates and changes in use associated with the enactment of fertilizer prohibitions, a range of values from 10% (conservative) to 75% (liberal) were used to develop estimates of compliance rates across urbanized land uses where fertilizer application would be expected. These compliance rates were applied to the urbanized areas of the Tampa Bay watershed for wet-season estimates of N loads in combination with the expected reductions associated with the varying percent contributions of N fertilizer to urbanized runoff as described above.

OBJECTIVES

Determine the range of expected nitrogen load reductions associated with fertilizer restriction implementation according to the TBEP regional recommendations which include a June 1 – Sept. 30 rainy season prohibition of nitrogen fertilizer application.

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METHOD USED TO ASSESS IMPLEMENTATION

A GIS, model-based methodology was employed to characterize the nitrogen load reductions associated with recommended fertilizer restriction implementation within the Tampa Bay watershed. This methodology was similar to that used to estimate nonpoint source pollutant loads to ungaged portions of the watershed from previous load estimate reports generated for the Tampa Bay Nitrogen Management Consortium and to fulfill Reasonable Assurance submittals to FDEP (Zarbock et al. 1994, 1996b; Pribble et al. 2001; Poe et al. 2005; Janicki Environmental 2008).

Specifically, the model estimates were generated to determine the nitrogen load reductions expected across typical urbanized land uses (Table 2) and areas in the watershed (Figure 1) that would be subject to the June 1 – Sept. 30 rainy season prohibition of nitrogen fertilizer application. A range of estimates of compliance (10%-75%) and fertilizer contribution (10%-79%) to run-off derived nitrogen loads were used to develop the estimates. These ranges encompassed the purported compliance rates and fertilizer contributions to surface water runoff that were found from a literature survey as described above.

Table 2: Urbanized land uses as identified from the 2006 SWFWMD Land Use/Land Cover GIS database using the Florida Land Use and Cover Classification System (FLUCCS; SWFWMD 2006) and their associated Coastal Land Use Codes, descriptions, and expected total nitrogen event mean concentrations (mg/L) as utilized by the TBEP to generate load estimates to Tampa Bay (Poe et al. 2005).

Florida Land Use Cover Classification Code (FLUCCSCODE)	FLUCCS Code Description	Coastal Land Use Code (CLUC)	CLUC Description	TBEP Total Nitrogen Event Mean Concentrations (mg/L)
1100	RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS	1	Low Density Residential	1.90
1200	RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT	2	Medium Density Residential	2.23
1300	RESIDENTIAL HIGH DENSITY	3	High Density Residential	2.08
1700	INSTITUTIONAL	7	Institutional	1.18
1800	RECREATIONAL	8	Range/Open Lands	1.19
1820	GOLF COURSES	8	Range/Open Lands	1.19
1900	OPEN LAND	8	Range/Open Lands	1.19

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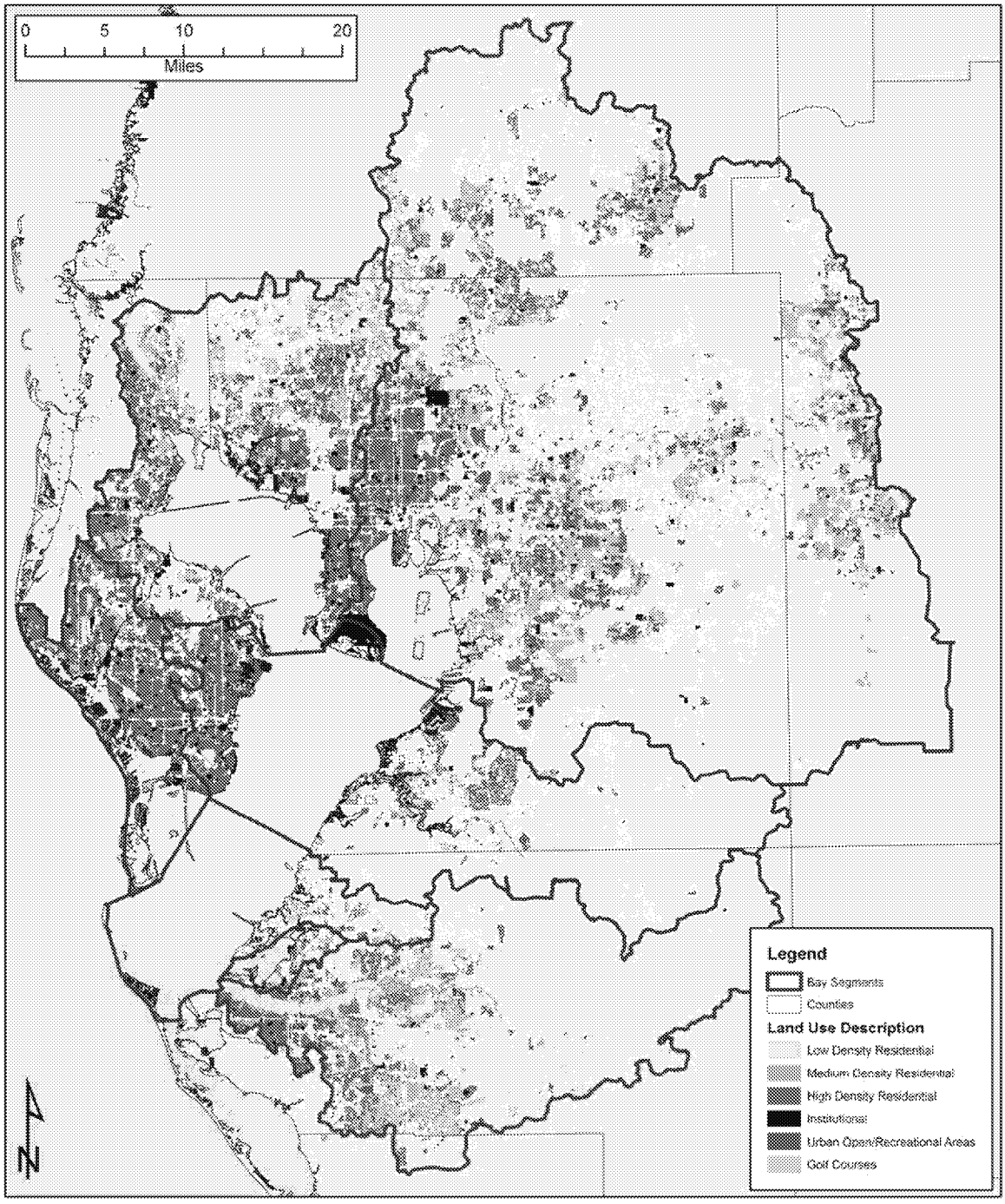

Figure 1: Urbanized land uses within the Tampa Bay watershed that would potentially be affected by fertilizer application ordinances.

Data Sources

Average Wet and Dry Season Rainfall

Average regional rainfall estimates were obtained for the wet (June – Sep.) and dry (Oct. – May) seasons over USGS defined subbasins of the Tampa Bay watershed from the SWFWMD (2008). Period of record (1915 – present) rainfall totals based on area-weighted average values were used to determine the

average total seasonal precipitation (in.) for discrete subbasins of the watershed (Table 2). These estimates were used as the basis for hydrologic inputs to modeled estimates of total nitrogen loads from urbanized areas in the watershed.

Table 2: Average total seasonal precipitation (in.) in USGS defined subbasins of the Tampa Bay watershed (SWFWMD 2008).

Period of Record Seasonal Average (1915-2008)	USGS Subbasin				
	Tampa Bay/Coastal Areas	Hillsborough River	Alafia River	Little Manatee River	Manatee River
Dry Season	20.99	22.62	21.73	21.36	20.93
Wet Season	30.66	31.00	30.96	31.95	32.91

Land Use/Land Cover Data

Land use/land cover GIS data for 2006 were obtained from the SWFWMD and incorporated into the load estimate model (SWFWMD 2006). The land use data were recorded following the Florida Land Use Cover Classification System (FLUCCS) level 3 developed by the Florida Department of Transportation Thematic Mapping Section (FDOT 1985).

For the purpose of assigning land use-specific runoff and pollutant loading factors, the 7 urbanized FLUCCS land uses were aggregated into 5 Coastal Land Use Code (CLUC) classes (Table 1; Appendices A & B), as presented in the most recent load estimate report prepared for Tampa Bay (2004-2007) (Janicki Environmental 2008). The aggregated land use classification system was developed by examining the source literature for the FLUCCS land uses, and combining hydrologically-similar land uses based on stormwater runoff coefficients and land use specific pollutant loading factors. Land use-specific stormwater runoff coefficients and pollutant concentrations were determined from a review of field investigations from central and south Florida, as described below.

Soil Data

The soils coverage includes discrete polygons of individual soil series (types) as identified and delineated by the USDA Natural Resources Conservation Service (NRCS) in the Hillsborough, Pinellas, Manatee, Polk, Pasco, and Sarasota county soil surveys. The GIS coverage of these data was obtained from the SWFWMD (2002). The discrete soils polygons represented a soil series, and were aggregated by hydrologic soil groups (A – D). The NRCS has assigned a hydrologic group identification to each soil series to indicate runoff generating characteristics. "A" soils, in general, generate the least, and "D" soils the most amount of runoff for a given rainfall. The soils coverage was intersected with the land use coverage to provide the GIS layer used to estimate runoff coefficients. Each unique combination of land use type, soil series, and season has been assigned an associated runoff coefficient value (Appendix A).

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Land Use-Specific Runoff Coefficients & Stormwater Quality Concentrations

Land use-specific runoff coefficients were obtained from published literature, including references for the west-central and south Florida geographic area. A range of runoff coefficient values for each land use was developed to account for seasonal changes in rainfall/runoff relationships, and for local soils conditions, as described in Zarbock et al. (1994) and used for previously modeled current and future load conditions for the Tampa Bay estuary (Zarbock et al. 1996a; Janicki et al. 2001). These coefficients are presented in Appendix A.

An extensive list of regional water quality concentration data for nonpoint source total nitrogen has been compiled for the modeling effort, and is described in Zarbock et al. (1994; 1996b), Pribble et al. (2001), Poe et al. (2005) and Janicki Environmental (2008). The values are from a number of stormwater sampling programs and represent averaged values from multiple samples from each program (Appendix B).

Modeling Approach

All nonpoint source loads for baseline conditions were estimated using a model-based approach for urbanized areas in the Tampa Bay watershed (Table 1; Figure 1), as follows:

$$TN_L = \sum_{ij} LU_i \cdot EMC_i \cdot (RF_j \cdot RU_{ij}), \text{ where:}$$

TN_L = total annual nitrogen load across urbanized land use category i and seasonal category j (tons),
LU_i = area of urbanized land use category i (acres),
EMC_i = land use specific event mean total nitrogen concentration (mg/L),
RF_j = USGS basin-specific rainfall in dry and wet season category j (in.),
RU_{ij} = land use and soil-type specific runoff coefficient for land use category i and seasonal category j.

Reductions associated with fertilizer ordinance implementation for a rainy season prohibition of fertilizer application were applied to wet season load estimates across all urbanized land uses according to the following adjustments to the loading model employed above. Reduction estimates encompassed the estimated contribution of fertilizer to urbanized runoff, as follows prorating the expected fertilizer contribution to the difference between an urbanized land use and a natural land use:

$$EMC_{(adjusted)i} = EMC_i - [(EMC_i - EMC_{forest}) \cdot X], \text{ where:}$$

$EMC_{(adjusted)i}$ = adjusted land use specific event mean concentration based upon a scaled contribution of fertilizer to the runoff concentration,

EMC_i = land use specific event mean total nitrogen concentration (mg/L),

EMC_{forest} = event mean total nitrogen concentration (mg/L) of a forested land use (1.02 mg/L),

X = 10%, 25%, 50%, and 79% contribution of fertilizer to the difference between an urbanized land use and a forested land use.

These adjusted EMC values were utilized in conjunction with an estimated compliance level across the urbanized land uses for wet season load estimates, as follows:

$$LU_{(adjusted)i} = LU_i \cdot Y, \text{ where:}$$

$LU_{(adjusted)i}$ = adjusted area of urbanized land use category i under 25%, 38%, 50%, and 75% compliance levels (acres),

LU_i = area of urbanized land use category i (acres),

Y = 25%, 38%, 50%, and 75% compliance rates across the urbanized land use category i.

Final reduction estimates were calculated at the 16 different combinations of fertilizer contribution and compliance rates using the TN_L equation above. These reduction estimates were subtracted from the baseline loads and an average annual load reduction percentage was determined across jurisdictional boundaries, bay segments, and baywide for the Tampa Bay estuary watershed.

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FINDINGS

Baywide Nitrogen Loads and Yields from Urbanized Land Uses & Associated Modeled Reduction Estimates

Total baseline nitrogen loads from urbanized land uses within the entire Tampa Bay Estuary Program defined watershed were estimated to be 2024 tons/yr based upon average rainfall conditions (Table 3). In the context of previous average estimates for the Tampa Bay watershed generated from all nonpoint sources for the 1992-1994 (1723 tons/yr), 1995-1998 (3,151 tons/yr), 1999-2003 (2,559 tons/yr), and 2004-2007 (2,175 tons/yr) time periods, the urbanized load estimate generated for the bay from this modeling approach were in-line but slightly higher than those reported by Poe et al. (2005) and Janicki Env. (2008). Associated reductions from the baseline load ranged from 0.3% (6.7 tons), according to a 10% compliance rate and 10% contribution of fertilizer to wet-season, urbanized runoff to 19.6% (396 tons), according to a 75% compliance rate and 79% contribution of fertilizer to wet-season, urbanized runoff (Table 3; Figure 2).

Table 3: Model-based estimates of annual average total nitrogen loads (tons) from urbanized land uses of the entire Tampa Bay watershed and expected loads after reductions associated with fertilizer restriction implementation have been applied based upon varying levels of compliance and fertilizer contribution to wet-season runoff. Recommended reduced load estimates are highlighted in blue text.

Fertilizer Contribution	10% Compliance	25% Compliance	50% Compliance	75% Compliance
Baseline Urbanized Runoff		***2023.66***		
10% of Urbanized Runoff	2016.98 (-0.3%)	2006.95 (-0.8%)	1990.23 (-1.7%)	1973.51 (-2.5%)
25% of Urbanized Runoff	2006.95 (-0.8%)	1981.87 (-2.1%)	**1940.07 (-4.1%)**	1898.28 (-6.2%)
50% of Urbanized Runoff	1990.23 (-1.7%)	1940.07 (-4.1%)	1856.49 (-8.3%)	1772.9 (-12.4%)
79% of Urbanized Runoff	1970.84 (-2.6%)	1891.59 (-6.5%)	1759.52 (-13.1%)	1627.45 (-19.6%)

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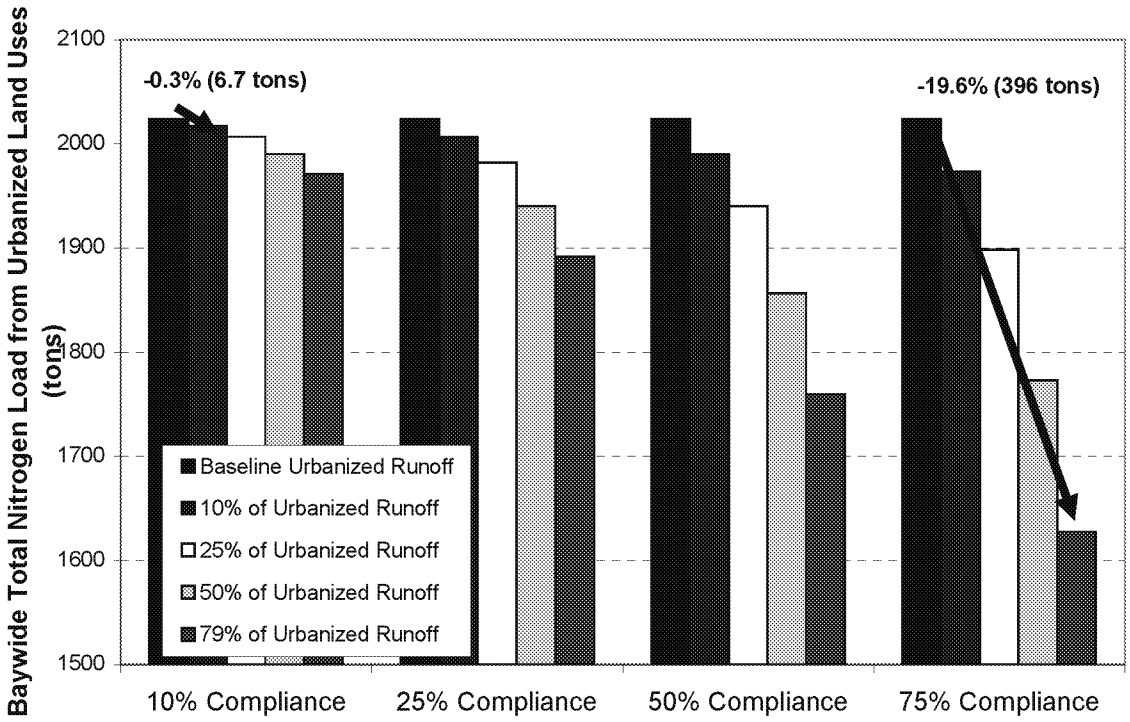

Figure 2: Range of model-based estimates of annual average total nitrogen loads (tons/yr) from urbanized land uses of the entire Tampa Bay watershed and expected reduced loads (%) associated with fertilizer restriction implementation based upon varying levels of compliance and fertilizer contribution to wet-season runoff.

Average yield from urbanized land uses in the entire watershed was estimated to be 9.69 lbs/acre. Again, this estimate is higher than what has been previously reported for the Tampa Bay watershed (~5.4 lbs/acre/yr), but is comparable to values generated for other Southwest Florida estuaries (2.4 – 10 lbs/acre/yr) (Tomasko 2002) and urbanized areas in Baltimore (7.0 lbs/acre/yr) (Groffman et al. 2004). Associated reductions in yields ranged from 0.04 lbs/acre/yr – 1.9 lbs/acre/yr depending upon compliance rate and fertilizer contribution to wet season runoff (Table 4).

Table 4: Model-based estimates of average annual total nitrogen yields (lbs/acre/yr) from urbanized land uses of the entire Tampa Bay watershed and expected loads after reductions associated with fertilizer restriction implementation have been applied based upon varying levels of compliance and fertilizer contribution to wet-season runoff.

Fertilizer Contribution	10% Compliance	25% Compliance	50% Compliance	75% Compliance
Baseline Urbanized Runoff		***9.69***		
10% of Urbanized Runoff	9.65	9.61	9.53	9.45
25% of Urbanized Runoff	9.61	9.49	9.29	9.09
50% of Urbanized Runoff	9.53	9.29	8.89	8.49
79% of Urbanized Runoff	9.43	9.05	8.42	7.79

Bay Segment Nitrogen Loads and Yields from Urbanized Land Uses & Associated Modeled Reduction Estimates

Baseline average total nitrogen loads (tons/yr) from urbanized land uses within the major bay segment watersheds of Tampa Bay ranged from 16.7 tons/yr for Terra Ceia Bay to 907.3 tons/yr for Hillsborough Bay (Table 5). Resulting baseline yields from urbanized land uses ranged from 8.5 lbs/acre/yr for the Hillsborough Bay segment to 13.3 lbs/acre/yr for the Boca Ciega Bay segment indicating that denser residential urbanization was present in the Boca Ciega Bay segment. This is further corroborated by the spatial distribution of the urbanized land uses investigated in the discrete bay segments of the Tampa Bay watershed (Figure 1).

Associated percent reductions from the baseline, bay segment specific loads ranged from 0.3% in the majority of the bay segments' watersheds, according to a 10% compliance rate and 10% contribution of fertilizer to wet-season, urbanized runoff to 20.4% in the Manatee River and Terra Ceia Bay segment watersheds, according to a 75% compliance rate and 79% contribution of fertilizer to wet-season, urbanized runoff (Table 5). The range of estimated total load reductions was about 0.1 tons/yr in the Lower Tampa Bay and Terra Ceia Bay segment watersheds to 175.7 tons/yr in the Hillsborough Bay segment watershed. Again, these total load reduction ranges were based on the array of conservative to liberal assumptions for compliance rates and fertilizer contribution to wet-season, urbanized runoff.

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Table 5: Model-based estimates of average annual total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected loads after reductions associated with fertilizer restriction implementation have been applied based upon varying levels of compliance and fertilizer contribution to wet-season runoff. Recommended estimates are highlighted in gray and italics.

Fertilizer Contribution Scenario	Bay Segment	Acres	Baseline Load	10% Compliance	25% Compliance	50% Compliance	75% Compliance	Baseline Yield	10% Compliance	25% Compliance	50% Compliance	75% Compliance
10%	Old Tampa Bay	76787.0	420.3	418.9 (-0.3%)	416.7 (-0.8%)	413.1 (-1.7%)	409.6 (-2.6%)	10.9	10.9	10.9	10.8	10.7
	Hillsborough Bay	212859.2	907.3	904.3 (-0.3%)	899.9 (-0.8%)	892.5 (-1.6%)	885.0 (-2.5%)	8.5	8.5	8.5	8.4	8.3
	Middle Tampa Bay	38246.0	204.0	203.4 (-0.3%)	202.5 (-0.8%)	200.9 (-1.6%)	199.3 (-2.3%)	10.7	10.6	10.6	10.5	10.4
	Lower Tampa Bay	4805.3	21.0	20.9 (-0.3%)	20.8 (-0.9%)	20.6 (-1.7%)	20.4 (-2.5%)	8.7	8.7	8.6	8.6	8.5
	Boca Ciega Bay	35673.4	236.4	235.6 (-0.3%)	234.5 (-0.8%)	232.5 (-1.6%)	230.6 (-2.5%)	13.3	13.2	13.1	13.0	12.9
	Manatee River	46324.2	218.0	217.3 (-0.3%)	216.1 (-0.9%)	214.3 (-1.7%)	212.4 (-2.6%)	9.4	9.4	9.3	9.3	9.2
	Terra Ceia Bay	3181.2	16.7	16.6 (-0.4%)	16.5 (-0.9%)	16.4 (-1.7%)	16.2 (-2.6%)	10.5	10.4	10.4	10.3	10.2
	Tampa Bay	**417876.3**	**2023.7**	**2017.0 (-0.3%)**	**2007.0 (-0.8%)**	**1990.2 (-1.7%)**	**1973.5 (-2.5%)**	**9.7**	**9.7**	**9.6**	**9.5**	**9.4**
25%	Old Tampa Bay	76787.0	420.3	416.7 (-0.8%)	411.4 (-2.1%)	*402.4 (-4.3%)*	393.5 (-6.4%)	10.9	10.9	10.7	10.5	10.2
	Hillsborough Bay	212859.2	907.3	899.9 (-0.8%)	888.7 (-2.0%)	*870.2 (-4.1%)*	851.7 (-6.1%)	8.5	8.5	8.4	8.2	8.0
	Middle Tampa Bay	38246.0	204.0	202.5 (-0.8%)	200.1 (-1.9%)	*196.1 (-3.9%)*	192.1 (-5.8%)	10.7	10.6	10.5	10.3	10.0
	Lower Tampa Bay	4805.3	21.0	20.8 (-0.9%)	20.5 (-2.1%)	*20.1 (-4.2%)*	19.7 (-6.2%)	8.7	8.6	8.5	8.4	8.2
	Boca Ciega Bay	35673.4	236.4	234.5 (-0.8%)	231.6 (-2.1%)	*226.7 (-4.1%)*	221.8 (-6.2%)	13.3	13.1	13.0	12.7	12.4
	Manatee River	46324.2	218.0	216.1 (-0.9%)	213.3 (-2.1%)	*208.6 (-4.3%)*	204.0 (-6.4%)	9.4	9.3	9.2	9.0	8.8
	Terra Ceia Bay	3181.2	16.7	16.5 (-0.9%)	16.3 (-2.2%)	*16.0 (-4.3%)*	15.6 (-6.5%)	10.5	10.4	10.3	10.0	9.8
	Tampa Bay	**417876.3**	**2023.7**	**2007.0 (-0.8%)**	**1981.9 (-2.1%)**	***1940.1 (-4.1%)***	**1898.3 (-6.2%)**	**9.7**	**9.6**	**9.5**	**9.3**	**9.1**
50%	Old Tampa Bay	76787.0	420.3	413.1 (-1.7%)	402.4 (-4.3%)	384.5 (-8.5%)	366.6 (-12.8%)	10.9	10.8	10.5	10.0	9.5
	Hillsborough Bay	212859.2	907.3	892.5 (-1.6%)	870.2 (-4.1%)	833.1 (-8.2%)	796.1 (-12.3%)	8.5	8.4	8.2	7.8	7.5
	Middle Tampa Bay	38246.0	204.0	200.9 (-1.6%)	196.1 (-3.9%)	188.2 (-7.8%)	180.2 (-11.7%)	10.7	10.5	10.3	9.8	9.4
	Lower Tampa Bay	4805.3	21.0	20.6 (-1.7%)	20.1 (-4.2%)	19.2 (-8.3%)	18.4 (-12.5%)	8.7	8.6	8.4	8.0	7.6
	Boca Ciega Bay	35673.4	236.4	232.5 (-1.6%)	226.7 (-4.1%)	216.9 (-8.2%)	207.2 (-12.4%)	13.3	13.0	12.7	12.2	11.6
	Manatee River	46324.2	218.0	214.3 (-1.7%)	208.6 (-4.3%)	199.3 (-8.6%)	189.9 (-12.9%)	9.4	9.3	9.0	8.6	8.2
	Terra Ceia Bay	3181.2	16.7	16.4 (-1.7%)	16.0 (-4.3%)	15.2 (-8.6%)	14.5 (-12.9%)	10.5	10.3	10.0	9.6	9.1
	Tampa Bay	**417876.3**	**2023.7**	**1990.2 (-1.7%)**	**1940.1 (-4.1%)**	**1856.5 (-8.3%)**	**1772.9 (-12.4%)**	**9.7**	**9.5**	**9.3**	**8.9**	**8.5**

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Table 5 (cont'd): Model-based estimates of average annual total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected loads after reductions associated with fertilizer restriction implementation have been applied based upon varying levels of compliance and fertilizer contribution to wet-season runoff.

Fertilizer Contribution Scenario	Bay Segment	Acres	Baseline Load	10% Compliance	25% Compliance	50% Compliance	75% Compliance	Baseline Yields	10% Compliance	25% Compliance	50% Compliance	75% Compliance
79%	**Old Tampa Bay**	**76787.0**	**420.3**	409.0 (-2.7%)	392.0 (-6.7%)	363.8 (-13.4%)	335.5 (-20.2%)	10.9	10.7	10.2	9.5	8.7
	Hillsborough Bay	**212859.2**	**907.3**	883.9 (-2.6%)	848.7 (-6.5%)	790.1 (-12.9%)	731.6 (-19.4%)	8.5	8.3	8.0	7.4	6.9
	Middle Tampa Bay	**38246.0**	**204.0**	199.0 (-2.5%)	191.5 (-6.1%)	179.0 (-12.3%)	166.4 (-18.4%)	10.7	10.4	10.0	9.4	8.7
	Lower Tampa Bay	**4805.3**	**21.0**	20.4 (-2.6%)	19.6 (-6.5%)	18.2 (-13.1%)	16.8 (-19.7%)	8.7	8.5	8.2	7.6	7.0
	Boca Ciega Bay	**35673.4**	**236.4**	230.3 (-2.6%)	221.0 (-6.5%)	205.6 (-13.0%)	190.2 (-19.5%)	13.3	12.9	12.4	11.5	10.7
	Manatee River	**46324.2**	**218.0**	212.1 (-2.7%)	203.2 (-6.8%)	188.4 (-13.6%)	173.6 (-20.4%)	9.4	9.2	8.8	8.1	7.5
	Terra Ceia Bay	**3181.2**	**16.7**	16.2 (-2.7%)	15.5 (-6.8%)	14.4 (-13.6%)	13.3 (-20.4%)	10.5	10.2	9.8	9.1	8.3
	Tampa Bay	**417876.3**	**2023.7**	**1970.8 (-2.6%)**	**1891.6 (-6.5%)**	**1759.5 (-13.1%)**	**1627.5 (-19.6%)**	**9.7**	**9.4**	**9.1**	**8.4**	**7.8**

Jurisdictional Nitrogen Loads and Yields from Urbanized Land Uses & Associated Modeled Reduction Estimates

Estimates of total nitrogen loads and associated reduced loads with 10% (Table 6), 25% (Table 7), 50% (Table 8), and 79% (Table 9) contributions of fertilizer to wet-season, urbanized runoff in discrete jurisdictions of the Tampa Bay watershed varied according to the acreage and degree of urbanized lands within each jurisdiction. Total nitrogen baseline loads were least from the City of St. Leo in Pasco County (~0.01 tons/yr based upon about 1.4 acres of urbanized land uses falling within the watershed), and greatest from unincorporated Hillsborough County (729.1 tons/yr over 166,783 acres of urbanized land uses). Estimated load reductions were relatively indecipherable for small, modestly urbanized or undeveloped jurisdictions (e.g. the Community Development District of Heritage Harbour Marketplace and the City of St. Leo) based on the GIS model employed. However, regardless of jurisdictional size and for those jurisdictions with a greater degree of medium to high residential densities composing the urbanized land uses within the jurisdictions' boundaries, estimated reductions in total nitrogen loads were evident across all modeled levels of compliance and fertilizer contribution to runoff (Tables 6–9).

Baseline average estimated nitrogen yields ranged from 3.45 lbs/acre (Community Development District of Heritage Harbour Marketplace) to 14.4 lbs/acre (City of Redington Beach). Estimated reductions in yields resulting from fertilizer ordinance implementation ranged from non-estimable to 2.93 lbs/acre (City of Kenneth City).

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Table 6: Model-based estimates of annual average total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected reduced loads associated with fertilizer restriction implementation based upon varying levels of compliance and a 10% fertilizer contribution to wet-season runoff.

Jurisdiction	Acres	Total Nitrogen Load (tons/yr)					Average Nitrogen Yield (lbs./acre)				
		Baseline	Compliance Rate				Baseline	Compliance Rate			
			10%	25%	50%	75%		10%	25%	50%	75%
CDD: Greyhawk Landing	429.7	1.99	1.98	1.97	1.96	1.94	9.26	9.22	9.17	9.12	9.03
CDD: Harbourage at Braden River	41.4	0.26	0.26	0.26	0.26	0.26	12.57	12.57	12.57	12.57	12.57
CDD: Heritage Harbour	580.9	2.47	2.46	2.45	2.43	2.41	8.50	8.47	8.44	8.37	8.30
CDD: Heritage Harbour Marketplace	40.5	0.07	0.07	0.07	0.07	0.07	3.45	3.45	3.45	3.45	3.45
CDD: Lakewood Ranch	2829.7	12.99	12.95	12.88	12.76	12.65	9.18	9.15	9.10	9.02	8.94
CDD: Lexington	106.1	0.49	0.49	0.49	0.49	0.48	9.24	9.24	9.24	9.24	9.05
CDD: Tara	347.0	1.73	1.73	1.72	1.70	1.69	9.97	9.97	9.91	9.80	9.74
CDD: University Place	160.5	0.94	0.93	0.93	0.92	0.91	11.71	11.59	11.59	11.47	11.34
CDD: Waterlefe	307.7	1.52	1.51	1.50	1.49	1.48	9.88	9.81	9.75	9.68	9.62
City of Bradenton	3659.8	24.56	24.47	24.34	24.12	23.90	13.42	13.37	13.30	13.18	13.06
City of Clearwater	5901.3	35.96	35.84	35.67	35.37	35.08	12.19	12.15	12.09	11.99	11.89
City of Gulfport	1548.6	10.61	10.58	10.53	10.44	10.36	13.70	13.66	13.60	13.48	13.38
City of Indian Shores	14.9	0.08	0.08	0.08	0.08	0.08	10.73	10.73	10.73	10.73	10.73
City of Kenneth City	388.9	2.90	2.89	2.87	2.85	2.83	14.91	14.86	14.76	14.66	14.55
City of Lakeland	5469.1	23.82	23.75	23.64	23.45	23.26	8.71	8.69	8.64	8.58	8.51
City of Largo	5201.4	32.40	32.29	32.12	31.85	31.57	12.46	12.42	12.35	12.25	12.14
City of Madeira Beach	296.8	1.98	1.98	1.97	1.95	1.94	13.34	13.34	13.28	13.14	13.07
City of N. Redington Beach	61.8	0.42	0.41	0.41	0.41	0.41	13.59	13.27	13.27	13.27	13.27
City of Oldsmar	1749.9	9.34	9.30	9.25	9.17	9.09	10.67	10.63	10.57	10.48	10.39
City of Palmetto	1931.5	10.82	10.78	10.73	10.64	10.55	11.20	11.16	11.11	11.02	10.92
City of Pinellas Park	5266.8	32.28	32.17	32.00	31.72	31.45	12.26	12.22	12.15	12.05	11.94
City of Plant City	5215.3	24.66	24.58	24.46	24.26	24.06	9.46	9.43	9.38	9.30	9.23
City of Redington Beach	113.9	0.82	0.81	0.81	0.80	0.80	14.40	14.22	14.22	14.05	14.05
City of Redington Shores	105.3	0.64	0.63	0.63	0.63	0.62	12.16	11.97	11.97	11.97	11.78
City of S. Pasadena	200.7	1.22	1.22	1.21	1.20	1.19	12.15	12.15	12.06	11.96	11.86
City of Safety Harbor	2387.3	12.91	12.87	12.80	12.69	12.58	10.82	10.78	10.72	10.63	10.54
City of San Antonio	312.1	1.40	1.39	1.38	1.37	1.36	8.97	8.91	8.84	8.78	8.72
City of Seminole	4787.8	29.73	29.63	29.48	29.23	28.98	12.42	12.38	12.31	12.21	12.11
City of St. Leo	1.4	0.01	0.01	0.01	0.01	0.01	14.21	14.21	14.21	14.21	14.21
City of St. Petersburg	26138.7	183.06	182.46	181.58	180.10	178.62	14.01	13.96	13.89	13.78	13.67
City of St. Petersburg Beach	833.1	5.26	5.24	5.21	5.17	5.13	12.63	12.58	12.51	12.41	12.32
City of Tampa	32622.0	185.84	185.23	184.32	182.79	181.27	11.39	11.36	11.30	11.21	11.11
City of Tarpon Springs	189.5	0.74	0.74	0.74	0.73	0.72	7.81	7.81	7.81	7.71	7.60
City of Temple Terrace	2993.0	13.38	13.33	13.26	13.15	13.04	8.94	8.91	8.86	8.79	8.71
City of Treasure Island	506.4	3.06	3.05	3.04	3.01	2.99	12.09	12.05	12.01	11.89	11.81
City of Zephyrhills	2519.7	9.46	9.43	9.39	9.32	9.24	7.51	7.49	7.45	7.40	7.33
Unincorporated Hills. Co.	166783.2	729.14	726.75	723.17	717.20	711.23	8.74	8.71	8.67	8.60	8.53
Unincorporated Manatee Co.	44729.1	198.45	197.77	196.76	195.07	193.39	8.87	8.84	8.80	8.72	8.65
Unincorporated Pasco Co.	36225.7	147.20	146.72	146.01	144.81	143.62	8.13	8.10	8.06	7.99	7.93
Unincorporated Pinellas Co.	24811.2	144.53	144.04	143.32	142.11	140.90	11.65	11.61	11.55	11.46	11.36
Unincorporated Polk Co.	28176.7	114.36	113.97	113.39	112.42	111.45	8.12	8.09	8.05	7.98	7.91
Unincorporated Sarasota Co.	582.1	3.24	3.23	3.21	3.18	3.15	11.13	11.10	11.03	10.93	10.82
Unresolved Areas	1307.9	6.95	6.92	6.89	6.83	6.78	10.63	10.58	10.54	10.44	10.37
Total Tampa Bay	417876.3	2023.7	2017.0	2007.0	1990.2	1973.5	9.69	9.65	9.61	9.53	9.45

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Table 7: Model-based estimates of annual average total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected reduced loads associated with fertilizer restriction implementation based upon varying levels of compliance and a 25% fertilizer contribution to wet-season runoff. Recommended reduced load estimates are highlighted in gray.

Jurisdiction	Acres	Total Nitrogen Load (tons/yr)					Average Nitrogen Yield (lbs./acre)				
		Baseline	Compliance Rate				Baseline	Compliance Rate			
			10%	25%	50%	75%		10%	25%	50%	75%
CDD: Greyhawk Landing	429.7	1.99	1.97	1.95	1.90	1.86	9.26	9.17	9.08	8.84	8.66
CDD: Harbourage at Braden River	41.4	0.26	0.26	0.26	0.25	0.25	12.57	12.57	12.57	12.09	12.09
CDD: Heritage Harbour	580.9	2.47	2.45	2.42	2.37	2.32	8.50	8.44	8.33	8.16	7.99
CDD: Heritage Harbour Marketplace	40.5	0.07	0.07	0.07	0.07	0.07	3.45	3.45	3.45	3.45	3.45
CDD: Lakewood Ranch	2829.7	12.99	12.88	12.71	12.43	12.14	9.18	9.10	8.98	8.79	8.58
CDD: Lexington	106.1	0.49	0.49	0.48	0.47	0.46	9.24	9.24	9.05	8.86	8.68
CDD: Tara	347.0	1.73	1.72	1.69	1.66	1.62	9.97	9.91	9.74	9.57	9.34
CDD: University Place	160.5	0.94	0.93	0.92	0.89	0.87	11.71	11.59	11.47	11.09	10.84
CDD: Waterlefe	307.7	1.52	1.50	1.48	1.45	1.42	9.88	9.75	9.62	9.42	9.23
City of Bradenton	3659.8	24.56	24.34	24.01	23.46	22.92	13.42	13.30	13.12	12.82	12.53
City of Clearwater	5901.3	35.96	35.67	35.23	34.49	33.75	12.19	12.09	11.94	11.69	11.44
City of Gulfport	1548.6	10.61	10.53	10.40	10.19	9.98	13.70	13.60	13.43	13.16	12.89
City of Indian Shores	14.9	0.08	0.08	0.08	0.07	0.07	10.73	10.73	10.73	9.39	9.39
City of Kenneth City	388.9	2.90	2.87	2.84	2.78	2.72	14.91	14.76	14.61	14.30	13.99
City of Lakeland	5469.1	23.82	23.64	23.36	22.89	22.43	8.71	8.64	8.54	8.37	8.20
City of Largo	5201.4	32.40	32.12	31.71	31.02	30.33	12.46	12.35	12.19	11.93	11.66
City of Madeira Beach	296.8	1.98	1.97	1.94	1.90	1.86	13.34	13.28	13.07	12.80	12.54
City of N. Redington Beach	61.8	0.42	0.41	0.41	0.40	0.39	13.59	13.27	13.27	12.95	12.62
City of Oldsmar	1749.9	9.34	9.25	9.13	8.93	8.73	10.67	10.57	10.43	10.21	9.98
City of Palmetto	1931.5	10.82	10.73	10.59	10.37	10.15	11.20	11.11	10.97	10.74	10.51
City of Pinellas Park	5266.8	32.28	32.00	31.59	30.90	30.21	12.26	12.15	12.00	11.73	11.47
City of Plant City	5215.3	24.66	24.46	24.16	23.66	23.16	9.46	9.38	9.27	9.07	8.88
City of Redington Beach	113.9	0.82	0.81	0.80	0.78	0.77	14.40	14.22	14.05	13.70	13.52
City of Redington Shores	105.3	0.64	0.63	0.62	0.61	0.60	12.16	11.97	11.78	11.59	11.40
City of S. Pasadena	200.7	1.22	1.21	1.20	1.17	1.15	12.15	12.06	11.96	11.66	11.46
City of Safety Harbor	2387.3	12.91	12.80	12.63	12.36	12.08	10.82	10.72	10.58	10.35	10.12
City of San Antonio	312.1	1.40	1.38	1.37	1.34	1.31	8.97	8.84	8.78	8.59	8.40
City of Seminole	4787.8	29.73	29.48	29.11	28.49	27.87	12.42	12.31	12.16	11.90	11.64
City of St. Leo	1.4	0.01	0.01	0.01	0.01	0.01	14.21	14.21	14.21	14.21	14.21
City of St. Petersburg	26138.7	183.06	181.58	179.36	175.67	171.97	14.01	13.89	13.72	13.44	13.16
City of St. Petersburg Beach	833.1	5.26	5.21	5.15	5.04	4.93	12.63	12.51	12.36	12.10	11.84
City of Tampa	32622.0	185.84	184.32	182.03	178.22	174.40	11.39	11.30	11.16	10.93	10.69
City of Tarpon Springs	189.5	0.74	0.74	0.73	0.71	0.70	7.81	7.81	7.71	7.50	7.39
City of Temple Terrace	2993.0	13.38	13.26	13.09	12.81	12.53	8.94	8.86	8.75	8.56	8.37
City of Treasure Island	506.4	3.06	3.04	3.00	2.94	2.88	12.09	12.01	11.85	11.61	11.37
City of Zephyrhills	2519.7	9.46	9.39	9.28	9.09	8.91	7.51	7.45	7.37	7.22	7.07
Unincorporated Hills. Co.	166783.2	729.14	723.17	714.22	699.29	684.37	8.74	8.67	8.56	8.39	8.21
Unincorporated Manatee Co.	44729.1	198.45	196.76	194.23	190.01	185.79	8.87	8.80	8.68	8.50	8.31
Unincorporated Pasco Co.	36225.7	147.20	146.01	144.22	141.23	138.25	8.13	8.06	7.96	7.80	7.63
Unincorporated Pinellas Co.	24811.2	144.53	143.32	141.50	138.48	135.45	11.65	11.55	11.41	11.16	10.92
Unincorporated Polk Co.	28176.7	114.36	113.39	111.93	109.51	107.09	8.12	8.05	7.94	7.77	7.60
Unincorporated Sarasota Co.	582.1	3.24	3.21	3.17	3.10	3.03	11.13	11.03	10.89	10.65	10.41
Unresolved Areas	1307.9	6.95	6.89	6.81	6.66	6.52	10.63	10.54	10.41	10.18	9.97
Total Tampa Bay	417876.3	2023.7	2007.0	1981.9	1940.1	1898.3	9.69	9.61	9.49	9.29	9.09

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Table 8: Model-based estimates of annual average total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected reduced loads associated with fertilizer restriction implementation based upon varying levels of compliance and a 50% fertilizer contribution to wet-season runoff.

Jurisdiction	Acres	Total Nitrogen Load (tons/yr)					Average Nitrogen Yield (lbs./acre)				
		Baseline	Compliance Rate				Baseline	Compliance Rate			
			10%	25%	50%	75%		10%	25%	50%	75%
CDD: Greyhawk Landing	429.7	1.99	1.96	1.90	1.81	1.72	9.26	9.12	8.84	8.42	8.01
CDD: Harbourage at Braden River	41.4	0.26	0.26	0.25	0.24	0.23	12.57	12.57	12.09	11.60	11.12
CDD: Heritage Harbour	580.9	2.47	2.43	2.37	2.27	2.17	8.50	8.37	8.16	7.82	7.47
CDD: Heritage Harbour Marketplace	40.5	0.07	0.07	0.07	0.07	0.07	3.45	3.45	3.45	3.45	3.45
CDD: Lakewood Ranch	2829.7	12.99	12.76	12.43	11.86	11.30	9.18	9.02	8.79	8.38	7.99
CDD: Lexington	106.1	0.49	0.49	0.47	0.45	0.43	9.24	9.24	8.86	8.49	8.11
CDD: Tara	347.0	1.73	1.70	1.66	1.58	1.51	9.97	9.80	9.57	9.11	8.70
CDD: University Place	160.5	0.94	0.92	0.89	0.85	0.80	11.71	11.47	11.09	10.59	9.97
CDD: Waterlefe	307.7	1.52	1.49	1.45	1.38	1.32	9.88	9.68	9.42	8.97	8.58
City of Bradenton	3659.8	24.56	24.12	23.46	22.37	21.28	13.42	13.18	12.82	12.22	11.63
City of Clearwater	5901.3	35.96	35.37	34.49	33.01	31.54	12.19	11.99	11.69	11.19	10.69
City of Gulfport	1548.6	10.61	10.44	10.19	9.77	9.34	13.70	13.48	13.16	12.62	12.06
City of Indian Shores	14.9	0.08	0.08	0.07	0.07	0.07	10.73	10.73	9.39	9.39	9.39
City of Kenneth City	388.9	2.90	2.85	2.78	2.66	2.54	14.91	14.66	14.30	13.68	13.06
City of Lakeland	5469.1	23.82	23.45	22.89	21.96	21.04	8.71	8.58	8.37	8.03	7.69
City of Largo	5201.4	32.40	31.85	31.02	29.64	28.25	12.46	12.25	11.93	11.40	10.86
City of Madeira Beach	296.8	1.98	1.95	1.90	1.82	1.75	13.34	13.14	12.80	12.27	11.79
City of N. Redington Beach	61.8	0.42	0.41	0.40	0.38	0.36	13.59	13.27	12.95	12.30	11.65
City of Oldsmar	1749.9	9.34	9.17	8.93	8.52	8.12	10.67	10.48	10.21	9.74	9.28
City of Palmetto	1931.5	10.82	10.64	10.37	9.92	9.48	11.20	11.02	10.74	10.27	9.82
City of Pinellas Park	5266.8	32.28	31.72	30.90	29.52	28.13	12.26	12.05	11.73	11.21	10.68
City of Plant City	5215.3	24.66	24.26	23.66	22.66	21.66	9.46	9.30	9.07	8.69	8.31
City of Redington Beach	113.9	0.82	0.80	0.78	0.75	0.71	14.40	14.05	13.70	13.17	12.47
City of Redington Shores	105.3	0.64	0.63	0.61	0.59	0.56	12.16	11.97	11.59	11.21	10.64
City of S. Pasadena	200.7	1.22	1.20	1.17	1.12	1.07	12.15	11.96	11.66	11.16	10.66
City of Safety Harbor	2387.3	12.91	12.69	12.36	11.80	11.24	10.82	10.63	10.35	9.89	9.42
City of San Antonio	312.1	1.40	1.37	1.34	1.28	1.23	8.97	8.78	8.59	8.20	7.88
City of Seminole	4787.8	29.73	29.23	28.49	27.25	26.01	12.42	12.21	11.90	11.38	10.87
City of St. Leo	1.4	0.01	0.01	0.01	0.01	0.01	14.21	14.21	14.21	14.21	14.21
City of St. Petersburg	26138.7	183.06	180.10	175.67	168.27	160.88	14.01	13.78	13.44	12.88	12.31
City of St. Petersburg Beach	833.1	5.26	5.17	5.04	4.82	4.61	12.63	12.41	12.10	11.57	11.07
City of Tampa	32622.0	185.84	182.79	178.22	170.59	162.97	11.39	11.21	10.93	10.46	9.99
City of Tarpon Springs	189.5	0.74	0.73	0.71	0.68	0.65	7.81	7.71	7.50	7.18	6.86
City of Temple Terrace	2993.0	13.38	13.15	12.81	12.25	11.69	8.94	8.79	8.56	8.19	7.81
City of Treasure Island	506.4	3.06	3.01	2.94	2.82	2.70	12.09	11.89	11.61	11.14	10.66
City of Zephyrhills	2519.7	9.46	9.32	9.09	8.72	8.35	7.51	7.40	7.22	6.92	6.63
Unincorporated Hills. Co.	166783.2	729.14	717.20	699.29	669.45	639.60	8.74	8.60	8.39	8.03	7.67
Unincorporated Manatee Co.	44729.1	198.45	195.07	190.01	181.57	173.13	8.87	8.72	8.50	8.12	7.74
Unincorporated Pasco Co.	36225.7	147.20	144.81	141.23	135.26	129.29	8.13	7.99	7.80	7.47	7.14
Unincorporated Pinellas Co.	24811.2	144.53	142.11	138.48	132.42	126.37	11.65	11.46	11.16	10.67	10.19
Unincorporated Polk Co.	28176.7	114.36	112.42	109.51	104.66	99.82	8.12	7.98	7.77	7.43	7.09
Unincorporated Sarasota Co.	582.1	3.24	3.18	3.10	2.96	2.83	11.13	10.93	10.65	10.17	9.72
Unresolved Areas	1307.9	6.95	6.83	6.66	6.38	6.10	10.63	10.44	10.18	9.76	9.33
Total Tampa Bay	417876.3	2023.7	1990.2	1940.1	1856.5	1772.9	9.69	9.53	9.29	8.89	8.49

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Table 9: Model-based estimates of annual average total nitrogen loads (tons/yr) and yields (lbs/acre/yr) from urbanized land uses of the major bay segments of Tampa Bay and expected reduced loads associated with fertilizer restriction implementation based upon varying levels of compliance and a 79% fertilizer contribution to wet-season runoff.

Jurisdiction	Acres	Total Nitrogen Load (tons/yr)					Average Nitrogen Yield (lbs./acre)				
		Baseline	Compliance Rate				Baseline	Compliance Rate			
			10%	25%	50%	75%		10%	25%	50%	75%
CDD: Greyhawk Landing	429.7	1.99	1.94	1.85	1.71	1.57	9.26	9.03	8.61	7.96	7.31
CDD: Harbourage at Braden River	41.4	0.26	0.26	0.25	0.23	0.21	12.57	12.57	12.09	11.12	10.15
CDD: Heritage Harbour	580.9	2.47	2.41	2.31	2.15	1.99	8.50	8.30	7.95	7.40	6.85
CDD: Heritage Harbour Marketplace	40.5	0.07	0.07	0.07	0.07	0.07	3.45	3.45	3.45	3.45	3.45
CDD: Lakewood Ranch	2829.7	12.99	12.63	12.10	11.21	10.31	9.18	8.93	8.55	7.92	7.29
CDD: Lexington	106.1	0.49	0.48	0.46	0.42	0.39	9.24	9.05	8.68	7.92	7.35
CDD: Tara	347.0	1.73	1.68	1.61	1.49	1.38	9.97	9.68	9.28	8.59	7.95
CDD: University Place	160.5	0.94	0.91	0.87	0.80	0.72	11.71	11.34	10.84	9.97	8.97
CDD: Waterlefe	307.7	1.52	1.47	1.41	1.30	1.20	9.88	9.55	9.16	8.45	7.80
City of Bradenton	3659.8	24.56	23.87	22.83	21.10	19.38	13.42	13.04	12.48	11.53	10.59
City of Clearwater	5901.3	35.96	35.03	33.63	31.30	28.97	12.19	11.87	11.40	10.61	9.82
City of Gulfport	1548.6	10.61	10.35	9.94	9.28	8.61	13.70	13.37	12.84	11.99	11.12
City of Indian Shores	14.9	0.08	0.08	0.07	0.07	0.06	10.73	10.73	9.39	9.39	8.05
City of Kenneth City	388.9	2.90	2.82	2.71	2.52	2.33	14.91	14.50	13.94	12.96	11.98
City of Lakeland	5469.1	23.82	23.23	22.35	20.89	19.42	8.71	8.49	8.17	7.64	7.10
City of Largo	5201.4	32.40	31.52	30.22	28.03	25.85	12.46	12.12	11.62	10.78	9.94
City of Madeira Beach	296.8	1.98	1.93	1.86	1.73	1.61	13.34	13.01	12.54	11.66	10.85
City of N. Redington Beach	61.8	0.42	0.41	0.39	0.36	0.33	13.59	13.27	12.62	11.65	10.68
City of Oldsmar	1749.9	9.34	9.08	8.69	8.05	7.41	10.67	10.38	9.93	9.20	8.47
City of Palmetto	1931.5	10.82	10.54	10.11	9.41	8.70	11.20	10.91	10.47	9.74	9.01
City of Pinellas Park	5266.8	32.28	31.40	30.09	27.91	25.73	12.26	11.92	11.43	10.60	9.77
City of Plant City	5215.3	24.66	24.03	23.08	21.50	19.93	9.46	9.22	8.85	8.25	7.64
City of Redington Beach	113.9	0.82	0.80	0.76	0.71	0.66	14.40	14.05	13.35	12.47	11.59
City of Redington Shores	105.3	0.64	0.62	0.60	0.56	0.52	12.16	11.78	11.40	10.64	9.88
City of S. Pasadena	200.7	1.22	1.19	1.14	1.06	0.99	12.15	11.86	11.36	10.56	9.86
City of Safety Harbor	2387.3	12.91	12.56	12.03	11.15	10.27	10.82	10.52	10.08	9.34	8.60
City of San Antonio	312.1	1.40	1.36	1.31	1.22	1.13	8.97	8.72	8.40	7.82	7.24
City of Seminole	4787.8	29.73	28.94	27.77	25.81	23.85	12.42	12.09	11.60	10.78	9.96
City of St. Leo	1.4	0.01	0.01	0.01	0.01	0.01	14.21	14.21	14.21	14.21	14.21
City of St. Petersburg	26138.7	183.06	178.39	171.38	159.70	148.02	14.01	13.65	13.11	12.22	11.33
City of St. Petersburg Beach	833.1	5.26	5.12	4.92	4.57	4.23	12.63	12.29	11.81	10.97	10.15
City of Tampa	32622.0	185.84	181.02	173.79	161.75	149.70	11.39	11.10	10.65	9.92	9.18
City of Tarpon Springs	189.5	0.74	0.72	0.69	0.64	0.59	7.81	7.60	7.28	6.76	6.23
City of Temple Terrace	2993.0	13.38	13.02	12.49	11.60	10.71	8.94	8.70	8.35	7.75	7.16
City of Treasure Island	506.4	3.06	2.98	2.87	2.68	2.48	12.09	11.77	11.34	10.58	9.79
City of Zephyrhills	2519.7	9.46	9.23	8.88	8.29	7.70	7.51	7.33	7.05	6.58	6.11
Unincorporated Hills. Co.	166783.2	729.14	710.28	681.98	634.83	587.67	8.74	8.52	8.18	7.61	7.05
Unincorporated Manatee Co.	44729.1	198.45	193.12	185.11	171.78	158.45	8.87	8.64	8.28	7.68	7.08
Unincorporated Pasco Co.	36225.7	147.20	143.43	137.77	128.34	118.90	8.13	7.92	7.61	7.09	6.56
Unincorporated Pinellas Co.	24811.2	144.53	140.70	134.96	125.40	115.84	11.65	11.34	10.88	10.11	9.34
Unincorporated Polk Co.	28176.7	114.36	111.29	106.70	99.04	91.39	8.12	7.90	7.57	7.03	6.49
Unincorporated Sarasota Co.	582.1	3.24	3.15	3.02	2.80	2.59	11.13	10.82	10.38	9.62	8.90
Unresolved Areas	1307.9	6.95	6.77	6.50	6.05	5.60	10.63	10.35	9.94	9.25	8.56
Total Tampa Bay	417876.3	2023.7	1970.8	1891.6	1759.5	1627.5	9.69	9.43	9.05	8.42	7.79

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RECOMMENDATIONS

A range of fertilizer restriction reduction estimates were generated according to GIS, model-based total nitrogen loads from urbanized land uses within the Tampa Bay watershed. Depending on the estimated relative contribution of fertilizer to wet-season urbanized runoff, the degree of expected compliance of a fertilizer ordinance, and the adoption of an ordinance in jurisdictions throughout the watershed, baywide total nitrogen load reductions estimates could be as high as 396 tons/yr. Granted this estimate is based upon a relatively high contribution of fertilizer to resulting wet-season urbanized loads (79%) as seen in groundwater nitrogen loads in the Lake Tarpon watershed (LBG 2004) and a relatively high compliance rate with any enacted wet-season prohibition of fertilizer application (75%).

Conservatively, fertilizer contributions to urbanized runoff probably approaches 25% in urbanized areas during wet-season, saturated soil conditions based on research from other states (Linde and Watschke 1997; Groffman et. al 2004; Schuman 2004). In addition, the very first estimates of expected compliance of fertilizer application prohibitions have been generated in the state of Minnesota in response to phosphorus-free fertilizer regulations first implemented in 2004 (MDA 2007). As a result of these regulations, the Minnesota Department of Agriculture (2007) estimated that phosphorus fertilizer use dropped by 48%. According to the findings of these studies, it is recommended that the Nitrogen Management Consortium propose fertilizer ordinance implementation reductions associated with a wet-season prohibition of non-agricultural nitrogen fertilizer application based on a 25% contribution of fertilizer to wet-season urbanized runoff and a resulting compliance level of 50% of any enacted ordinance. Given these conservative levels, the following reduction estimates are proposed for the region and are requested for EPA and FDEP concurrence. In the absence of updated land use information or boundary specific distributions of urbanized land uses, it is recommended that the baywide average be used to apply fertilizer restriction implementation reductions to total nitrogen loads attributed to specific entities.

Recommended Baywide Average Estimated Total Nitrogen Load Reduction Based upon 2006 Urbanized Land Use Spatial Distribution:

- 4.1% reduction in loads attributed to urbanized land uses

Recommended Bay Segment-Specific Average Estimated Total Nitrogen Load Reduction Based upon 2006 Urbanized Land Use Spatial Distribution:

- Old Tampa Bay: 4.3 % reduction in urbanized total nitrogen loads
- Hillsborough Bay: 4.1 % reduction in urbanized total nitrogen loads
- Middle Tampa Bay: 3.9 % reduction in urbanized total nitrogen loads
- Lower Tampa Bay: 4.2 % reduction in urbanized total nitrogen loads
- Boca Ciega Bay: 4.1 % reduction in urbanized total nitrogen loads
- Manatee River: 4.3 % reduction in urbanized total nitrogen loads
- Terra Ceia Bay: 4.3 % reduction in urbanized total nitrogen loads

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Recommended Jurisdiction-Specific Average Estimated Total Nitrogen Load Reduction Based upon 2006 Urbanized Land Use Spatial Distribution:

- CDD: Greyhawk Landing: 4.52% reduction
- CDD: Harbourage at Braden River: 3.85% reduction
- CDD: Heritage Harbour 4.05% reduction
- CDD: Heritage Harbour Marketplace: 4.1% (Baywide average)
- CDD: Lakewood Ranch: 4.31% reduction
- CDD: Lexington: 4.08% reduction
- CDD: Tara: 4.05% reduction
- CDD: University Place: 5.32% reduction
- CDD: Waterlefe: 4.61% reduction
- City of Bradenton: 4.48% reduction
- City of Clearwater: 4.09% reduction
- City of Gulfport: 3.96% reduction
- City of Indian Shores: 4.1% (Baywide average)
- City of Kenneth City: 4.14% reduction
- City of Lakeland: 3.90% reduction
- City of Largo: 4.26% reduction
- City of Madeira Beach: 4.04% reduction
- City of N. Redington Beach: 4.76% reduction
- City of Oldsmar: 4.39% reduction
- City of Palmetto: 4.16% reduction
- City of Pinellas Park: 4.28% reduction
- City of Plant City: 4.06% reduction
- City of Redington Beach: 4.88% reduction
- City of Redington Shores: 4.69% reduction
- City of S. Pasadena: 4.10% reduction
- City of Safety Harbor: 4.26% reduction
- City of San Antonio: 4.29% reduction
- City of Seminole: 4.17% reduction
- City of St. Leo: 4.1% (Baywide average)
- City of St. Petersburg: 4.04% reduction
- City of St. Petersburg Beach: 4.18% reduction
- City of Tampa: 4.10% reduction
- City of Tarpon Springs: 4.05% reduction
- City of Temple Terrace: 4.26% reduction
- City of Treasure Island: 3.92% reduction
- City of Zephyrhills: 3.91% reduction
- Unincorporated Hills. Co.: 4.09% reduction
- Unincorporated Manatee Co.: 4.25% reduction
- Unincorporated Pasco Co.: 4.06% reduction
- Unincorporated Pinellas Co.: 4.19% reduction
- Unincorporated Polk Co.: 4.24% reduction
- Unincorporated Sarasota Co.: 4.32% reduction

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Incorporation of Fertilizer Restriction and FDEP Recommended Education Credits

FDEP has developed a basis of credits for education efforts (July 25, 2008) for use in developing BMAPs. The instructions provided by FDEP state that "quantitative credit can be given to stormwater management entities (such as local governments) for public education and outreach efforts that target nutrient reductions. Up to a five percent stormwater load reduction in both total nitrogen and total phosphorus for education and outreach efforts can be listed on the BMAP project table. The five percent load reduction estimate is based on the Environmental Protection Agency Center for Watershed Protection's Watershed Treatment Model."

Examples of acceptable education activities in FDEP's instructions include:

- Local funding to implement the Florida Yards and Neighborhoods within the city or county.
- Local land development codes or ordinances that require Florida Friendly landscaping on all new developments, require commercial landscapers to obtain training and certification through Green Industry BMP program, require irrigation systems per Sections 125.568 and 166.048, F.S. and Section 373.185, F.S., and which specify fertilizer application rates and types. Local ordinances that control pet waste and require that residents pick up and properly dispose of pet wastes. Full credit given if local codes include all four components, partial credit for programs that only require one or two components. Model ordinances are available at http://www.dep.state.fl.us/water/nonpoint/pubs.htm .
- Implementation of public service announcements on local cable or commercial television and radio stations.
- Informational pamphlets on pollution prevention, fertilizer application, Florida Friendly Landscaping, water conservation, septic tank maintenance, etc.
- Websites to provide information on reducing nutrient pollution for homeowners and businesses.
- Inspection program and public call-in number to address illicit discharges.

Section H. Fertilizer Management in the model ordinance referenced in FDEP's instructions states that "Private homeowners are encouraged to utilize the recommendations of the University of Florida IFAS Florida Yards and Neighborhoods program and the University of Florida IFAS Fact Sheet ENH-860." IFAS Fact Sheet ENH-860 includes total amounts of N recommended for various lawn turf types, with instructions to "divide annual rates into 2 to 8 applications depending on location and management levels. Apply no more than 1 lb N/1000 square feet per application."

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Fact Sheet ENH-860 also refers to IFAS publication SL 21, revised in May 2007, entitled "General Recommendations for Fertilization of Turfgrasses on Florida Soils"(Sartain 2007) for turf grass fertilization guidelines. SL 21 includes recommendations for application timing for Central Florida turfgrass species which all include at least one application of slow release N fertilizer and one complete fertilizer application (which also includes N) during the Tampa Bay area rainy season (June 1 – September 30).

Implementation of the recommendations for Tampa Bay non-agricultural fertilizer application, specifically elimination of N fertilizer application from June 1 – Sept 30th, would reduce the estimated N loadings below the reductions due to implementation of the education guidelines provided by FDEP as summarized above.

It is recommended that the reduction percentage estimates summarized for fertilizer restrictions in this document be applied in addition to any education credits as listed by FDEP, if the regional non-agricultural fertilizer application recommendations (including a June 1-Sept 30 ban on N fertilization application) are incorporated and implemented through adoption of a local ordinance. This would potentially result in a 5% TN load reduction credit for education and an additional 4.1% reduction credit (on average) for implementation of the recommended ordinance.

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APPENDIX A:
Land Use-specific Seasonal Runoff Coefficients (adapted from Janicki Environmental, Inc. 2008)

Coastal Land Use Classification and Land Use Type	Hydrologic Soil Group	Dry Season Runoff Coeff.	Wet Season Runoff Coeff.
1- Low Density Residential	A	0.15	0.25
	B	0.18	0.28
	C	0.21	0.31
	D	0.24	0.34
	B/D	0.18	0.34
2 - Medium Density Residential	A	0.25	0.35
	B	0.3	0.4
	C	0.35	0.45
	D	0.4	0.5
	B/D	0.3	0.5
3 - High Density Residential	A	0.35	0.5
	B	0.42	0.57
	C	0.5	0.65
	D	0.58	0.75
	B/D	0.42	0.75
7 - Institutional	A	0.4	0.5
	B	0.45	0.55
	C	0.5	0.6
	D	0.55	0.65
	B/D	0.45	0.65
8 - Range/Open Lands	A	0.1	0.18
	B	0.14	0.22
	C	0.18	0.26
	D	0.22	0.3
	B/D	0.14	0.3

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APPENDIX B:
Land Use Specific Water Quality Concentrations

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URBAN LAND USES						
Land Use Classification			Land Use-Specific Water Quality Concentrations			
Coastal Land Use Classification	Land Use Description	Reference	TN (mg/L)	TP (mg/L)	TSS (mg/L)	BOD (mg/L)
1 (LDR)	Low Density Single Family Residential (SFR)	(1)	2.31	0.40	33.0	-
		(1)	2.14	0.32	28.0	-
		(1)	0.605	0.073	7.2	-
		(1)	1.18	0.307	3.5	-
		(1)	3.0	0.45	-	-
		(1)	2.2	0.25	-	-
		(4)	1.87	0.39	-	-
		(8)	1.46	0.401	19.0	-
		(9)	1.56	0.27	20.8	-
		(10)	2.04	0.593	49.7	-
		(11)	2.88	0.72	56.8	-
		(13)	-	-	-	4.4
		min	0.605	0.073	3.5	-
		mean	1.93	0.380	27.3	4.4
		max	2.88	0.598	56.8	-
2 (MDR)	Medium Density (See notes)	mean	2.04	0.44	33.5	- 7.4 -
3 (HDR)	Multifamily Residential	(1)	1.61	0.33	53.0	-
		(1)	2.57	0.45	36.8	-
		(1)	4.68	0.72	95.6	-
		(1)	1.91	0.73	-	-
		(1)	1.02	0.033	67.6	-
		(1)	1.91	0.51	14.3	-
		(4)	1.65	0.33	-	-
		(8)	2.05	1.34	29.0	-
		(9)	2.04	0.282	10.7	-
		(10)	2.05	0.150	8.3	-
		(11)	2.00	0.56	41	-
		(13)	-	-	-	11.0
		min	1.02	0.033	8.3	-
		mean	2.14	0.49	39.6	11.0
		max	4.68	1.34	95.6	-
7	Institutional	(4)	1.18	0.15	35 (e)	-
		(13)	-	-	-	8.2

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APPENDIX B (Cont'd):

Land Use Classification			Land Use-Specific Water Quality Concentrations			
Coastal Land Use Classification	Land Use Description	Reference	TN (mg/L)	TP (mg/L)	TSS (mg/L)	BOD (mg/L)
8	Open Space/ Non-forested	(1)	1.38	0.07	17.3	-
		(1)	0.90	0.02	4.8	-
		(1)	1.47	0.07	-	-
		(4)	1.02	0.16	-	-
		(13)	-	-	-	1.45

Notes: Concentrations for CLUCCS code 2 (MDR) are an average of CLUCCS codes 1 (LDR) and 3 (HDR).

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From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Tuesday, December 16, 2008 12:34 PM
To: Bartlett, Drew; Holly Greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov
Subject: Tampa Bay Reasonable Assurance

Holly,

This is in response to your November 5, 2008, letters requesting the Department's position on Actions 6, 7 and 8 of the Tampa Bay Nitrogen Management Consortium's (Consortium) efforts to reallocate the Total Nitrogen Total Maximum Daily Load for Tampa Bay as part of the Reasonable Assurance (RA) process. We have reviewed the three submittals, and our specific responses are provided below. Please note that we worked with EPA Region 4 on our response to Action 7, and the response provided represents both agencies position on the issue.

1) Action # 6 – Estimated Total Nitrogen Load Reductions Associated with TBEP Regional Fertilizer Restriction Recommendations

   We appreciate the Consortium's efforts to reduce nitrogen loading to the bay through the development of local ordinances that would improve management practices for lawn fertilizer applications. We are strong advocates for fertilizer application best management practices (BMPs) and are willing to give reduction credit for such initiatives. However, questions remain about the effectiveness of seasonal bans on fertilizer application compared to other fertilizer application BMPs. As examples, will the ban on fertilize application during the rainy season reduce the overall annual fertilizer application rate, will it lead to concentrated applications just before the ban goes into effect and just after it ends, and will it weaken lawn health during the growing season, thereby increasing erosion and/or leaching?

   We also have questions about some of the assumptions in the modeling that was conducted to estimate the projected reductions in nitrogen loading from the ordinance. While the Consortium made valid attempts to be conservative on the selection of the compliance rate and percent contribution from fertilizer, the estimated fertilizer contribution in stormwater runoff may still be too high. Given that the model results are largely driven by these assumptions, we believe some site-specific data are needed to support the estimated reductions.

   Given these questions, we think it would be best to get our experienced staff on this subject matter together with you and your consultants before making any final determinations on the amount of reduction that will be attributed to the proposed ordinance.

2) Action # 7 – Lower Tampa Bay Boundaries

   We agree with the Consortium's recommendations to maintain the watershed boundary for Lower Tampa Bay in the federally-recognized TMDL, and to address the load from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds in the July 31, 2009 RA submittal. However, we would like the Consortium to confirm our understanding on how the RA process will be used to ensure that loading from the area outside of the TMDL does not increase above the baseline levels used in the TMDL.

It is our understanding that the Consortium's intent is to:

a) Acknowledge in the RA submittal that the original TMDL approved by EPA did not include all of the load from the southern portion of the watersheds that drain into Lower Tampa Bay.

b) Note that, rather than propose a revision of the TMDL, the Consortium is addressing this issue by demonstrating in the 2009 RA submittal that the total load from point and nonpoint sources from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds has not increased since the baseline period for the original TMDL (1992-1994).

c) Commit to "hold the line" on the loading from these watersheds so that it remains at or below the loading from these areas during the baseline period for the TMDL. The 2009 RA submittal will describe the process (frequency and mechanism) to track individual nonpoint and point sources post July 2009.

d) The RA submittal will provide sufficient detail about allocated loads for individual point sources so that the Department can adopt the RA submittal as Water Quality Based Effluent Limitations, which will be the basis for each facility's permit limits. The loads for point sources and any future increases in those permitted point source loads will have to be offset by decreases in other sources such that the total load remains at or below the loading for the baseline period. After the WQBEL is accepted and implemented in permits, future Tampa Bay RA loading analyses will use the permitted loads (rather than actual loads as is currently the case) to assess achievement of the target loads for each bay segment in the accepted RA.

3) Action # 8 – Geographic Discretization of Nonpoint Sources

We agree with the proposed "discretization" process for nonpoint sources.

If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thanks,
Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

April 22, 2009

Ms. Holly Greening
Director
Tampa Bay Estuary Program
100 8th Avenue SE
St. Petersburg, FL 33701

Dear Ms. Greening:

We apologize for the delay in responding to your November request for concurrence on the program's recommendation for nitrogen load reduction credits from the future implementation of residential fertilizer restriction ordinances. However, during this period of time there has been a lot of activity, both scientifically and legislatively, with respect to Florida-friendly landscaping and fertilizer application to residential landscapes.

You have requested a nitrogen reduction credit of 4.1% for the implementation of the TBEP regional fertilizer restriction recommendations. Additionally, you have requested a 5% reduction credit for educational activities. In total you have requested a 9.1% reduction credit. We simply can not concur with this request. However, we are willing to provide a 6% TN reduction credit for educational activities instead of the 5% we currently allow in the BMAP process. We believe this additional credit is acceptable because of the recent implementation of much more restrictive irrigation limits by the SWFWMD. Final approval of the credits is contingent upon submission of an implementation plan for all entities receiving credit.

A number of factors were considered in our decision. One of the more important is your pursuit of reasonable assurance instead of the TMDL/BMAP approach for the restoration of Tampa Bay. This requires a greater level of reasonable assurance since it means the water body is not listed as impaired. A second factor was the concerns of our technical staff who carefully reviewed the Technical Memorandum entitled Model-based Estimates of Nitrogen Load Reductions Associated with Fertilizer Restriction Implementation which provided the basis for your recommendation. I have attached their review to share our concerns which were significant to our conclusion. Additionally, there are still questions concerning the implications of a wet season fertilizer ban. Attached is a recent publication from IFAS that explains these concerns.

I also want to stress that any load reduction credits for educational activities, including the adoption of local ordinances, are conditional with required monitoring to confirm the expected reductions in stormwater concentrations and loadings resulting from the implementation of these nonstructural best management practices. I hope that you will include our staff and IFAS staff in the design and implementation of the monitoring program.

If you have any questions, please do not hesitate to give me a call. We very much appreciate your personal efforts and the efforts of the TBEP partners in addressing these reasonable assurance issues and your commitment to restoring Tampa Bay.

Sincerely,

Jerry Brooks

Jerry Brooks
Director
Division of Environmental Assessment
and Restoration

JB/ehl
Attachments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your two November 5, 2008, letters concerning the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) recommendations regarding the Tampa Bay Reasonable Assurance process. In the first letter, the TBEP recommends providing total nitrogen load reduction credits for the implementation of TBEP's regional fertilizer restrictions. In the second letter, the Consortium provides a recommendation to assign specific entities a level of responsibility for their respective nonpoint source load contributions to the Tampa Bay Watershed. As requested, this letter provides the TBEP and the Consortium with our feedback regarding these two recommendations.

Specifically, the first letter explains TBEP's recommendation to provide a 5% total nitrogen load reduction credit for education and an additional 4.1% total nitrogen load reduction credit for the implementation of TBEP's regional fertilizer restriction recommendation. The TBEP provides a series of total nitrogen percent reduction estimates for each major Tampa Bay segment that are associated with the implementation of TBEP's regional fertilizer restriction recommendations. We would like to commend TBEP in their efforts to develop a fertilizer use guideline that would prohibit non-agricultural fertilizer application during the rainy season. We encourage the TBEP to continue to work with the Florida Department of Environmental Protection to determine the appropriate load reduction credits to be applied for the implementation of TBEP's non-agricultural fertilizer restrictions.

In the second letter, the Consortium recommends assigning responsibilities to entities who contribute to nonpoint source loading in the Tampa Bay Watershed. We understand that the Consortium would like to assign this responsibility as part of their process to develop entity-specific nitrogen loading estimates for nonpoint sources in the Tampa Bay Watershed. EPA is encouraged by the Consortium's decision to develop and assign responsibility to those entities that contribute nonpoint source nitrogen loadings to Tampa Bay. This effort will be valuable during the implementation of the Total Maximum Daily Load and Reasonable Assurance.

Thank you for the opportunity to provide feedback on the tremendous work of the TBEP as well as the Consortium. If we may be of further assistance, please feel free to contact Jennifer Eason of my staff at 404-562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.7. Resolution to Address Differences Between the Federally-Recognized TMDL for Lower Tampa Bay and the NMC Nitrogen Management Goals (Nov. 5, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: November 5, 2008

SUBJECT: Action #7- Lower Tampa Bay boundaries

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason
(EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider a resolution to address differences between the federally-recognized TMDL loadings for Lower Tampa Bay and the Nitrogen Management Consortium nitrogen management goals. On November 3, 2008, the Consortium agreed by consensus to: a. maintain the federally-recognized TMDL watershed boundary for Lower Tampa Bay; and b. for Reasonable Assurance, continue to define the watershed boundary for Lower Tampa Bay as including drainage from the federally-recognized TMDL watershed plus Terra Ceia Bay and watershed, Lower Tampa Bay and watershed, and a portion of the Boca Ciega Bay and watershed.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

We request that FDEP and EPA provide concurrence or alternative recommendations regarding the Consortium's recommendation for defining Lower Tampa Bay boundaries via email or in writing no later than December 1, 2008. Thank you for considering our very tight timeline for development of recommendations through the Consortium's process.

Agenda Item #2
Tampa Bay Nitrogen Management Consortium
November 3, 2008

Resolution to address differences between the federally-recognized TMDL loadings for Lower Tampa Bay and the Nitrogen Management Consortium nitrogen management goals

Final action approved by TBNMC by consensus:
a. Maintain the federally-recognized TMDL watershed boundary for Lower Tampa Bay. Entity-specific allocations for nitrogen loads will be recommended for those entities located within the federally-recognized TMDL watershed boundary of Lower Tampa Bay;
b. For Reasonable Assurance, continue to define the watershed boundary for Lower Tampa Bay as including drainage from the federally-recognized TMDL watershed plus Terra Ceia Bay and watershed, Lower Tampa Bay and watershed, and a portion of the Boca Ciega Bay and watershed. Source category nitrogen load estimates and load reductions from projects located in these areas will continue to be included to assess Reasonable Assurance nitrogen management goals.

Background:

The first Tampa Bay Nitrogen Consortium Action Plan *Partnership for Progress* established goals for nitrogen loading management that included contributions from the Manatee River and Terra Ceia Bay watersheds into the Lower Tampa Bay segment N loading estimates. The 1992-1994 TN loadings estimates for Lower Tampa Bay (LTB) used in the federally-recognized TMDL did not include loadings from Manatee River and Terra Ceia Bay. These discrepancies between the federally-recognized TMDL and the nitrogen reduction goals adopted by the Consortium for the Lower Tampa Bay segment are to be addressed by the Consortium in the July 31, 2009 Reasonable Assurance submittal. In addition, Boca Ciega Bay has remained a separate accounting unit in terms of nitrogen load reduction goals for the TBEP, although it is recognized that some proportion of this bay segment might contribute to the federally-recognized TMDL for Lower Tampa Bay.

Several discussions have occurred between stakeholder NMC members whose jurisdictions and/or facilities would be affected by any changes to the federally-recognized LTB watershed during the course of developing load estimates and allocations for all bay segments of Tampa Bay in order to meet the July 31, 2009 Reasonable Assurance submittal deadline. As a result of these discussions and in light of several recent developments which would directly preclude establishing or seeking Reasonable Assurance for the Terra Ceia Bay (placed on the 2/29/08 IWR list), Boca Ciega Bay (insufficient circulation model information to determine contribution of loadings to LTB), and Manatee River segments in conjunction with the established federally-recognized TMDL for LTB, NMC members recommend that entity-specific allocations be developed for the federally-recognized LTB watershed boundary only (Figure 1). Nitrogen load reductions will still be estimated for projects located in the Boca Ciega Bay, Terra Ceia Bay, and Manatee River segments to determine and update nitrogen loading management goals needed to continue to meet Reasonable Assurance for the LTB segment, but entity-specific allocations will not.

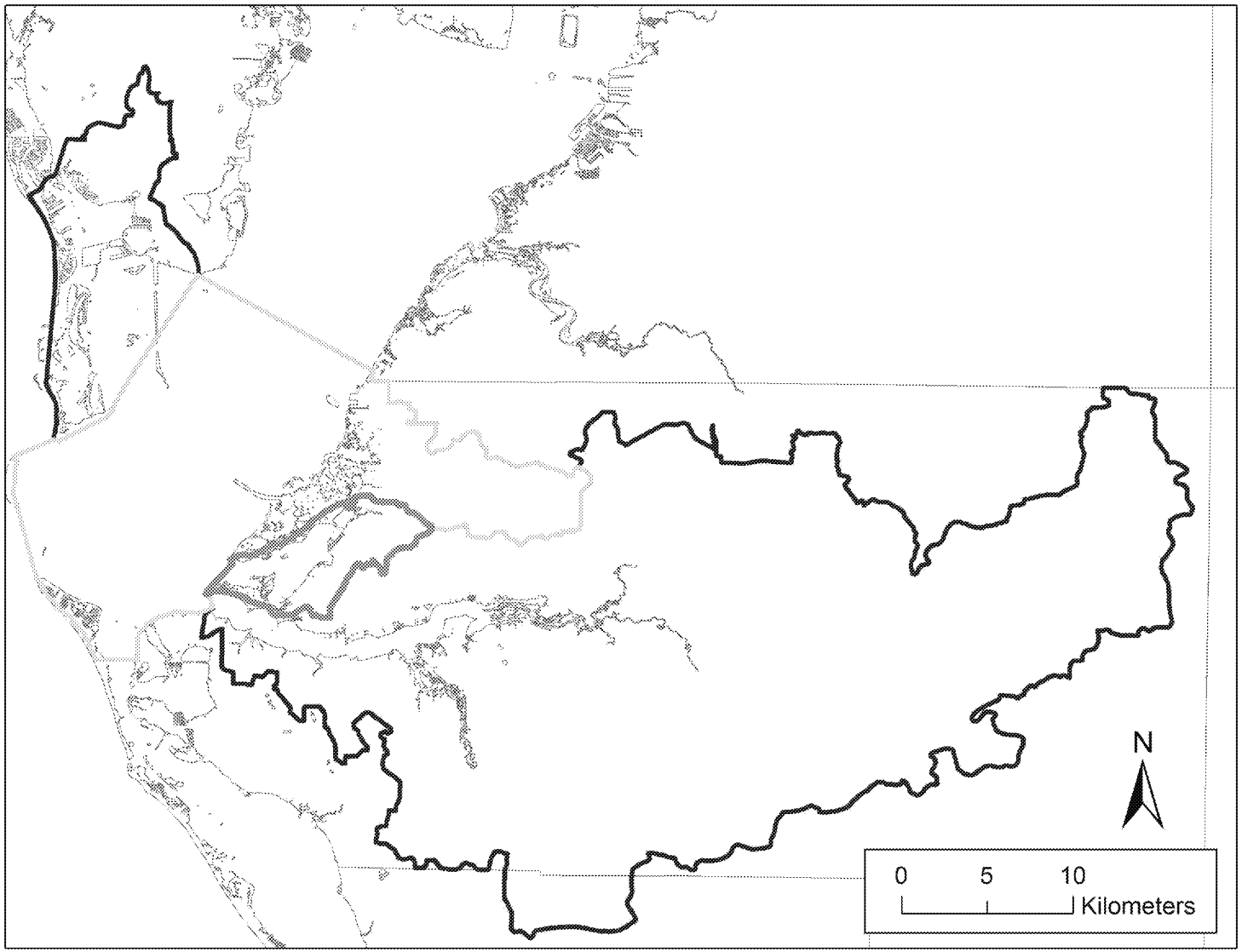

Figure 1: Overview map of the federally-recognized TMDL watershed boundary for Lower Tampa Bay (yellow). The extended watershed boundary for Terra Ceia Bay (green), Manatee River (red), and Boca Ciega Bay (red) watersheds used to account for load reductions to Lower Tampa Bay in the Reasonable Assurance update are also shown.

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From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Tuesday, December 16, 2008 12:34 PM
To: Bartlett, Drew; Holly Greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov
Subject: Tampa Bay Reasonable Assurance

Holly,

This is in response to your November 5, 2008, letters requesting the Department's position on Actions 6, 7 and 8 of the Tampa Bay Nitrogen Management Consortium's (Consortium) efforts to reallocate the Total Nitrogen Total Maximum Daily Load for Tampa Bay as part of the Reasonable Assurance (RA) process. We have reviewed the three submittals, and our specific responses are provided below. Please note that we worked with EPA Region 4 on our response to Action 7, and the response provided represents both agencies position on the issue.

1) Action # 6 – Estimated Total Nitrogen Load Reductions Associated with TBEP Regional Fertilizer Restriction Recommendations

   We appreciate the Consortium's efforts to reduce nitrogen loading to the bay through the development of local ordinances that would improve management practices for lawn fertilizer applications. We are strong advocates for fertilizer application best management practices (BMPs) and are willing to give reduction credit for such initiatives. However, questions remain about the effectiveness of seasonal bans on fertilizer application compared to other fertilizer application BMPs. As examples, will the ban on fertilize application during the rainy season reduce the overall annual fertilizer application rate, will it lead to concentrated applications just before the ban goes into effect and just after it ends, and will it weaken lawn health during the growing season, thereby increasing erosion and/or leaching?

   We also have questions about some of the assumptions in the modeling that was conducted to estimate the projected reductions in nitrogen loading from the ordinance. While the Consortium made valid attempts to be conservative on the selection of the compliance rate and percent contribution from fertilizer, the estimated fertilizer contribution in stormwater runoff may still be too high. Given that the model results are largely driven by these assumptions, we believe some site-specific data are needed to support the estimated reductions.

   Given these questions, we think it would be best to get our experienced staff on this subject matter together with you and your consultants before making any final determinations on the amount of reduction that will be attributed to the proposed ordinance.

2) Action # 7 – Lower Tampa Bay Boundaries

   We agree with the Consortium's recommendations to maintain the watershed boundary for Lower Tampa Bay in the federally-recognized TMDL, and to address the load from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds in the July 31, 2009 RA submittal. However, we would like the Consortium to confirm our understanding on how the RA process will be used to ensure that loading from the area outside of the TMDL does not increase above the baseline levels used in the TMDL.

It is our understanding that the Consortium's intent is to:

a) Acknowledge in the RA submittal that the original TMDL approved by EPA did not include all of the load from the southern portion of the watersheds that drain into Lower Tampa Bay.

b) Note that, rather than propose a revision of the TMDL, the Consortium is addressing this issue by demonstrating in the 2009 RA submittal that the total load from point and nonpoint sources from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds has not increased since the baseline period for the original TMDL (1992-1994).

c) Commit to "hold the line" on the loading from these watersheds so that it remains at or below the loading from these areas during the baseline period for the TMDL. The 2009 RA submittal will describe the process (frequency and mechanism) to track individual nonpoint and point sources post July 2009.

d) The RA submittal will provide sufficient detail about allocated loads for individual point sources so that the Department can adopt the RA submittal as Water Quality Based Effluent Limitations, which will be the basis for each facility's permit limits. The loads for point sources and any future increases in those permitted point source loads will have to be offset by decreases in other sources such that the total load remains at or below the loading for the baseline period. After the WQBEL is accepted and implemented in permits, future Tampa Bay RA loading analyses will use the permitted loads (rather than actual loads as is currently the case) to assess achievement of the target loads for each bay segment in the accepted RA.

3) Action # 8 – Geographic Discretization of Nonpoint Sources

We agree with the proposed "discretization" process for nonpoint sources.

If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thanks,
Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

A.8. Geographic Discretization of Nonpoint Source Loads (Nov. 5, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: November 5, 2008

SUBJECT: Action #8- Geographic discretization of nonpoint sources

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason
(EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider regarding discretization of nonpoint source loads according to land types classified as conservation, agricultural, and jurisdictional responsibilities within each bay segment. On November 3, 2008, the Consortium approved, by consensus, assignment to responsible entities of those areas within the watershed which contribute to nonpoint source loadings. The approved action item is shown below, and technical memorandum detailing the process used for defining and assigning responsibility for nonpoint source loads is attached.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

We request that FDEP and EPA provide concurrence or alternative recommendations regarding the Consortium's recommendation for assigning responsibility for nonpoint source loads via email or in writing no later than December 1, 2008. Thank you for considering our very tight timeline for development of recommendations through the Consortium's process.

Agenda Item #3
Tampa Bay Nitrogen Management Consortium
November 3, 2008

Geographic discretization of nonpoint source loads
Final action:
Tampa Bay Nitrogen Management Consortium consensus approval of final discretization process for nonpoint source loads according to land types classified as conservation, agricultural, and jurisdictional responsibilities within each bay segment.

Background:
The Nitrogen Management Consortium is in the process of developing entity-specific nitrogen loading estimates for nonpoint sources in the Tampa Bay watershed. This effort requires assignment to responsible entities of those areas within the watershed which contribute to nonpoint source loadings. A GIS-based approach was employed to assign nonpoint source load estimates to entities within the gaged and ungaged subbasins of the watershed. Presentations on the proposed process and recommendations have been discussed during the May – October, 2008 NMC meetings. Based on feedback garnered from these meetings, a final white paper describing the geographic discretization of nonpoint sources has been developed and is located here: http://www.tbeptech.org/NitrogenMgmtConsort/October22008/2_Geographical_Discretization_of_Nonpoint_Source_Areas_100608.pdf

The assignment of responsibility of nonpoint source loads based on the proposed discretization process described in the white paper can be summarized as the following:

- Nitrogen loads from Urban and Other (remaining) land uses will be the responsibility of the jurisdiction in which they are located, with the exceptions as noted below:
    - Loads from agricultural land uses are discounted from jurisdictional responsibilities, and are the responsibility of the Florida Department of Agriculture and Consumer Services (FDACS).
    - Loads from conservation lands are discounted from jurisdictional responsibilities. Conservation lands will not be assigned a load reduction.
    - Loads from land-based runoff from NPDES industrial sites are discounted from jurisdictional responsibilities. These loads are the responsibility of the NPDES permittee.
    - Assign Multi-Sector Generic Permit (MSGP) holders with areas greater than 10 acres loading allocation responsibility. These responsibilities will be defined in consultation with the jurisdiction within which the MSGP property lies, but will be included in the jurisdictional responsibility.

Based on these assignments, the total acreage discretization for conservation, agricultural, and jurisdictional responsibility by bay segment are contained in Table 2. The spatial distribution of these areas can be seen in Figures 1 – 4. Nonpoint source load estimates for the current (2003-2007) time period will be partitioned according to this final discretization process in order to determine allocations. If future boundary changes occur to this proposed discretization, then assignment of loading responsibility will also change according to the new boundary conditions established.

Table 2. Bay segment assignment of land types for which jurisdictions are responsible.			
Bay Segment	Jurisdiction	Land Type	
Old Tampa Bay		Conservation Lands (acres)	Agricultural Lands (acres)
		14,670	10,098
		Urban Lands (acres)	Other Lands (acres)
	Clearwater	7,665	624
	Hillsborough Co.	47,251	24,383
	Largo	2,835	291
	Oldsmar	2,417	984
	Pasco Co.	810	566
	Pinellas Co.	17,901	8,953
	Pinellas Park	2,606	436
	Safety Harbor	2,639	298
	St. Petersburg	2,696	989
	Tampa	11,629	777
	Tarpon Springs	355	54
Hillsborough Bay		Conservation Lands (acres)	Agricultural Lands (acres)
		66,665	189,459
		Urban Lands (acres)	Other Lands (acres)
	Dade City	1	2
	Hillsborough Co.	124,225	114,704
	Lakeland	9,344	5,319
	Pasco Co.	37,510	65,740
	Plant City	8,174	4,430
	Polk Co.	31,149	88,738
	San Antonio	371	132
	St. Leo	17	9
	Tampa	35,003	6,078
	Temple Terrace	3,332	830
	Zephyrhills	3,494	872
Middle Tampa Bay		Conservation Lands (acres)	Agricultural Lands (acres)
		15,051	62,675
		Urban Lands (acres)	Other Lands (acres)
	Hillsborough Co.	20,956	43,523
	Manatee Co.	2,167	25,193
	Pinellas Co.	1,411	353
	Pinellas Park	1,747	348
	St. Petersburg	17,103	1,320
Lower Tampa Bay		Conservation Lands (acres)	Agricultural Lands (acres)
		2,266	6,518
		Urban Lands (acres)	Other Lands (acres)
	Bradenton	2	10
	Hillsborough Co.	30	1
	Lexington	60	12
	Manatee Co.	5,654	6,357
	Pinellas Co.	27	2
	St. Petersburg	13	0

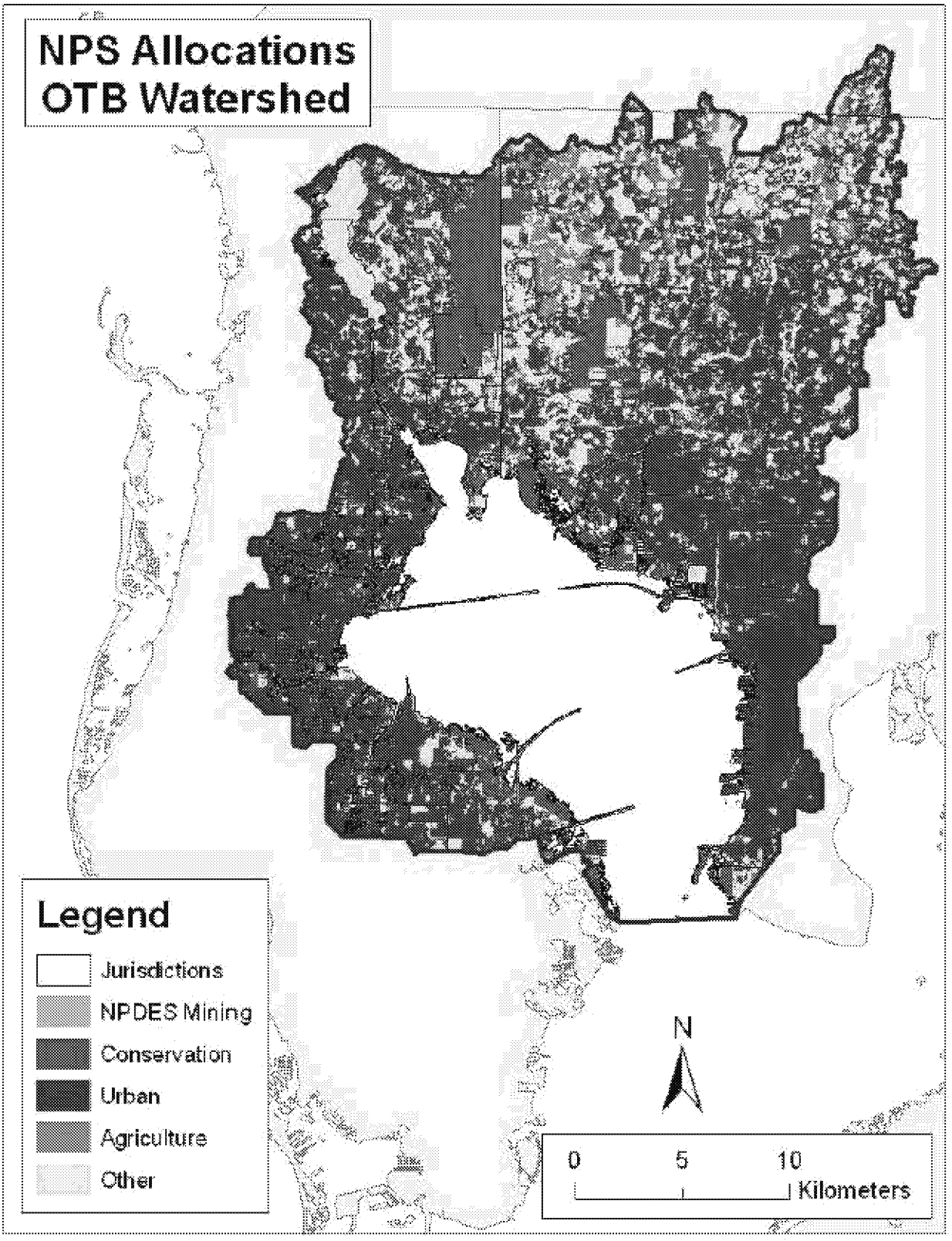

Figure 1. Old Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

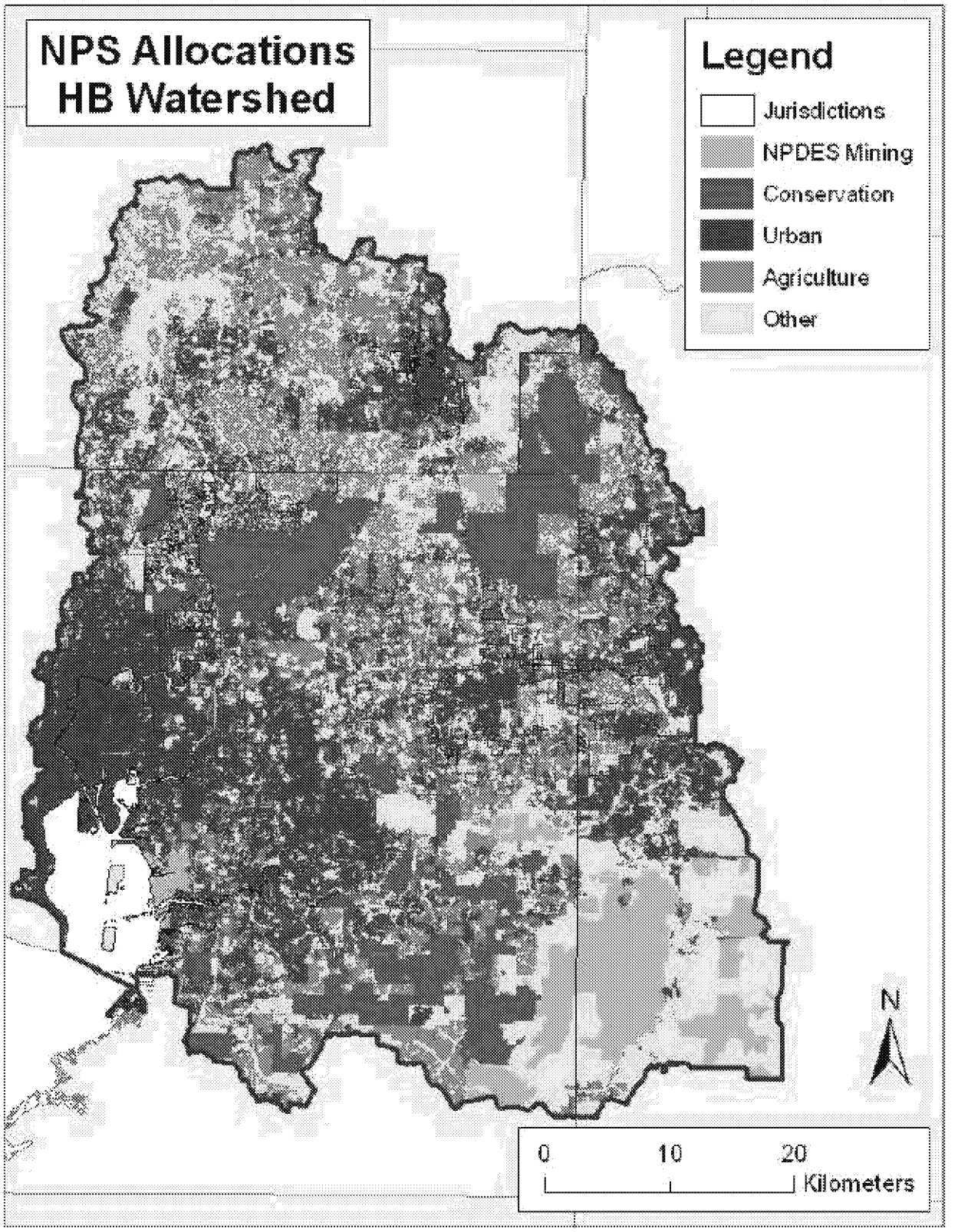

Figure 2. Hillsborough Bay Watershed with agricultural, conservation, other, and urban areas.

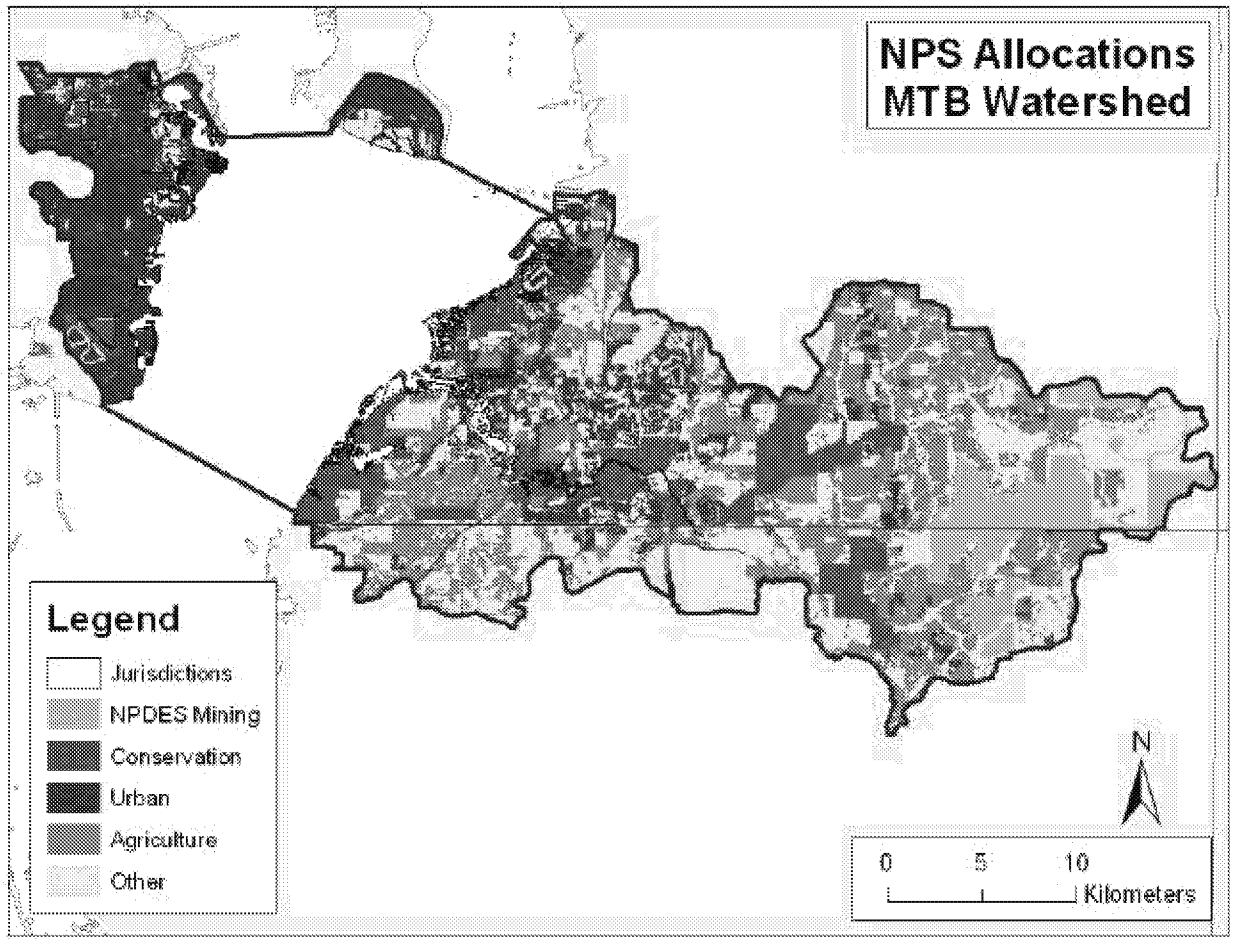

Figure 3. Middle Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

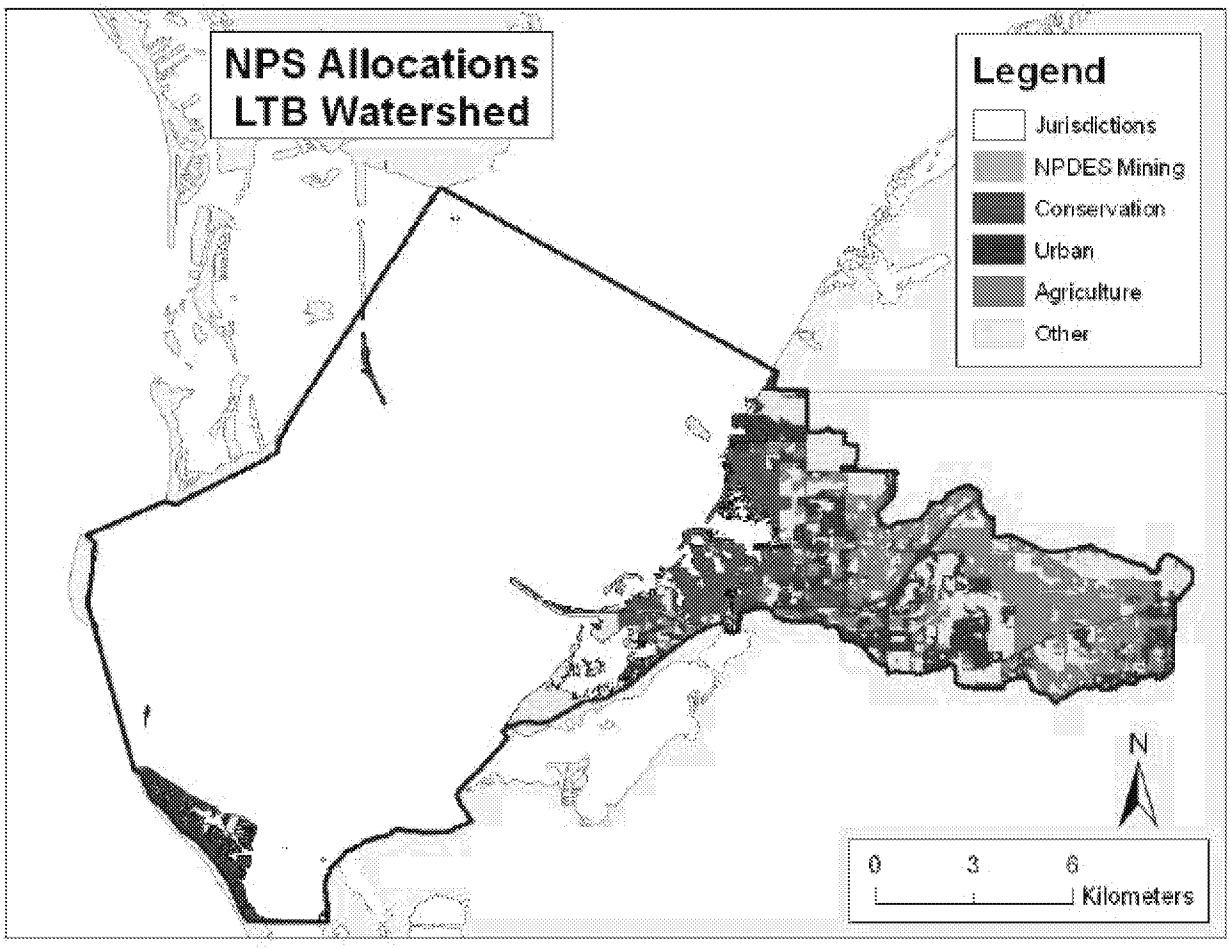

Figure 4. Lower Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

DOCUMENTATION FOR GEOGRAPHICAL DISCRETIZATION OF NONPOINT SOURCE AREAS

Background

The Nitrogen Management Consortium is in the process of developing nitrogen loading apportionments for all loading sources, including nonpoint sources, in the Tampa Bay watershed. This effort requires assignment to responsible entities of those areas within the watershed which contribute to nonpoint source loadings.

To achieve this objective, it is necessary to develop a methodology to classify the landscape and assign areas to responsible entities. Initially, areas were to be identified as Phase 1 and Phase 2 MS4s. To accomplish this classification, coverages of MS4 permit boundaries were requested from FDEP, but were found to be inadequate.

Discussions with FDEP regarding the approach to develop nonpoint source assignments for the Lower St. Johns River TMDL were held. The Lower St. Johns River TMDL approach used TIGER 2000 census data to define urban areas, and other data sources were used to identify agricultural and "natural" areas. The Lower St. Johns River TMDL approach was applied to the Tampa Bay watershed. Several difficulties emerged in applying this approach. Specifically, the primary land use/land cover data source is the 2005 Southwest Florida Water Management District (SWFWMD) database. When this geographical information was overlain with the TIGER 2000 census-defined urban areas, many areas defined as urban by the TIGER data were classified as something other than urban in the SWFWMD database.

Questions regarding the potential allocation of nonpoint source loads to conservation lands arose during a meeting of the Nitrogen Management Consortium. Conservation lands have been defined as those identified by the District and the counties.

During discussions with the Nitrogen Management Consortium, questions also arose regarding whether Multi-Sector Stormwater Generic Permits (MSGPs) should receive allocations. A request to FDEP for a list of the MSGPs in the Tampa Bay watershed resulted in 592 permits in Hillsborough, Manatee, Pasco, Pinellas, and Polk counties. This list includes the following information:

- county,
- facility id,
- facility name and address
- responsible person name, phone number, email, and address,
- permit issue and expiration dates, and
- latitude and longitude of the center of the facility as supplied by the permittee.

However, no information regarding the areal extent associated with each permit was available from FDEP.

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Approach

Given the above-mentioned issues and questions, the following approach for geographical discretization of nonpoint source areas was followed.

- To eliminate the issue of overlaps between GIS coverages of different land types, a single geographical database was used, the 2005 land use/land cover database provide by the SWFWMD.

- Those areas whose discharges are regulated industrial NPDES point sources are discounted from the watershed area being assigned to responsible entities, since the loadings from these areas are included in the point source loading estimates.

- The following definition of conservation lands and assignment of various FLUCCS codes to agricultural and urban land categories was used:
    - Conservation lands include those lands identified by the counties, FDOT, and the District as conservation. Following is a list of those entities that provided GIS coverages of conservation lands.
        - SWFWMD
        - FDOT
        - Hillsborough County
        - Manatee County
        - Pasco County
        - Pinellas County
        - Polk County

    - Agricultural lands include the following Level 2 FLUCCS codes:
        - 2100 Cropland and Pastureland
        - 2200 Tree Crops
        - 2300 Feeding Operations
        - 2400 Nurseries and Vineyards
        - 2500 Specialty Farms
        - 2600 Rural Open Lands
        - 3100 Herbaceous
        - 3200 Shrub and Brushland
        - 3300 Mixed Rangeland

    - Urban lands include the following Level 2 FLUCCS codes:
        - 1100, 1200, 1300 Low, Medium, and High Density Residential
        - 1400 Commercial
        - 1500 Industrial
        - 1700 Institutional
        - 1800 Recreational
        - 1900 Urban Open Land
        - 8100 Transportation
        - 8200 Communication
        - 8300 Utilities

    - Other lands include the remaining Level 2 FLUCCS codes.

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- The protocol used to discretize the watershed area into the land use categories beginning with the SWFWMD 2005 land use/land cover database is as follows:
  - Step 1) Remove those lands draining to NPDES permitted outfalls
  - Step 2) Any areas provided as a conservation lands is identified as conservation lands
  - Step 3) All remaining areas are categorized as urban, agricultural, or other based on the assignments above
  - Step 4) Using jurisdictional boundary shapefiles proicded as shown in Table 1, assign the urban and other categories to each of the jurisdictional entities.

- Initially, a total of 430 facilities MSGP facilities were identified as falling within the Tampa Bay watershed (Appendix). Addresses were provided by FDEP and geocoded to each individual county's parcel boundary layer by either address and/or owner name utilizing ArcGIS. The sources for these boundaries are provided below.

  Data Sources for MSGP Boundaries
  Hillsborough County Property Appraiser Parcel Information Database:
  ftp://209.26.172.71/

  Manatee County Government Parcel Database:
  http://gis.co.manatee.fl.us/downloads/shape/parcels.zip

  Pasco County Property Appraiser Parcel Information:
  ftp://ftp.pascogov.com/pub/arcshape/pascopcl.zip

  Pinellas County Government Parcel Information:
  http://gis.pinellascounty.org/GisDataSets/SHP/Parcels.zip

  Polk County Property Appraiser Parcel Information:
  ftp://ftp.polkpa.org/GISData/parcel.zip

  The NMC decided to develop load apportionments for the MSGPs as a group. Counties and cities identified other small non-MS4 entities, and load apportionments were developed for these individual entities.

The results from the application of the methodology provided above are shown for each bay segment in Tables 2-6 and in Figures 1-5. Maps of the jurisdictional boundaries are provided in Figures 6-10 for each of the bay segments.

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Table 1. Jurisdictional boundary data provider and jurisdictional entities.	
Data Provider	**Responsible Entities**
Hillsborough County	Hillsborough County
	Plant City
	Temple Terrace
	Heritage Harbor
	Stonelake Ranch
	Live Oak I
	Cheval West
	Park Place
	Westchase
	Westchase East
	Palm Bay
	Lake St. Charles
	Panther Trace II
	Rivercrest
	Panther Trace
	Harbor Bay
	Live Oak II
	Stonebriar
	Stone Creek
	Spring Lake
	Magnolia Park
	Stone Dairy Creek
	Palm River
	Bloomingdale
Tampa	Tampa
Manatee County	Manatee County
	Bradenton
	Palmetto
	Greyhawk Landing
	Harbourage at Braden River
	Heritage Harbour
	Heritage Harbour Marketplace
	Lakewood Ranch
	Lexington
	Tara
	University Place
	Waterlefe
Mulberry	Mulberry
ENTRIX, Inc.	Alafia Preserve
	Donaldson Knoll
	Eagle Ridge
Pasco County	Pasco County
	Zephyrhills

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Table 1. Jurisdictional boundary data provider and jurisdictional entities.	
Data Provider	**Responsible Entities**
Pasco County	St. Leo
	San Antonio
Polk County	Polk County
	Lakeland
Pinellas County	Pinellas County
	Clearwater
	Gulfport
	Largo
	Oldsmar
	Pinellas Park
	Safety Harbor
	South Pasadena
	St. Petersburg
	St. Pete Beach
	Tarpon Springs

Table 2. Old Tampa Bay: Areas of land types for which jurisdictions are responsible.	
Jurisdiction	**Area (Acres)**
Agricultural Lands	16,493
Conservation Lands	17,481
MSGPs	6,683
Cheval West	549
Clearwater	7,798
Heritage Harbor	370
Hillsborough Co.	61,908
Largo	2,979
MacDill AFB	439
Oldsmar	3,138
Palm Bay	35
Park Place	307
Pasco Co.	1,333
Pinellas Co.	23,653
Pinellas Park	2,470
Safety Harbor	2,870
St. Petersburg	2,474
Stonebriar	162
Tampa	10,871
Tarpon Springs	352
Westchase	787
Westchase East	975

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Table 3. Hillsborough Bay: Areas of land types for which jurisdictions are responsible.	
Jurisdiction	**Area (Acres)**
Agricultural Lands	195,487
Conservation Lands	88,827
MSGPs	9,777
Alafia Preserve	459
Bloomingdale	27
Donaldson Knoll	69
Eagle Ridge	699
Hillsborough Co.	189,564
Lake St. Charles	397
Lakeland	12,752
Live Oak I	531
Live Oak II	264
Magnolia Park	139
MacDill AFB	963
Mulberry	1,206
Palm River	41
Panther Trace	240
Panther Trace II	220
Pasco Co.	92,275
Plant City	11,458
Polk Co.	57,954
Rivercrest	247
San Antonio	497
Spring Lake	165
St. Leo	16
Stone Crest	3
Stone Dairy Creek	6
Stonelake Ranch	60
Tampa	34,845
Temple Terrace	3,829
Zephyhills	3,482

Table 4. Middle Tampa Bay: Areas of land types for which jurisdictions are responsible.	
Jurisdiction	**Area (Acres)**
Agricultural Lands	73,837
Conservation Lands	21,964
MSGPs	1,177
Harbor Bay	339
Hillsborough Co.	40,110
MacDill AFB	3,977
Manatee Co.	16,907
Pinellas Co.	1,626
Pinellas Park	1,927
St. Petersburg	16,509

Table 5. Lower Tampa Bay: Areas of land types for which jurisdictions are responsible.	
Jurisdiction	**Area (Acres)**
Agricultural Lands	7,461
Conservation Lands	2,702
MSGPs	616
Bradenton	12
Hillsborough Co.	18
Lexington	40
Manatee Co.	9,913
Pinellas Co.	6
St. Petersburg	12

Table 6. Remainder of Lower Tampa Bay: Areas of land types for which jurisdictions are responsible.	
Jurisdiction	**Area (Acres)**
Agricultural Lands	90,061
Conservation Lands	33,057
MSGPs	0
Bradenton	5,098
Greyhawk Landing	480
Gulfport	806
Harbourage at Braden River	15
Heritage Harbour	565
Heritage Harbour Marketplace	86
Lakewood Ranch	3,714
Lexington	64
Manatee Co.	76,052
Palmetto	2,373
Pinellas Co.	965
Sarasota Co.	5,073
St. Pete Beach	582
St. Petersburg	4,530
Tara	417
University Place	231
Waterlefe	343

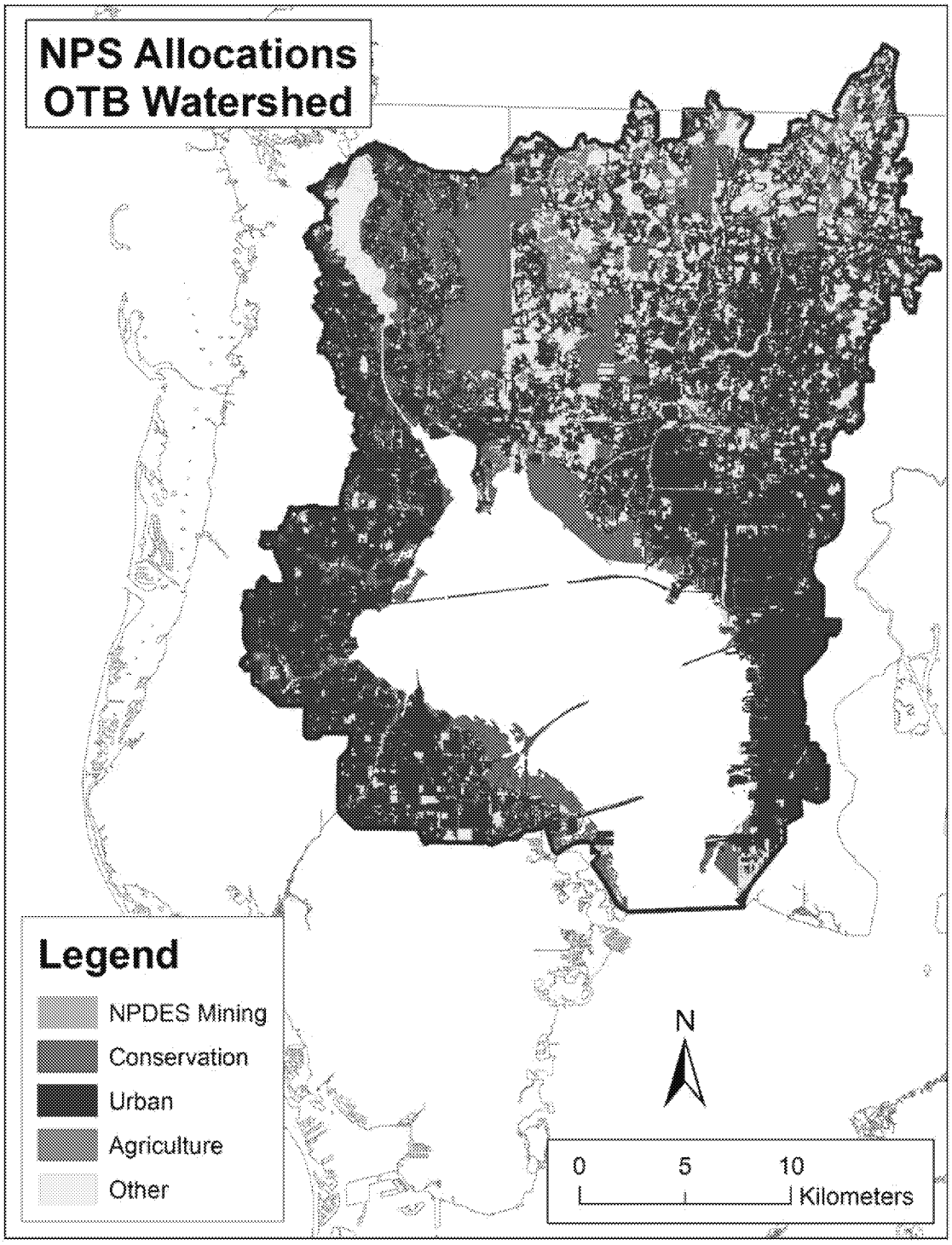

Figure 1. Old Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

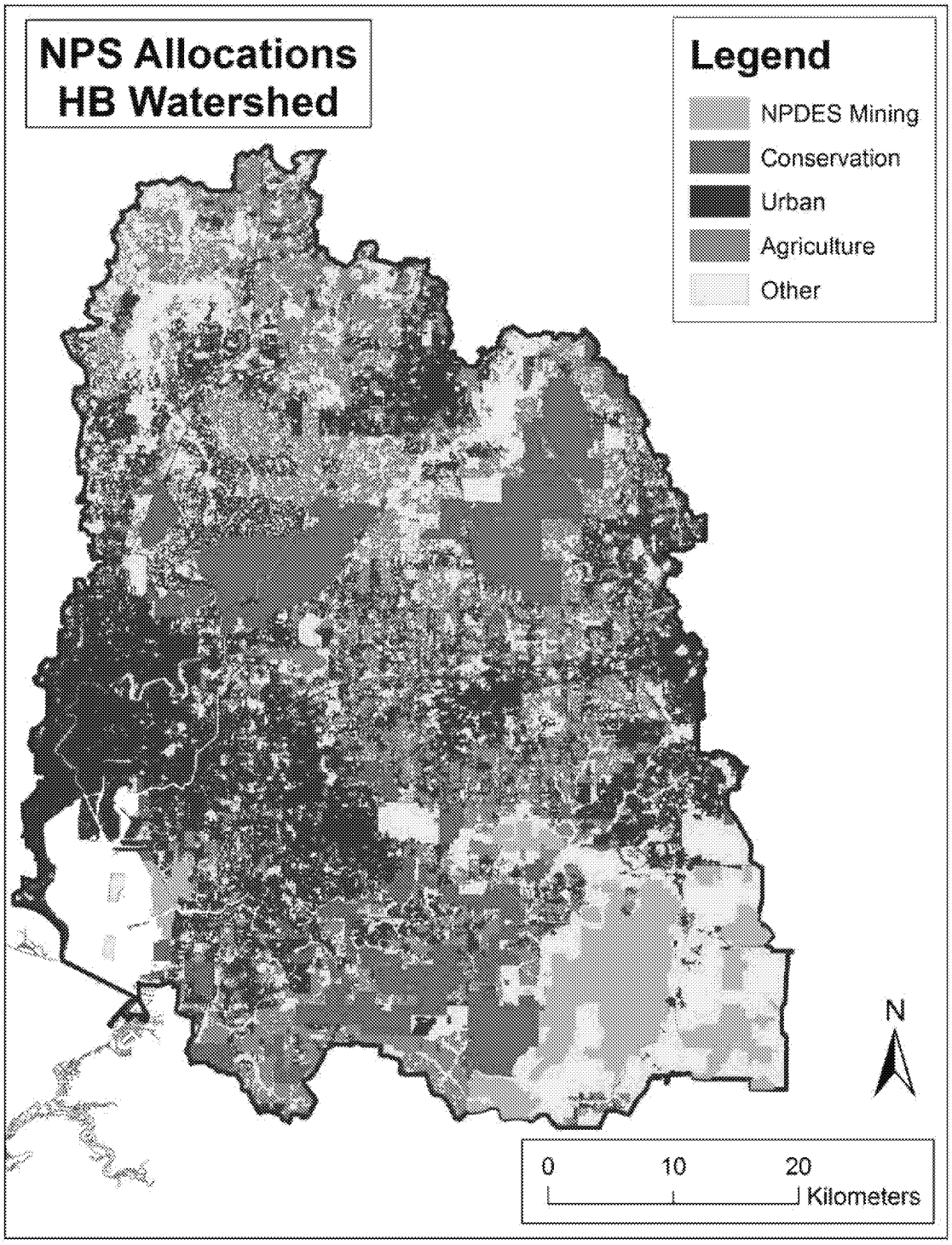

Figure 2. Hillsborough Bay Watershed with agricultural, conservation, other, and urban areas.

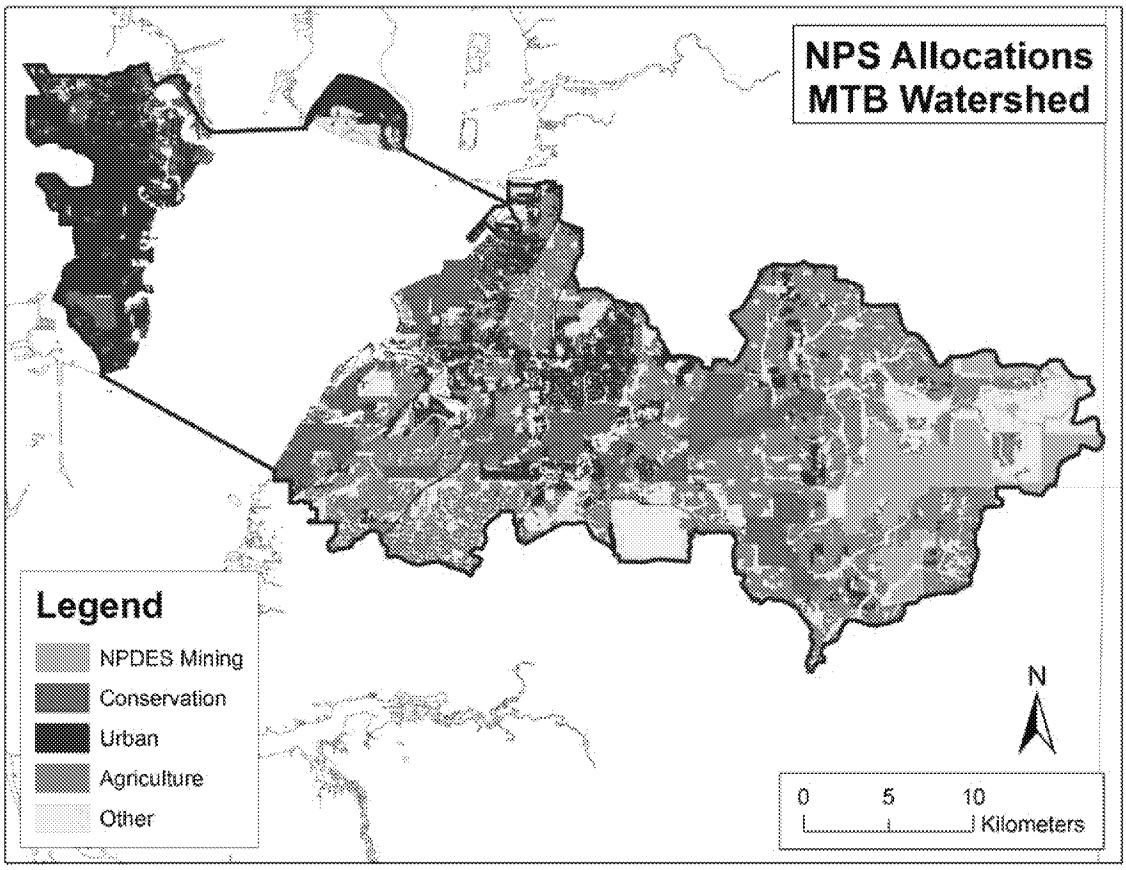

Figure 3. Middle Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

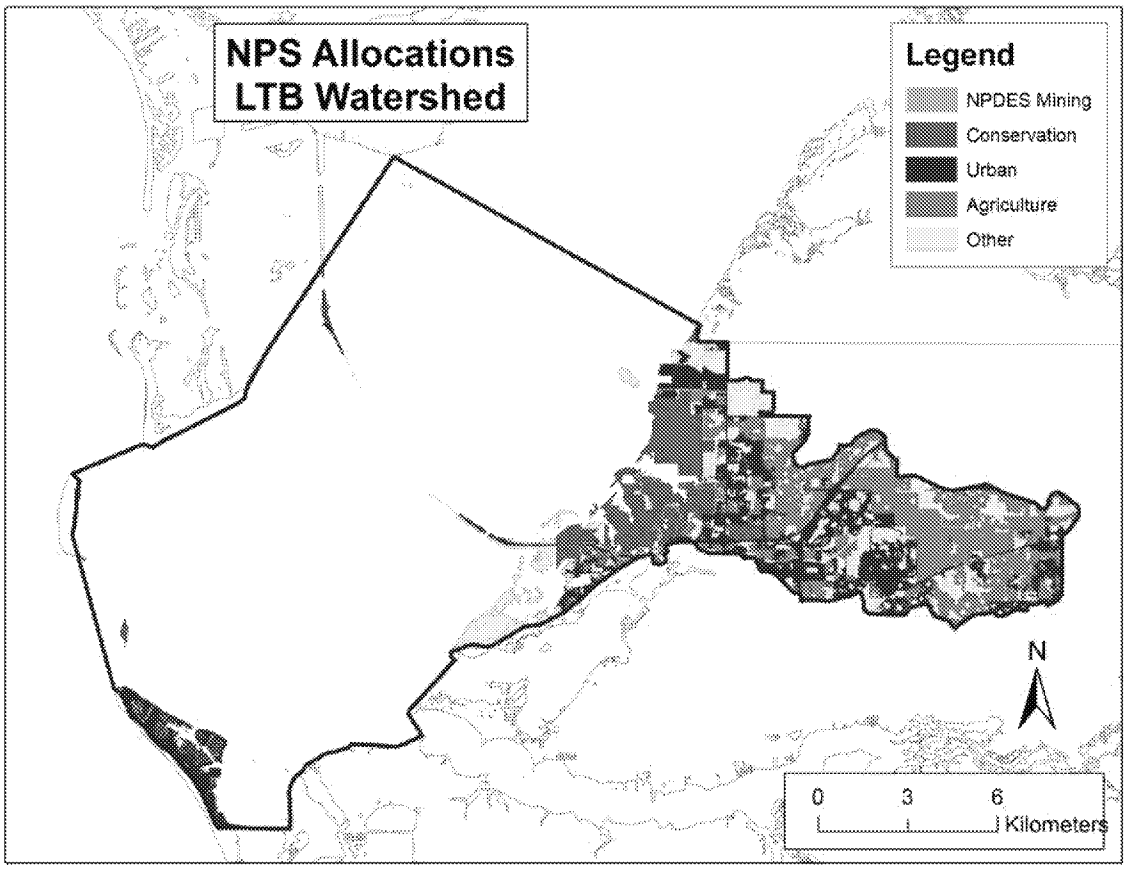

Figure 4. Lower Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

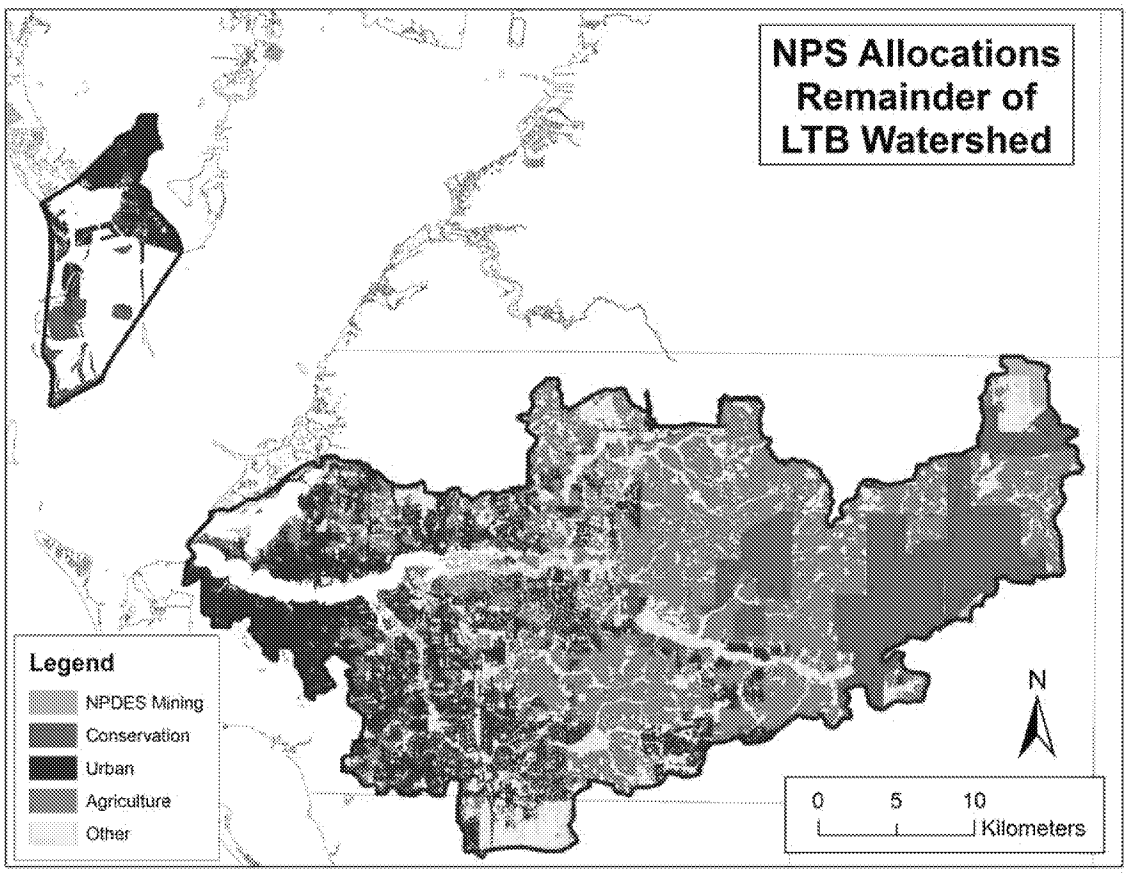

Figure 5. Remainder of Lower Tampa Bay Watershed with agricultural, conservation, other, and urban areas.

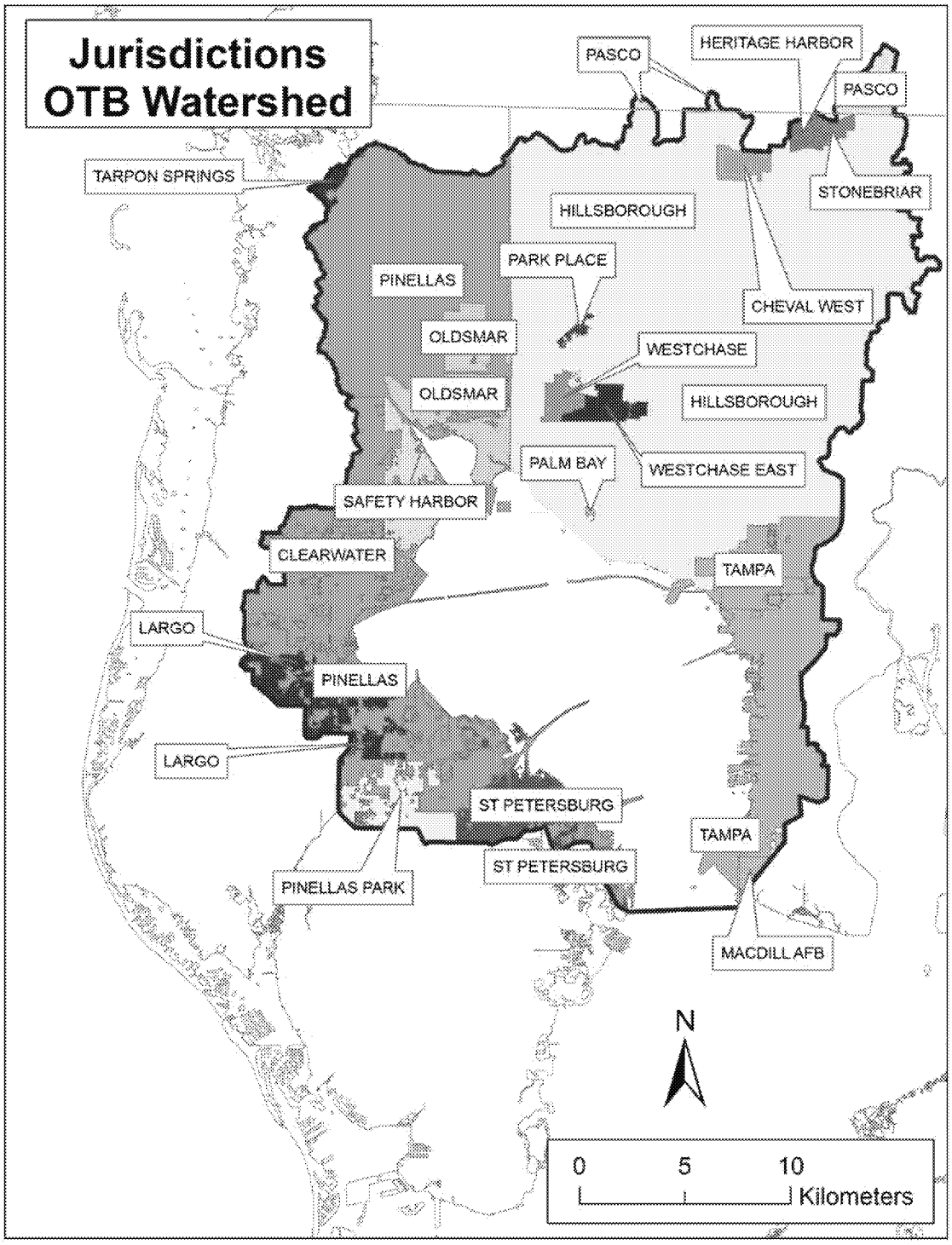

Figure 6. Jurisdictions in Old Tampa Bay Watershed.

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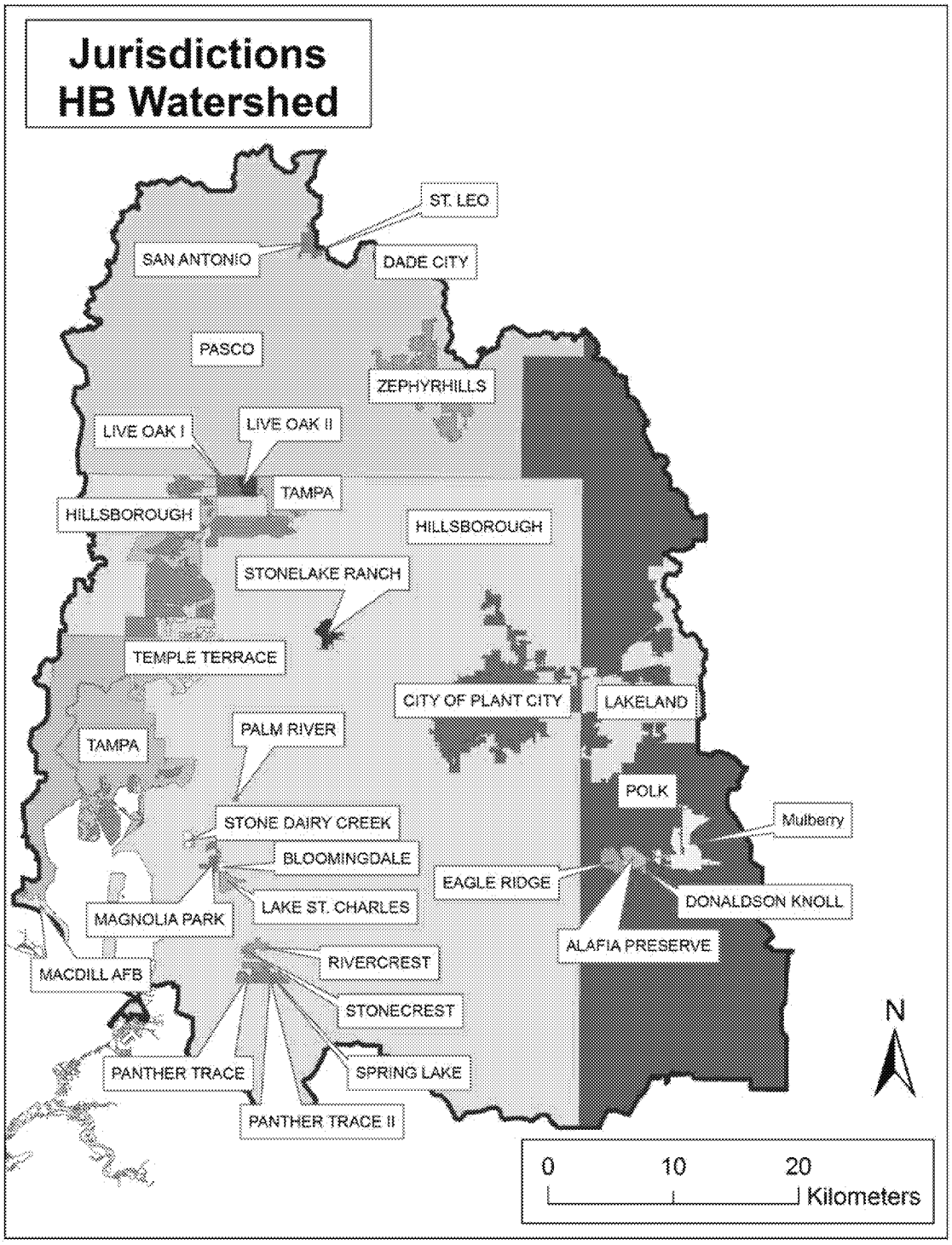

Figure 7. Jurisdictions in Hillsborough Bay Watershed.

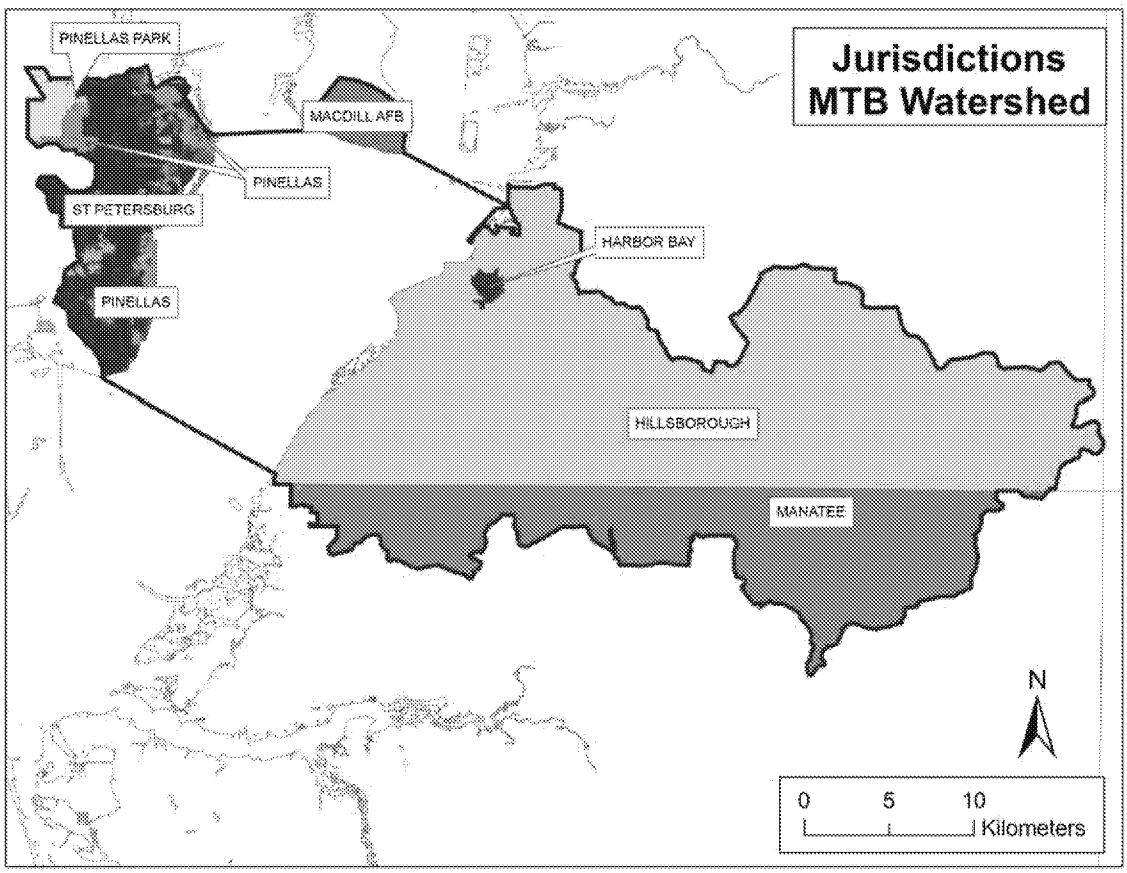

Figure 8. Jurisdictions in Middle Tampa Bay Watershed.

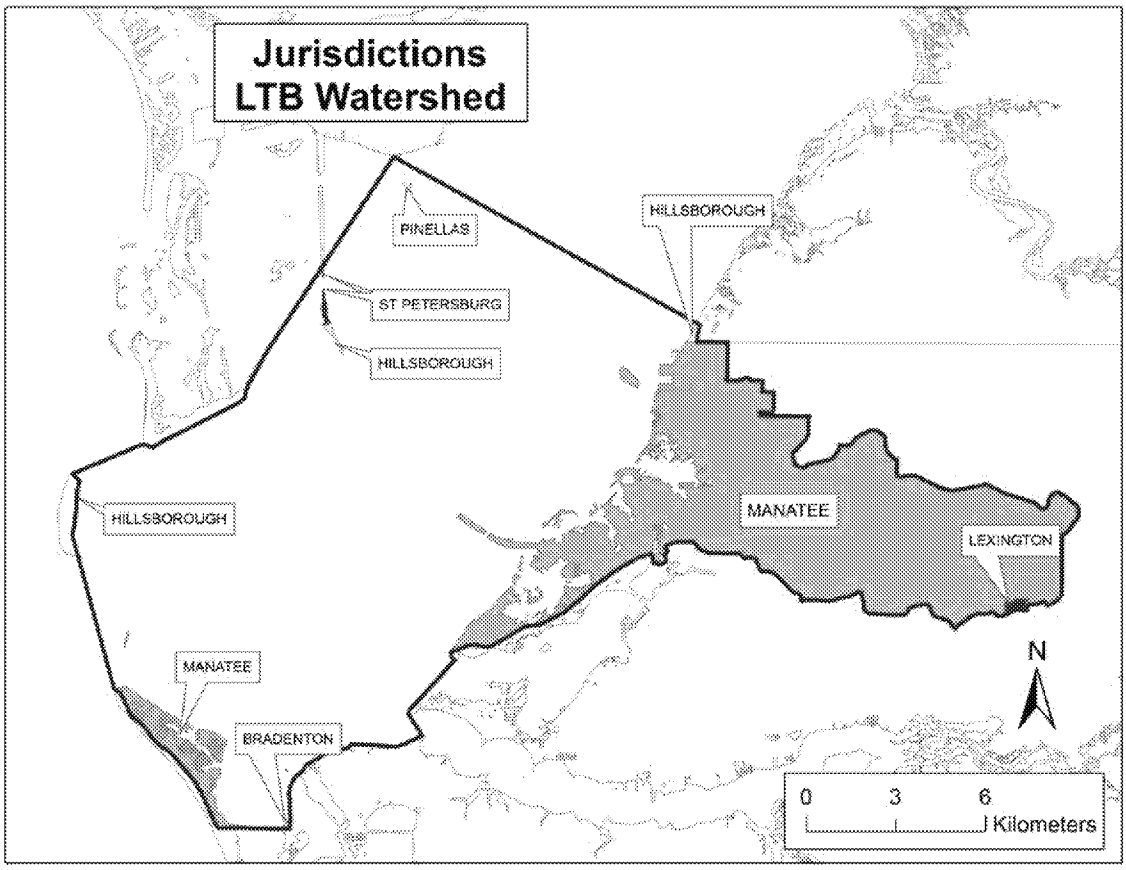

Figure 9. Jurisdictions in Lower Tampa Bay Watershed.

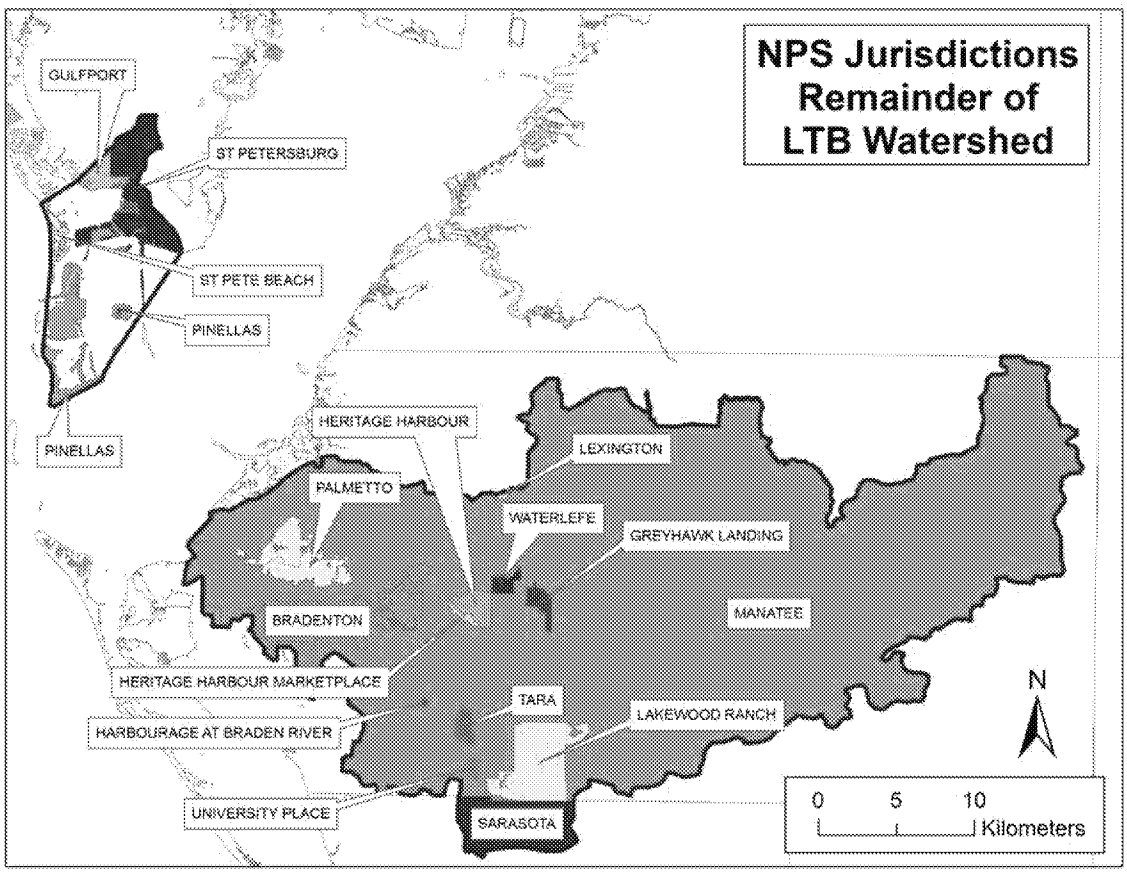

Figure 10. Jurisdictions in Remainder of Lower Tampa Bay Watershed.

APPENDIX
Tables of MSGPs

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05E128	MacDill Air Force Base	Multi-Sector Stormwater GP	8208 Hangar Loop Dr Ste 1	Tampa	5682.9	Coastal Middle Tampa Bay	Hillsborough Co.
FLR05G247	Tampa International Airport	Multi-Sector Stormwater GP	5503 W Spruce St	Tampa	2983.4	Coastal Old Tampa Bay	Hillsborough Co. / Tampa
FLR05B686	Tampa Port Authority	Multi-Sector Stormwater GP	1101 Channelside Dr	Tampa	2122.8	Coastal Hillsborough & Old Tampa Bay	Hillsborough Co.
FLR05A364	St Pete Clearwater Intl Arprt	Multi-Sector Stormwater GP	14700 Terminal Blvd Ste 221	Clearwater	985.4	Coastal Old Tampa Bay	Pinellas Co.
FLR05B681	Manatee County Port Authority	Multi-Sector Stormwater GP	300 Tampa Bay Way Ste 1	Palmetto	901.3	Coastal Lower Tampa Bay	Manatee Co.
FLR05A537	Lakeland Linder Reg Airport	Multi-Sector Stormwater GP	3400 Airfield Dr W	Lakeland	628.9	Alafia River	Lakeland
FLR05B883	Mosaic Fertilizer LLC	Multi-Sector Stormwater GP	3200 Hwy 60 W	Bartow	485.5	Alafia River	Polk Co.
FLR05F745	Zephyrhills Municipal Airport	Multi-Sector Stormwater GP	39540 South Avenues - Box 2	Zephyrhills	416.7	Hillsborough River	Zephyrhills
FLRNEE424	North Water Reclamation Facility	Stormwater No Exposure Certification	8500 69th St E	Palmetto	400.5	Coastal Lower Tampa Bay	Manatee Co.
FLR05A456	Vandenberg Airport	Multi-Sector Stormwater GP	9334 Vandenberg Airport Rd	Tampa	326.3	Coastal Hillsborough Bay	Hillsborough Co.
FLR05A924	Breed Technologies Inc	Multi-Sector Stormwater GP	5300 Allen K Breed Hwy	Lakeland	318.8	Hillsborough River	Lakeland

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05B172	Coronet Industries Inc	Multi-Sector Stormwater GP	4082 Coronet Rd	Plant City	221.9	Alafia River	Hillsborough Co.
FLR05C544	Big Bend Station	Multi-Sector Stormwater GP	13031 Wyandotte Road	Apollo Beach	221.5	Coastal Middle Tampa Bay	Hillsborough Co.
FLR05A475	Plant City Airport	Multi-Sector Stormwater GP	4007 Airport Rd	Plant City	191.0	Hillsborough River	Plant City
FLR05A483	Peter O Knight Airport	Multi-Sector Stormwater GP	825 Severn Ave	Tampa	161.1	Coastal Hillsborough Bay	Tampa
FLR05F412	Albertson's Distribution Center #8243	Multi-Sector Stormwater GP	1402 Albertsons Dr	Plant City	154.8	Hillsborough River	Plant City
FLR05G045	CSX Intermodal	Multi-Sector Stormwater GP	1901 N 62nd St	Tampa	151.7	Coastal Hillsborough Bay	Tampa
FLR05G200	United States EnviroFuels - Port Sutton Site	Multi-Sector Stormwater GP	4428 Pendola Point Rd	Tampa	126.2	Coastal Hillsborough Bay	Hillsborough Co.
FLR05D081	New Ngc, Inc	Multi-Sector Stormwater GP	12949 US Highway 41 S	Gibsonton	122.2	Coastal Middle Tampa Bay	Hillsborough Co.
FLRNEE443	Clearwater Northeast WWTP	Stormwater No Exposure Certification	3290 SR 580	Clearwater	117.6	Coastal Old Tampa Bay	Clearwater
FLR05B987	Albert Whitted Airport	Multi-Sector Stormwater GP	107 8th Ave SE	St Petersburg	116.2	Coastal Middle Tampa Bay	St. Petersburg
FLR05B688	Howard F Curren	Multi-Sector Stormwater GP	2700 Maritime Blvd	Tampa	111.5	Coastal Hillsborough Bay	Hillsborough Co.
FLR05A218	CTL Distribution Inc	Multi-Sector Stormwater GP	4201 Bonnie Mine Road	Mulberry	110.0	Alafia River	Polk Co.
FLR05B577	Mckay Bay Refuse-To-Energy Com	Multi-Sector Stormwater GP	107 N 34th St	Tampa	108.2	Coastal Hillsborough Bay	Tampa

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05C545	H.L. Culbreath Bayside Power Plant	Multi-Sector Stormwater GP	3602 Port Sutton Rd	Tampa	105.8	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE645	Publix Lakeland Industrial Center	Stormwater No Exposure Certification	3045 New Tampa Hwy	Lakeland	93.4	Hillsborough River	Lakeland
FLR05G442	Smorgan Steel Recycling Inc	Multi-Sector Stormwater GP	4343 Port Sutton Rd	Tampa	90.9	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE488	Lockheed Martin MS2 - Tactical Systems, Clearwater Operation	Stormwater No Exposure Certification	3655 Tampa Rd	Oldsmar	79.6	Coastal Old Tampa Bay	Pinellas Co.
FLR05G250	Honeywell Inc	Multi-Sector Stormwater GP	13350 US Highway 19 N	Clearwater	73.7	Coastal Old Tampa Bay	Pinellas Co.
FLR05B156	Northeast Water Reclamation Facility	Multi-Sector Stormwater GP	1160 62nd Ave NE	Saint Petersburg	67.9	Coastal Middle Tampa Bay	St. Petersburg
FLR05B320	Eastern Assoc Terminals Co., LLC	Multi-Sector Stormwater GP	3701 Causeway Blvd	Tampa	62.5	Coastal Hillsborough Bay	Hillsborough Co.
FLR05B015	Lykes Meat Group Inc	Multi-Sector Stormwater GP	4611 Lykes Rd	Plant City	58.3	Alafia River	Plant City
FLR05F942	Tampa Cement Terminal	Multi-Sector Stormwater GP	2001 Maritime Blvd	Tampa	50.0	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F378	Florida Power & Light Company Port Manatee Fuel Oil Terminal	Multi-Sector Stormwater GP	12310 Reeder Rd	Palmetto	47.0	Coastal Lower Tampa Bay	Manatee Co.
FLR05C307	The Port of Tampa (AKA: Tampa Bay Shipbuilding)	Multi-Sector Stormwater GP	1130 McClosky Blvd	Tampa	46.8	Coastal Hillsborough Bay	Hillsborough Co.

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLRNEE647	Publix Lakeland Bakery Plant	Stormwater No Exposure Certification	3260 New Tampa Hwy	Lakeland	44.2	Hillsborough River	Lakeland
FLR05C281	Yuengling Brewing Co of Tampa	Multi-Sector Stormwater GP	11111 N 30th St	Tampa	43.0	Hillsborough River	Tampa
FLR05D024	CSX Transportation Inc Uceta Yard	Multi-Sector Stormwater GP	5656 Adamo Dr	Tampa	40.6	Coastal Hillsborough Bay	Tampa
FLR05G660	Aglime Sales Inc	Multi-Sector Stormwater GP	12701 Reeder Rd	Palmetto	40.5	Coastal Lower Tampa Bay	Manatee Co.
FLR05F506	Weyerhaeuser Company	Multi-Sector Stormwater GP	2402 Police Center Dr	Plant City	36.9	Hillsborough River	Plant City
FLR05F840	James Hardie Building Products Inc	Multi-Sector Stormwater GP	809 S Woodrow Wilson St	Plant City	34.9	Hillsborough River	Plant City
FLR05A944	Coreslab Structures Tampa Inc	Multi-Sector Stormwater GP	6301 N 56th St	Tampa	33.2	Hillsborough River	Hillsborough Co.
FLR05D047	Southern Culvert-Plant City	Multi-Sector Stormwater GP	4504 Sydney Rd	Plant City	32.9	Alafia River	Plant City
FLR05C488	Cardinal Health 409, Inc. (F/K/A R P Scherer North America)	Multi-Sector Stormwater GP	2725 Scherer Dr N	St Petersburg	31.9	Coastal Old Tampa Bay	Pinellas Park
FLR05E270	Hanson Pipe & Products Inc	Multi-Sector Stormwater GP	12781 US Highway 41 S	Gibsonton	31.2	Coastal Hillsborough Bay	Hillsborough Co.
FLR05A998	Southwest Regional Wastewater Facility	Multi-Sector Stormwater GP	2000 4th St	Mulberry	30.8	Alafia River	Polk Co.
FLR05G101	New NGC Inc dba National Gypsum Company	Multi-Sector Stormwater GP	6110 Commerce St	Tampa	30.5	Coastal Old Tampa Bay	Tampa

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05C466	Pepperidge Farm Inc	Multi-Sector Stormwater GP	2222 Interstate Dr	Lakeland	29.7	Hillsborough River	Lakeland
FLRNEE254	The Tampa Tribune	Stormwater No Exposure Certification	1103 N 22nd St Ste E	Tampa	29.7	Coastal Hillsborough Bay	Tampa
FLR05D063	Cemex, Inc. - Paver Facility	Multi-Sector Stormwater GP	1030 Airport Rd	Lakeland	27.6	Hillsborough River	Polk Co.
FLR05C320	Florida Coca-Cola Bottling Co	Multi-Sector Stormwater GP	9102 Sabal Industrial Blvd	Tampa	27.5	Coastal Hillsborough Bay	Hillsborough Co.
FLR05C554	Atlas-Transoil Inc DBA Kleensoil	Multi-Sector Stormwater GP	13838 Harlee Rd	Palmetto	26.2	Coastal Middle Tampa Bay	Manatee Co.
FLR05C479	Golden Aluminum Extrusion - Plant City, LLC	Multi-Sector Stormwater GP	1650 Alumax Cir	Plant City	26.2	Alafia River	Plant City
FLR05A953	Jabil Circuit Co	Multi-Sector Stormwater GP	10500 Dr Martin Luther King Jr St N	St Petersburg	25.9	Coastal Old Tampa Bay	St. Petersburg
FLR05E115	Delta Airlines, Inc	Multi-Sector Stormwater GP	Tampa International Airport	Tampa	24.9	Coastal Old Tampa Bay	Hillsborough Co.
FLRNEE452	Dart Container Co Florida LP	Stormwater No Exposure Certification	4610 Airport Rd	Plant City	23.9	Hillsborough River	Plant City
FLR05B745	Cargill Inc	Multi-Sector Stormwater GP	5425 W Tyson Ave	Tampa	23.2	Coastal Old Tampa Bay	Tampa
FLR05F484	A.O.C., L.L.C.	Multi-Sector Stormwater GP	4620 N Galloway Rd	Lakeland	22.5	Hillsborough River	Polk
FLR05F742	BP Tampa Terminal	Multi-Sector Stormwater GP	848 McClosky Blvd	Tampa	22.2	Coastal Hillsborough Bay	Hillsborough Co.

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05G100	Consolidated Bedding Incorporated	Multi-Sector Stormwater GP	500 S Falkenburg Rd	Tampa	22.0	Coastal Hillsborough Bay	Hillsborough Co.
FLR05B990	Weyerhaeuser Company	Multi-Sector Stormwater GP	6706 N 53rd St	Tampa	21.9	Hillsborough River	Hillsborough Co.
FLR05F400	Conrad Yelvington Distributors Inc	Multi-Sector Stormwater GP	4800 Cone Rd	Tampa	21.5	Hillsborough River	Tampa
FLR05B658	Standard Concrete Products Inc	Multi-Sector Stormwater GP	6101 Port Tampa Dr	Tampa	21.3	Coastal Old Tampa Bay	Tampa
FLR05B342	Florida Rock & Tank Lines Inc	Multi-Sector Stormwater GP	6604 So Dale Mabry Hwy	Tampa	20.2	Coastal Hillsborough Bay	Tampa
FLR05B787	Temple-Inland	Multi-Sector Stormwater GP	8700 Adamo Dr	Tampa	20.1	Coastal Hillsborough Bay	Hillsborough Co.
FLR05B074	Metal Industries Inc	Multi-Sector Stormwater GP	301 Commerce Blvd	Oldsmar	20.0	Coastal Old Tampa Bay	Oldsmar
FLR05G565	Zephyrhills Manufacturing Facility	Multi-Sector Stormwater GP	4330 20th St	Zephyrhills	19.7	Hillsborough River	Zephyrhills
FLR05B840	United Parcel Service Inc	Multi-Sector Stormwater GP	5721 126th Ave	Pinellas Park	19.5	Coastal Old Tampa Bay	Pinellas Park
FLRNEE238	Averrit Express Tampa Service Center	Stormwater No Exposure Certification	6622 E Hillsborough Ave	Tampa	19.2	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F824	FedEx Ground	Multi-Sector Stormwater GP	8411 Florida Mining Blvd	Tampa	19.1	Coastal Old Tampa Bay	Pinellas Park
FLR05G541	Fedex Freight East Inc - Tampa	Multi-Sector Stormwater GP	6952 E Hillsborough Ave	Tampa	19.1	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE508	Lockheed Martin Aeronautics	Stormwater No Exposure Certification	9300 28th St N	Pinellas Park	19.0	Coastal Middle Tampa Bay	Pinellas Park

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05B611	United Parcel Service Inc	Multi-Sector Stormwater GP	5201 Eagle Trail Dr	Tampa	18.6	Coastal Old Tampa Bay	Hillsborough Co.
FLR05G295	Marigold Land Company	Multi-Sector Stormwater GP	Berth 30-3532 Pendola point Rd	Tampa	18.4	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F716	Motiva Enterprises Pt. Tampa Terminal	Multi-Sector Stormwater GP	6500 W Commerce St	Tampa	18.3	Coastal Old Tampa Bay	Tampa
FLR05B737	Trilectron Industries Inc	Multi-Sector Stormwater GP	11001 US Highway 41 N	Palmetto	18.0	Coastal Lower Tampa Bay	Manatee
FLR05G523	Hawker Beechcraft Services Tampa	Multi-Sector Stormwater GP	2450 N Westshore Blvd	Tampa	17.9	Coastal Old Tampa Bay	Tampa
FLRNEE668	Saint Petersburg Marina	Stormwater No Exposure Certification	300 2nd Ave SE	Saint Petersburg	17.2	Coastal Middle Tampa Bay	St. Petersburg
FLR05A480	Estes Express Lines	Multi-Sector Stormwater GP	6360 E Hanna Ave	Tampa	17.2	Hillsborough River	Hillsborough Co.
FLR05G600	Johnson Controls Inc	Multi-Sector Stormwater GP	10215 N 30th St	Tampa	17.0	Hillsborough River	Tampa
FLRNEE358	CTX Builders Supply	Stormwater No Exposure Certification	4408 Airport Rd	Plant City	16.8	Hillsborough River	Plant City
FLR05B000	Tampa Steel Erecting Co	Multi-Sector Stormwater GP	5127 Bloomingdale Ave	Tampa	16.7	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE015	AAR Composites	Stormwater No Exposure Certification	14201 Myerlake Cir	Clearwater	16.7	Coastal Old Tampa Bay	Largo
FLR05B818	International Paper	Multi-Sector Stormwater GP	2104 Henderson Way	Plant City	16.1	Hillsborough River	Plant City

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLR05A848	Reeves Southeastern Wire Div	Multi-Sector Stormwater GP	9800 Reeves Rd	Tampa	15.8	Coastal Hillsborough Bay	Hillsborough Co.
FLR05E274	Transmontaigne Terminaling Inc	Multi-Sector Stormwater GP	1523 Port Ave	Tampa	15.5	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F605	Maxpak, LLC	Multi-Sector Stormwater GP	2808 New Tampa Hwy	Lakeland	15.3	Hillsborough River	Lakeland
FLR05G158	LKQ Copher Self Service Auto Parts	Multi-Sector Stormwater GP	5109 Causeway Blvd	Tampa	14.5	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F502	Carpenter Co.	Multi-Sector Stormwater GP	5100 Frontage Rd S	Lakeland	14.3	Hillsborough River	Lakeland
FLR05A020	Amalie Oil Company	Multi-Sector Stormwater GP	1601 McClosky Blvd	Tampa	14.3	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE397	Tru Vue	Stormwater No Exposure Certification	5201 Gateway Blvd	Lakeland	13.9	Alafia River	Lakeland
FLR05C490	Gaf Materials Corporation	Multi-Sector Stormwater GP	5138 Madison Ave	Tampa	13.9	Coastal Hillsborough Bay	Hillsborough Co.
FLR05B566	Palm Harbor Homes	Multi-Sector Stormwater GP	605 S Frontage Rd	Plant City	13.8	Hillsborough River	Plant City
FLR05B828	Trademark Metals Recycling LLC	Multi-Sector Stormwater GP	4201 Maritime Blvd	Tampa	13.7	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE075	Aaa Cooper Transportation	Stormwater No Exposure Certification	8818 Industrial Dr	Tampa	13.1	Hillsborough River	Hillsborough Co.
FLRNEE320	Molex Incorporated	Stormwater No Exposure Certification	4650 62nd Ave	Pinellas Park	12.9	Coastal Middle Tampa Bay	Pinellas Park

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	Permittee Name	Permit/Facility Type	Permit Address	Permit City	Identified Parcel Acreage	TBEP Major Basin	Jurisdiction Responsible
FLR05B836	United Parcel Service Inc	Multi-Sector Stormwater GP	5100 Acline Dr E	Tampa	12.7	Coastal Hillsborough Bay	Tampa
FLR05B488	Custom Chemicals Corp	Multi-Sector Stormwater GP	4800 State Rd 60 E	Mulberry	11.8	Alafia River	Polk Co.
FLR05E131	International Ship Repair & Marine Services, Inc	Multi-Sector Stormwater GP	1 Barge Pl	Tampa	11.7	Coastal Hillsborough Bay	Hillsborough Co.
FLRNEE045	C.Love Joy USARC / Amsa 53 G	Stormwater No Exposure Certification	4815 N Hubert Ave	Tampa	11.1	Coastal Old Tampa Bay	Tampa
FLR05F790	Greenleaf Tampa	Multi-Sector Stormwater GP	5015 Causeway Blvd	Tampa	11.1	Coastal Hillsborough Bay	Hillsborough Co.
FLR05F879	Pepsi Bottling Group	Multi-Sector Stormwater GP	11315 N 30th St	Tampa	11.0	Hillsborough River	Tampa
FLRNEE586	Bausch & Lomb Inc	Stormwater No Exposure Certification	21 N Park Place Blvd	Clearwater	10.9	Coastal Old Tampa Bay	Clearwater
FLR05F918	Tampa	Multi-Sector Stormwater GP	1425 Tech Blvd	Tampa	10.9	Coastal Hillsborough Bay	Hillsborough Co.
FLR05C551	APAC-Southeast, Inc. (F/K/A APAC-Florida Inc-Plant 451)	Multi-Sector Stormwater GP	4101 Maritime Blvd	Tampa	10.8	Coastal Hillsborough Bay	Hillsborough Co.
FLR05A756	Hendry Corp	Multi-Sector Stormwater GP	5107 S Westshore Blvd	Tampa	10.7	Coastal Old Tampa Bay	Tampa
FLR05F731	FedEx Express-TPAR	Multi-Sector Stormwater GP	4000 N Lauber Way	Tampa	10.5	Coastal Old Tampa Bay	Tampa

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MSGPs in mainstem Tampa Bay watershed.							
Permit No.	**Permittee Name**	**Permit/Facility Type**	**Permit Address**	**Permit City**	**Identified Parcel Acreage**	**TBEP Major Basin**	**Jurisdiction Responsible**
FLRNEE031	Atco Rubber Products, Inc	Stormwater No Exposure Certification	2407 Williamette Dr	Plant City	10.5	Hillsborough River	Plant City
FLRNEE138	Clark Environmental Inc.	Stormwater No Exposure Certification	755 Prairie Industrial Pkwy	Mulberry	10.5	Alafia River	Polk Co.
FLR05A216	Commercial Carrier Corp	Multi-Sector Stormwater GP	5619 E Columbus Dr	Tampa	10.4	Coastal Hillsborough Bay	Tampa
FLR05F979	Japanese & European Used Auto Parts	Multi-Sector Stormwater GP	9809 Palm River Rd	Tampa	10.3	Coastal Hillsborough Bay	Hillsborough Co.
FLR05E208	Marathon Ashland Petroleum Inc	Multi-Sector Stormwater GP	425 S 20th St	Tampa	10.2	Coastal Hillsborough Bay	Tampa
FLR05G547	Cemex Construction Materials LP	Multi-Sector Stormwater GP	3520 Pendola Point Rd	Tampa	10.1	Coastal Hillsborough Bay	Hillsborough Co.
FLR05D019	Instrument Transformers, Inc	Multi-Sector Stormwater GP	1907 Calumet St	Clearwater	10.1	Coastal Old Tampa Bay	Clearwater
FLR05F844	Industrial Galvanizers Southeastern	Multi-Sector Stormwater GP	9520 E Broadway Ave	Tampa	10.1	Coastal Hillsborough Bay	Hillsborough Co.
FLR05A229	Commercial Carrier Corp	Multi-Sector Stormwater GP	12205 US Highway 41 N	Palmetto	10.0	Coastal Lower Tampa Bay	Manatee Co.
FLR05B155	Albert Whitted Disposal Plant	Multi-Sector Stormwater GP	601 8th Ave SE	St Petersburg	8.9	Coastal Middle Tampa Bay	St. Petersburg
FLR05E135	FedEx Express-TPFA	Multi-Sector Stormwater GP	5101 W Waters Ave	Tampa	8.7	Coastal Old Tampa Bay	Hillsborough Co.

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DOCUMENTATION FOR ADJUSTMENT OF UNGAGED NONPOINT SOURCE LOADS ATTRIBUTED TO CHANGES IN ATMOSPHERIC DEPOSITION TO THE WATERSHED

Background

The Nitrogen Management Consortium is in the process of developing nitrogen load apportionments for all loading sources, including nonpoint sources, in the Tampa Bay watershed. This effort utilizes best estimate loads for 2003-2007 developed for the watershed, including model-based estimates of nonpoint source loads from the ungaged portions of the watershed (Figure 1).

The model-based nonpoint source loads are a function of land use and rainfall. Land use-specific nitrogen concentrations and land use- and seasonal-specific runoff coefficients are used along with rainfall to estimate loads from the ungaged areas. Estimates of atmospheric deposition to the bay's surface indicate declines in atmospheric TN deposition from the baseline period (1992-1994) to current period (2003-2007). However, since the baseline period of 1992-1994, the land use-specific nitrogen concentrations used to develop model-based loads from the ungaged portions of the watershed have not been adjusted to account for changes in atmospheric deposition to the ungaged watershed.

The objective of this white paper is to describe the methodology used to adjust the nonpoint source load estimates from ungaged portions of the watershed in response to changes in atmospheric deposition, and provide the results of this adjustment on a bay segment basis.

Methodology

To perform this adjustment, two types of information are needed. First, the proportion of nonpoint source TN loads attributable to atmospheric deposition loads to the watershed must be estimated. Secondly, the change in atmospheric deposition loads to the watershed between the baseline and current periods must be estimated. Once these two types of information are available, an estimate of the adjustment in nonpoint source TN loads due to changes in atmospheric deposition of TN to the watershed is obtainable.

To determine the proportion of nonpoint source TN loads attributable to atmospheric deposition, the nonpoint source TN load may be broken into that portion due to atmospheric deposition and that portion due to all other sources. This is done as follows:

$$NPS_{Total} = NPS_{AD} + NPS_{Other}.$$

Several studies have provided estimates of the proportion of nonpoint source load attributable to atmospheric deposition. Estimates of the contribution of atmospheric deposition TN load in nonpoint source TN load to U.S. estuaries range from less than 10% to more than 65% (Castro et al., 2001; Alexander et al., 2001; Dixon et al., 1998).

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For this effort, the atmospheric depositon contribution to nonpoint source TN load was taken to be 35%. This allows the total nonpoint source load expressed above to be written as follows:

$$NPS_{Total} = 0.35 * NPS_{Total} + 0.65 * NPS_{Total}.$$

The change in atmospheric deposition between the baseline and current period allows estimation of how much the term, $0.35NPS_{Total}$, has changed between the two periods. To quantify this change, the current period segment-specific atmospheric TN deposition per unit area directly to the surface of the bay was first normalized for baseline rainfall. This allowed a difference per unit area in atmospheric TN load directly to the bay surface to be determined. This analysis resulted in the finding that the atmospheric depositon TN load per unit area declined by 32% from the baseline to the current period.

The assumption is made that the reduction in atmospheric deposition directly to the surface of the bay may be applied to the watershed as well. This allows an expression to be written for the adjusted nonpoint source TN load per unit area from the watershed, as follows:

$$NPS'_{Total} = 0.35(1\text{-}0.32) * NPS_{Total} + 0.65 * NPS_{Total},$$

which reduces to

$$NPS'_{Total} = 0.888 * NPS_{Total}.$$

Using the adjustment in nonpoint source unit areal load of 11.2% as representative of a reduction in land use-specific pollutant concentrations, the nonpoint source loading model was run with reduced pollutant concentrations for the ungaged area. The results were then compared with the original loading estimates completed previously, which did not account for any reductions in atmospheric deposition to the ungaged watershed.

Results

The results from the application of the methodology provided above are given for the ungaged watershed areas of the four mainstem segments of the bay. These TN load adjustments represent reductions in modeled nonpoint source TN loads from the ungaged areas attributable to reductions in atmospheric depositon of TN to the watershed:

Old Tampa Bay	20 tons
Hillsborough Bay	44 tons
Middle Tampa Bay	18 tons
Lower Tampa Bay	4 tons.

These reductions are applied to the nonpoint source loads from ungaged areas to estimate the adjusted nonpoint source loads for the 2003-2007 period. The reductions were apportioned among the MS4 entities responsible for nonpoint source loads from the ungaged areas in proportion to the total load estimated for each entity in each segment.

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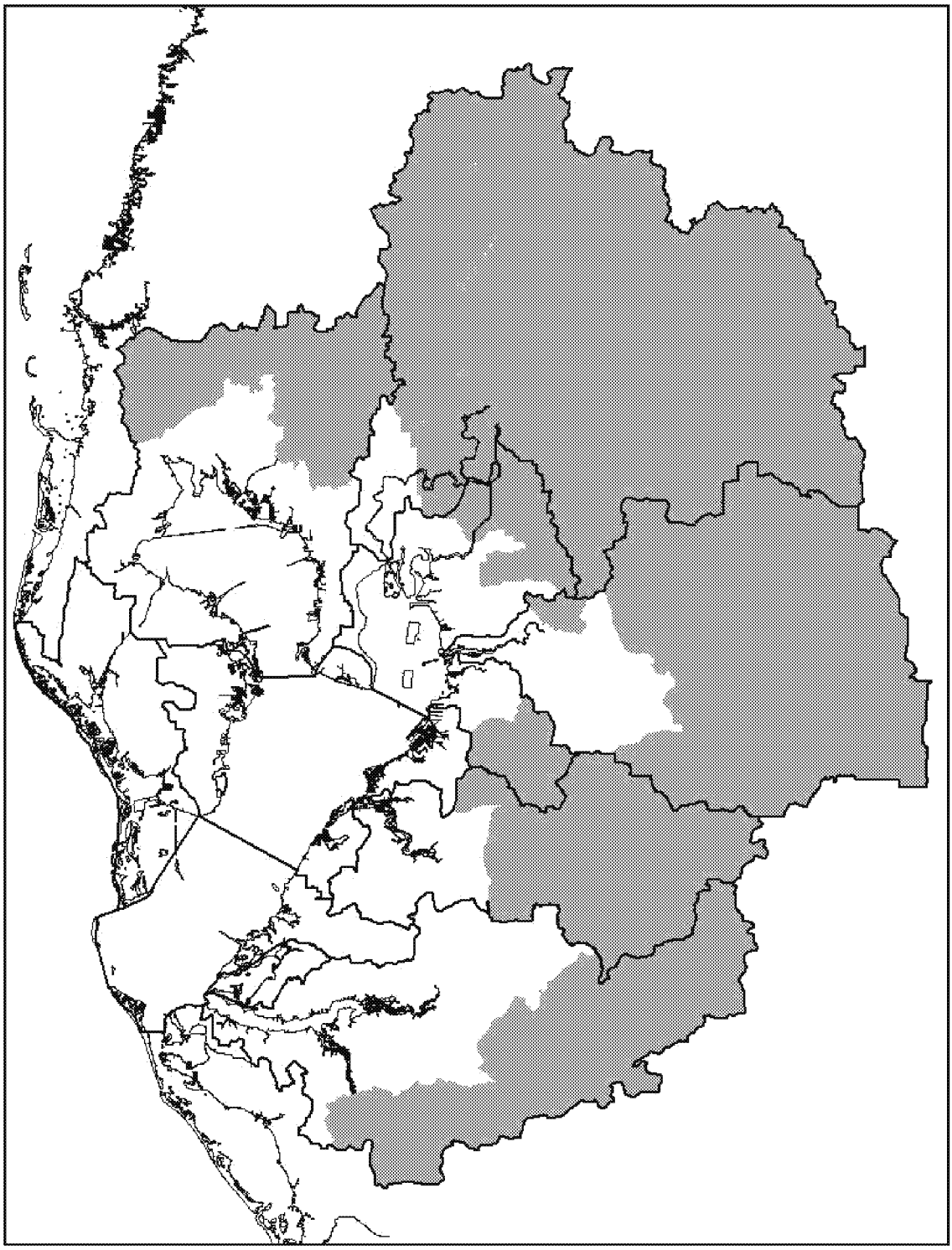

Figure 1. Gaged (shaded) and ungaged (white) areas of the Tampa Bay Watershed.

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From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Tuesday, December 16, 2008 12:34 PM
To: Bartlett, Drew; Holly Greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov
Subject: Tampa Bay Reasonable Assurance

Holly,

This is in response to your November 5, 2008, letters requesting the Department's position on Actions 6, 7 and 8 of the Tampa Bay Nitrogen Management Consortium's (Consortium) efforts to reallocate the Total Nitrogen Total Maximum Daily Load for Tampa Bay as part of the Reasonable Assurance (RA) process. We have reviewed the three submittals, and our specific responses are provided below. Please note that we worked with EPA Region 4 on our response to Action 7, and the response provided represents both agencies position on the issue.

1) Action # 6 – Estimated Total Nitrogen Load Reductions Associated with TBEP Regional Fertilizer Restriction Recommendations

   We appreciate the Consortium's efforts to reduce nitrogen loading to the bay through the development of local ordinances that would improve management practices for lawn fertilizer applications. We are strong advocates for fertilizer application best management practices (BMPs) and are willing to give reduction credit for such initiatives. However, questions remain about the effectiveness of seasonal bans on fertilizer application compared to other fertilizer application BMPs. As examples, will the ban on fertilize application during the rainy season reduce the overall annual fertilizer application rate, will it lead to concentrated applications just before the ban goes into effect and just after it ends, and will it weaken lawn health during the growing season, thereby increasing erosion and/or leaching?

   We also have questions about some of the assumptions in the modeling that was conducted to estimate the projected reductions in nitrogen loading from the ordinance. While the Consortium made valid attempts to be conservative on the selection of the compliance rate and percent contribution from fertilizer, the estimated fertilizer contribution in stormwater runoff may still be too high. Given that the model results are largely driven by these assumptions, we believe some site-specific data are needed to support the estimated reductions.

   Given these questions, we think it would be best to get our experienced staff on this subject matter together with you and your consultants before making any final determinations on the amount of reduction that will be attributed to the proposed ordinance.

2) Action # 7 – Lower Tampa Bay Boundaries

   We agree with the Consortium's recommendations to maintain the watershed boundary for Lower Tampa Bay in the federally-recognized TMDL, and to address the load from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds in the July 31, 2009 RA submittal. However, we would like the Consortium to confirm our understanding on how the RA process will be used to ensure that loading from the area outside of the TMDL does not increase above the baseline levels used in the TMDL.

It is our understanding that the Consortium's intent is to:

a) Acknowledge in the RA submittal that the original TMDL approved by EPA did not include all of the load from the southern portion of the watersheds that drain into Lower Tampa Bay.

b) Note that, rather than propose a revision of the TMDL, the Consortium is addressing this issue by demonstrating in the 2009 RA submittal that the total load from point and nonpoint sources from Terra Ceia Bay, the Manatee River, and a portion of the Boca Ciega Bay and their watersheds has not increased since the baseline period for the original TMDL (1992-1994).

c) Commit to "hold the line" on the loading from these watersheds so that it remains at or below the loading from these areas during the baseline period for the TMDL. The 2009 RA submittal will describe the process (frequency and mechanism) to track individual nonpoint and point sources post July 2009.

d) The RA submittal will provide sufficient detail about allocated loads for individual point sources so that the Department can adopt the RA submittal as Water Quality Based Effluent Limitations, which will be the basis for each facility's permit limits. The loads for point sources and any future increases in those permitted point source loads will have to be offset by decreases in other sources such that the total load remains at or below the loading for the baseline period. After the WQBEL is accepted and implemented in permits, future Tampa Bay RA loading analyses will use the permitted loads (rather than actual loads as is currently the case) to assess achievement of the target loads for each bay segment in the accepted RA.

3) Action # 8 – Geographic Discretization of Nonpoint Sources

We agree with the proposed "discretization" process for nonpoint sources.

If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thanks,
Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your two November 5, 2008, letters concerning the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) recommendations regarding the Tampa Bay Reasonable Assurance process. In the first letter, the TBEP recommends providing total nitrogen load reduction credits for the implementation of TBEP's regional fertilizer restrictions. In the second letter, the Consortium provides a recommendation to assign specific entities a level of responsibility for their respective nonpoint source load contributions to the Tampa Bay Watershed. As requested, this letter provides the TBEP and the Consortium with our feedback regarding these two recommendations.

Specifically, the first letter explains TBEP's recommendation to provide a 5% total nitrogen load reduction credit for education and an additional 4.1% total nitrogen load reduction credit for the implementation of TBEP's regional fertilizer restriction recommendation. The TBEP provides a series of total nitrogen percent reduction estimates for each major Tampa Bay segment that are associated with the implementation of TBEP's regional fertilizer restriction recommendations. We would like to commend TBEP in their efforts to develop a fertilizer use guideline that would prohibit non-agricultural fertilizer application during the rainy season. We encourage the TBEP to continue to work with the Florida Department of Environmental Protection to determine the appropriate load reduction credits to be applied for the implementation of TBEP's non-agricultural fertilizer restrictions.

In the second letter, the Consortium recommends assigning responsibilities to entities who contribute to nonpoint source loading in the Tampa Bay Watershed. We understand that the Consortium would like to assign this responsibility as part of their process to develop entity-specific nitrogen loading estimates for nonpoint sources in the Tampa Bay Watershed. EPA is encouraged by the Consortium's decision to develop and assign responsibility to those entities that contribute nonpoint source nitrogen loadings to Tampa Bay. This effort will be valuable during the implementation of the Total Maximum Daily Load and Reasonable Assurance.

Thank you for the opportunity to provide feedback on the tremendous work of the TBEP as well as the Consortium. If we may be of further assistance, please feel free to contact Jennifer Eason of my staff at 404-562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.9. Letter to FDEP: Comments on New MS4 Monitoring Requirements (Nov. 25, 2008)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

November 25, 2008

Mike Sole, Secretary
Florida Department of Environmental Protection
3900 Commonwealth Boulevard M.S. 49
Tallahassee, Florida 32399

Janet Llewellyn, Director
Water Resource Management
Florida Department of Environmental Protection
3900 Commonwealth Boulevard M.S. 49
Tallahassee, Florida 32399

Jerry Brooks, Director
Environmental Assessment & Restoration
Florida Department of Environmental Protection
3900 Commonwealth Boulevard M.S. 49
Tallahassee, Florida 32399

RE: New Recommended Monitoring Requirements Proposed for NPDES, MS4 Permittees

Dear Mr. Sole, Ms. Llewellyn, and Mr. Brooks,

The Tampa Bay Nitrogen Management Consortium (NMC), a specialized committee within the Tampa Bay Estuary Program discussed the proposed monitoring requirements for the state's MS4 permittees at our November 3, 2008 meeting. The Agency on Bay Management highlighted several items of concern for MS4 permittees in their recent letter to the Department dated November 4th, 2008. The NMC members have similar concerns. The local monitoring agencies and Consortium members are most concerned about the proposed requirements for discrete, storm-event driven monitoring of outfall conditions held within a MS4 permittees' jurisdiction.

As expressed by the ABM, the Consortium members believe the new monitoring requirements will not meet the regional water quality-related goals of several agencies within the Tampa Bay watershed. Members were very concerned with the unforeseen implications of the new monitoring requirements to local monitoring programs. The new requirements will not provide useful resource management information over the existing ambient monitoring programs used to assess compliance to several State (Tampa Bay Reasonable Assurance Update) and Federal (TMDL determination) regulatory programs. The new requirements may cause local partners to reallocate resources towards much less effective monitoring programs. This may erode progress made by the existing watershed-scale monitoring programs that, ironically, were established to meet previous Department monitoring requirements. Decades of original research characterizing stormwater in the Tampa Bay area has already been accomplished. The state has agreed that watershed monitoring approaches established in several MS4 monitoring permits were the best way to assess stormwater effects.

Since existing regional ambient monitoring programs characterize the representative surface water conditions in the Tampa Bay watershed, the proposed storm-event driven sampling may cause local entities to exclusively characterize pulsed, episodic events in the watershed. Although this information may be useful to identify acute, point-of-discharge effects of nonpoint source stormwater, the resulting data will be of limited additional use. The Consortium questions the net benefit of these new requirements and requests that the Department work with local partners to develop an alternative program that meets the needs of MS4 permits and long-term resource monitoring and assessment efforts. Towards this end, the Consortium recommends that existing watershed monitoring programs remain intact for MS4 permit renewals, and that the proposed recommendations be applied to those MS4 operators without an established stormwater monitoring program. Over the first five years of these newly established programs, a comparison of stormwater conditions within these jurisdictions could be assessed with data collected throughout the state over the past two decades.

Moreover, Consortium members are concerned that the hydrology of stormwater driven discharges may be overlooked with the new monitoring requirements as well as the variation in constituent concentrations, and therefore loadings to a system over a defined storm event. Recent reports by the National Research Council[1] have recommended that flow and other related parameters be considered as proxies for stormwater pollutant loading. The Consortium hopes that these potential short-comings of the new requirements are considered by the Department when developing new MS4 monitoring programs.

Lastly, we encourage the Department to consider how the existing regional ambient monitoring programs do an excellent job in characterizing the representative condition of, and pollutant loadings to, the regions' surface waters. Any new monitoring requirements proposed by the Department should build upon these established watershed-scale monitoring programs. Ultimately, these are the goals established by the EPA and the Center for Watershed Protection to ensure that nonpoint source pollution has minimal impacts on receiving waterbodies.

If you have any questions or feedback about our concerns, please consider attending our next Nitrogen Management Consortium meeting scheduled for December 19th, 2008 from 9am-4:30pm at the FDEP Southwest District Office in Temple Terrace, FL. Thank you again for your consideration of these concerns of the Tampa Bay region and we look forward to working with the Department to ensure that any new MS4 monitoring requirements meet the needs of all interested parties.

Sincerely,

Rob Brown
TBNMC Local Government Co-Chair
Manatee County

Jeff Stewart
TBNMC Industry Co-Chair
Mosaic Fertilizer Company

[1]Urban Stormwater Management in the United States. 2008. Committee on Reducing Stormwater Discharge Contributions to Water Pollution, Water Science and Technology Board, Division on Earth and Life Studies. National Research Council of the National Academies.

Cc: Nitrogen Management Consortium members
Drew Bartlett, Phil Coram, Eric Livingston, Richard Drew, Stephen Kelly, FDEP
Kelli Hammer-Levy, Andy Squires, Will Davis, PCDEM
Holly Greening, Ed Sherwood, TBEP
David Glicksberg, HC
Richard Boler, Anthony D'Aquila, Richard Garrity, EPCHC
Greg Blanchard, MCNRD

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS 2500
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

December 29, 2008

Mr. Rob Brown, Manatee County
Local Government Co-Chair
Tampa Bay Nitrogen Management Consortium
100 8th Avenue S.E.
MS I-1 / NEP
St. Petersburg, Florida 33701

Mr. Jeff Stewart, Mosaic Fertilizer Company
Industry Co-Chair
Tampa Bay Nitrogen Management Consortium
100 8th Avenue S.E.
MS I-1 / NEP
St. Petersburg, Florida 33701

RE: Proposed Monitoring Requirements Phase I MS4 Permittees

Dear Mr. Brown and Mr. Stewart: Rob & Jeff

Secretary Sole asked me to respond to your letter dated November 25, 2008 expressing the Tampa Bay Nitrogen Management Consortium's (TBNMC) concerns with the proposed monitoring requirements for Phase I Municipal Separate Storm Sewer Systems (MS4s).

In addition to the comments provided by the TBNMC, we also received comments from other organizations including the Tampa Bay Regional Planning Council, Agency on Bay Management, the Southwest Florida Regional Planning Council, the Charlotte Harbor National Estuary Program, Orange County, and the Florida Stormwater Association.

Monitoring programs are intended to assist in managing and determining the effectiveness of the MS4's Stormwater Management Plan (SWMP), which include specific water quality based goals and the implementation of appropriate best management practices. A variety of monitoring approaches can be used to evaluate SWMP effectiveness. The Department recognizes the value of ambient water quality monitoring programs. It is not our intention to eliminate ambient monitoring programs

from MS4 permits; however, we feel the third permit cycle is an appropriate time to evaluate and refine existing MS4 monitoring programs.

Based on the comments and concerns from the TBNMC and the other organizations, the Department is preparing new draft monitoring plan guidance and MS4 monitoring permit conditions. The guidance is intended to assist MS4s in developing monitoring plans that:

- Identify water quality problem areas related to stormwater runoff that can be targeted for corrective action, retrofits, or non-structural BMPs,
- Measure the effectiveness of stormwater pollution reduction measures (BMPs) that have or will be implemented, and
- Indicate, refine and document land-use specific pollutant loadings, and/or trends in pollutant loadings for specific watersheds or outfalls

Prior to implementing the monitoring plan guidance and permit conditions, we plan to solicit comments from TBNMC , the organizations listed above, and all Phase I MS4 Co-Permittees.

We appreciate the efforts of the TBNMC to restore Tampa Bay. We look forward to working with TBNMC to develop the new MS4 monitoring requirements. If you have any questions, please contact Steven Kelly at (850) 245-7518 or by email at Steven.Kelly@dep.state.fl.us.

Sincerely,

Phil Coram, P.E., Deputy Director
Division of Water Resource Management

PC/sk

A.10. Clarification for Source Category Reallocation to Federally-Recognized TMDL (January 29, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: January 29, 2009

SUBJECT: Reallocation of federally-recognized TMDL

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

At the Tampa Bay Nitrogen Management Consortium meeting on December 19th, 2008, members of the Consortium requested written confirmation from EPA and FDEP regulators on a central element of the reallocation process undertaken as part of the Reasonable Assurance (RA) update due to FDEP on July 31st, 2009 as follows:

> Recognition that the bottom-line total federally-recognized TMDL for each bay segment (i.e., 486 tons for Old Tampa Bay, etc; Table 1) will be reallocated across all TN sources to that particular bay segment as described in the 2007 RA update submitted to FDEP on January 31, 2008.

Table 1. Proposed revised allocation categories as described in the TBNMC 2007 RA Update. The WLAs (point sources and MS4s) will include allocations to individual facilities.

Source	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
Permitted point source WLAs (WWTP, industrial)	TBD	TBD	TBD	TBD
Permitted MS4s WLAs	TBD	TBD	TBD	TBD
Unpermitted sources (LAs)	TBD	TBD	TBD	TBD
TOTAL	**486**	**1451**	**799**	**349**

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

On behalf of the Tampa Bay Nitrogen Management Consortium, the TBNMC Co-Chairs respectfully request that FDEP and EPA provide concurrence on the two concerns expressed above regarding the allowable process to reallocate the federally-recognized TMDL. Thank you for considering our very tight timeline for development of recommendations through this process by providing your response by February 26, 2009, to allow distribution of your response to the full Consortium at our scheduled meeting on February 27th.

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 13, 2009 12:30 PM
To: holly greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov; Giattina.Jim@epamail.epa.gov; Coram, Phil; Drew, Richard; Greenwell, Jeff; Kovach, Charles
Subject: TBNMC Recommendations

Holly,

This is in response to your January 29, February 10, and February 12 e-mails requesting the Department's position on Actions 10 and 11, and clarification on the process the Department plans to follow to convert the recommended allocations into permit limits for individual permits. We have reviewed the three issues raised by the Tampa Bay Nitrogen Management Consortium (Consortium), and our specific responses are provided below.

1) Action #10

We agree with the Consortium's clarification/re-statement of the 2007 RA agreement that, as part of the re-allocation process, the total bay-segment-specific TMDL will remain the same as in the 1998 federally-approved TMDL, but that the allocations for different source categories can be revised to reflect the Consortium's proposed allocations to individual permitted facilities and unpermitted source. As further clarification, we anticipate that loads from Municipal Separate Storm Sewer Systems (MS4s), which were previously placed in the nonpoint source load category, will be placed under a separate wasteload allocation for NPDES stormwater discharges.

2) Action #11

We remain open to the concept of incorporating segment-specific hydrologic adjustments to normalize conditions to those observed during the TMDL baseline period (1992-1994). However, it is still not clear from the February submittal how the adjustments will be used in the allocation and assessment process. We acknowledge that some of this information was presented at the last Consortium meeting (including description of how adjustments would be used to determine compliance with target reductions at the bay segment and individual facility level), but it is our understanding that the Consortium has not made final recommendations on these issues. As such, we will defer a final decision on the hydrologic adjustments until the Consortium provides more detailed recommendations on these implementation issues.

3) Anticipated Process to Assign Permit Limits

As indicated in our May 28, 2008 letter to the Consortium, we plan to adopt the entity-specific allocations in the RA submittal as Water Quality-Based Effluent Limits (WQBELs) by Secretarial Order, pursuant to Chapter 62-650, Florida Administrative Code (relevant portions attached). As part of the adoption process, the Department will issue a notice of proposed agency action and provide notice to the each entity receiving an allocation and any other parties substantially affected by the WQBEL. This notice provides a 21-day period for interested parties to file a petition for an administrative hearing to

challenge the WQBEL (petitions must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first). The rule requires that the notice include a statement indicating the date by which compliance with the WQBEL is required, and we currently plan to include a general statement that the WQBELs will be used to set permit limits as part of the next permit renewal (the permit will allow for a reasonable compliance schedule).

After the notice period is over, the Department plans to issue a Secretarial Order that will list the allocations as effluent limits, noting that the WQBELs will be used to set permit limits upon permit renewal. The allocations will be final and binding, and all permits issued will be consistent with the order.

We would like to remind the Consortium that our previous approval of the 2007 RA Update was contingent on (among other things) a resolution signed by the Consortium members accepting the revised load allocations and acknowledging that the facility-specific wasteload allocations will be adopted by FDEP as WQBELs. While this resolution is important, we must move forward with the adoption of WQBELs even if the resolution is not unanimous. However, we will not be able to conclude that reasonable assurance exists until after the WQBELs are in effect.

We would like to take this opportunity to encourage entities to continue their participation with the Consortium to develop the entity-specific allocations. We believe the cooperative, stakeholder-driven process is the best way to attain equitable allocations and WQBELS that ensure that the cumulative loading to the bay will not lead to an imbalance in flora or fauna. Further, we would like to note that the Consortium's approach, which includes hydrologic adjustments, aggregate allocations, and potentially trading, provides strong incentives for entities to participate.

While we encourage entities to continue to participate with the Consortium, we would like to be involved in the determination of existing loadings for some industrial wastewater facilities that have highly variable effluent flow due to rainfall. We are willing to work with the Consortium and representatives of these facilities on their allocations, but would like to make it clear to the facility representatives that the discussion is still part of the Consortium's allocation process.

We very much appreciate the Consortium efforts to reallocate the TMDL as part of the Reasonable Assurance (RA) process, and agree that it is important for the NMC to document its recommendations, and our position on those recommendations, along the way. If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thank you,

Drew Bartlett, Assistant Director
Department of Environmental Assessment and Restoration

Applicable Text From Chapter 62-650

WATER QUALITY BASED EFFLUENT LIMITATIONS F.A.C.

(8) After the Department has reviewed the WQBEL technical report and evaluated other factors as indicated above, the district office shall issue a notice of proposed agency action pursuant to Rule 62-103.150, F.A.C., and provide notice to the affected dischargers, and any other parties substantially affected by the WQBEL technical report. This notice shall set forth those WQBELs that have been established by the Level II process and may include any conditions or monitoring requirements to be imposed on the affected discharge(s). The notice shall include a statement indicating the date by which compliance with the requirements of the notice must be achieved. Compliance with WQBELs as set forth in the letter of notice may be required:

(a) For Existing Dischargers:

1. Within 90 days of final agency action when public health impacts or serious adverse environmental impacts are occurring with the present discharge (modification of the existing permit pursuant to Rule 62-4.080, F.A.C., may be initiated depending upon the severity of the impact), or

2. Within a period of time defined in a compliance schedule based on a consideration of the current or potential environmental and public health impacts of the discharge or other permitting factors, or

3. At the time of the next operating permit renewal.

(b) For Proposed Dischargers: At the time of the issuance of a construction permit for a new discharger.

(9) The Department shall issue a final order, which may be a permit, setting forth the effluent limits and permitting requirements and the required date of compliance with the specified requirements. The requirements thereof shall be final and binding for a period of five years except as provided for in Rule 62-650.500(10), F.A.C., below. All permits issued during that time shall be in conformity with the order establishing the WQBELs. Other permit provisions shall be established at the time a permit is issued.

(10) The Department may modify the WQBELs that are established by this process under the same circumstances and by the same procedures as are specified for permit modifications under Rules 62-4.080, F.A.C., and 62-4.242(2), F.A.C.

Specific Authority 403.051, 403.061, 403.062, 403.087, 403.088 FS. Law Implemented 403.021, 403.051, 403.061, 403.062, 403.085, 403.086, 403.087, 403.088 FS. History-

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FEB 2 6 2009

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

The Environmental Protection Agency (EPA) received your three letters concerning several aspects of the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) process to reallocate the nutrient Total Maximum Daily Load (TMDL) for Tampa Bay. In your letters, you specifically request EPA's response regarding the reallocation of the TMDL's total nitrogen (TN) loads, the incorporation of segment-specific hydrologic adjustments to normalize TMDL conditions and the overall process to assign permit limits to the point sources in Tampa Bay. This letter provides the TBEP and the Consortium our response to these requests.

With regards to your first letter concerning TBEP's and the Consortium's process to reallocate the federally approved nutrient TMDL for Tampa Bay, EPA maintains its highest support of this process. We understand that the reallocation process will include reallocating the overall total nitrogen (TN) load as expressed in the 1998 federally approved nutrient TMDL for Tampa Bay across all TN sources in the four major segments in Tampa Bay(Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay).

The second letter specifically requests EPA's feedback regarding the incorporation of segment-specific hydrologic adjustments in the reallocation process. Based on the information presented in your letter and at our meeting on January 14, 2009, the Consortium's approach to create consistent hydrologic conditions to those conditions presented in the TMDL baseline period (1992-1994) appears reasonable. With regards to permit limits, we understand that this approach will be applied under wet and dry conditions. We are looking forward to reviewing the normalized TN loads that are associated with the hydrologic adjustments.

In the third letter, you request a general overview of the anticipated process to assign permit limits from the recommended allocations the TBEP and the Consortium determine through their reallocation process. Because the Florida Department of Environmental Protection is authorized to issue these National Pollutant Discharge Elimination System (NPDES) permits, they have the primary responsibility for this

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assignment. The EPA's role in this regard will be to overview selected NPDES permits to ensure that those limits are consistent with any allocations that are developed.

Thank you for the opportunity for EPA to provide feedback to this ongoing critical process to reallocate the nutrient TMDL for Tampa Bay. If we may be of further assistance, please feel free to contact Jennifer Eason of my staff at 404-562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.11. Incorporation of Hydrologic Normalization into Tampa Bay TN TMDLs (February 10, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: February 10, 2009

SUBJECT: Decision #11- Incorporation of hydrologic normalization into Tampa Bay TN TMDLs

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason,
Tom Welborn (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider the incorporation of segment-specific hydrologic adjustments to normalize conditions to those observed during the TMDL baseline period (1992-1994) in the assessment of observed bay segment TN loads. The full Nitrogen Management Consortium approved the attached action on February 5, 2009. Please note that this action was the subject of the January 14, 2009 meeting at the EPA Region 4 offices in Atlanta.

The Consortium requests FDEP and EPA concurrence with this action by February 26, 2009, to allow the Consortium to move forward with recommended allocations. The Consortium will be considering entity-specific allocations at their next meeting on February 27th. This expedited timetable is required to meet the July 2009 deadline.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

Thank you for your continued participation in the Consortium and timely response to this request for concurrence.

Decision Memo #11
Tampa Bay Nitrogen Management Consortium
Approved February 5, 2009

Incorporation of hydrologic normalization into Tampa Bay Nitrogen TMDLs

Action:
a. Approve the incorporation of segment-specific hydrologic adjustments to normalize conditions to those observed during the TMDL baseline period (1992-1994) in the assessment of observed bay segment TN loads.

b. Request concurrence from EPA and FDEP.

Background:
The federally-recognized 1998 Nitrogen TMDL for Tampa Bay is based on nitrogen loads estimated for the 1992-1994 period. These loads were adopted by the Tampa Bay Estuary Program as management targets associated with maintaining chlorophyll *a* concentrations necessary to support recovery of seagrass in Tampa Bay. The estimated TN loads observed in 1992-1994 were influenced by both TN concentration and hydrologic load to a bay segment. Therefore, the ratio of TN loads to hydrologic loads from the 1992-1994 baseline period should be appropriate to maintain chlorophyll concentrations at the desired levels.

Observations since the 1992-1994 TMDL period show that the bay segment-specific annual TN loads have exceeded the TMDL loads in a number of years (46% of the segment/year combinations; Figure 1), yet the chlorophyll *a* concentration targets in the bay segments have been met in most years since 1994 (81% of the segment/year combinations; Figure 2). By normalizing annual TN loads to the hydrologic load that was observed in 1992-1994, the apparent disconnect between TN loads and resulting chlorophyll *a* targets can be addressed.

The following method is proposed for assessing whether observed TN loads estimated in future RA updates are in compliance with the federally-recognized TMDL relative to the hydrologic conditions observed during the 1992-1994 and future assessment time periods.

1. In total, the ratio of 1992-1994 TN load to 1992-1994 hydrologic load for each bay segment is determined as the benchmark for compliance assessment. These bay segment-specific observed "N Delivery Ratios" are then applied to the range of observed hydrologic conditions for a particular bay segment (compliance line in Figure 3).

2. For any one year or series of years in future assessments, the observed bay segment TN load will be evaluated against the "N Delivery Ratio" compliance line established for each bay segment (Figure 3).

3. For direct comparison of the federally-recognized TMDL, the observed TN load can also be normalized using the ratio of hydrologic conditions observed during the assessment period to the 1992-1994 baseline period, as follows:

$$\text{Normalized TN Load} = \text{Observed TN load} \times \frac{\text{Baseline Hydrologic Load}}{\text{Observed Hydrologic Load}}$$

This bay segment normalized TN load will be used to assess compliance with the bay segment federally-recognized TMDL value. The Consortium is scheduled to make recommendations for compliance assessment of entities and individual facilities within the next several months.

A comparison of the annual observed TN loads to observed hydrologic loads for each bay segment between 1995 and 2007 is shown graphically in Figure 3. Points below the ratio line in each graphic would be in compliance with the federally-recognized TMDL after taking into account differences in hydrologic conditions between the assessment and 1992-1994 time periods.

Figure 1: Observed bay segment TN loads, 1985-2007. The solid horizontal line in each graphic depicts the average TN load for 1992-1994 (i.e., the TMDL load).

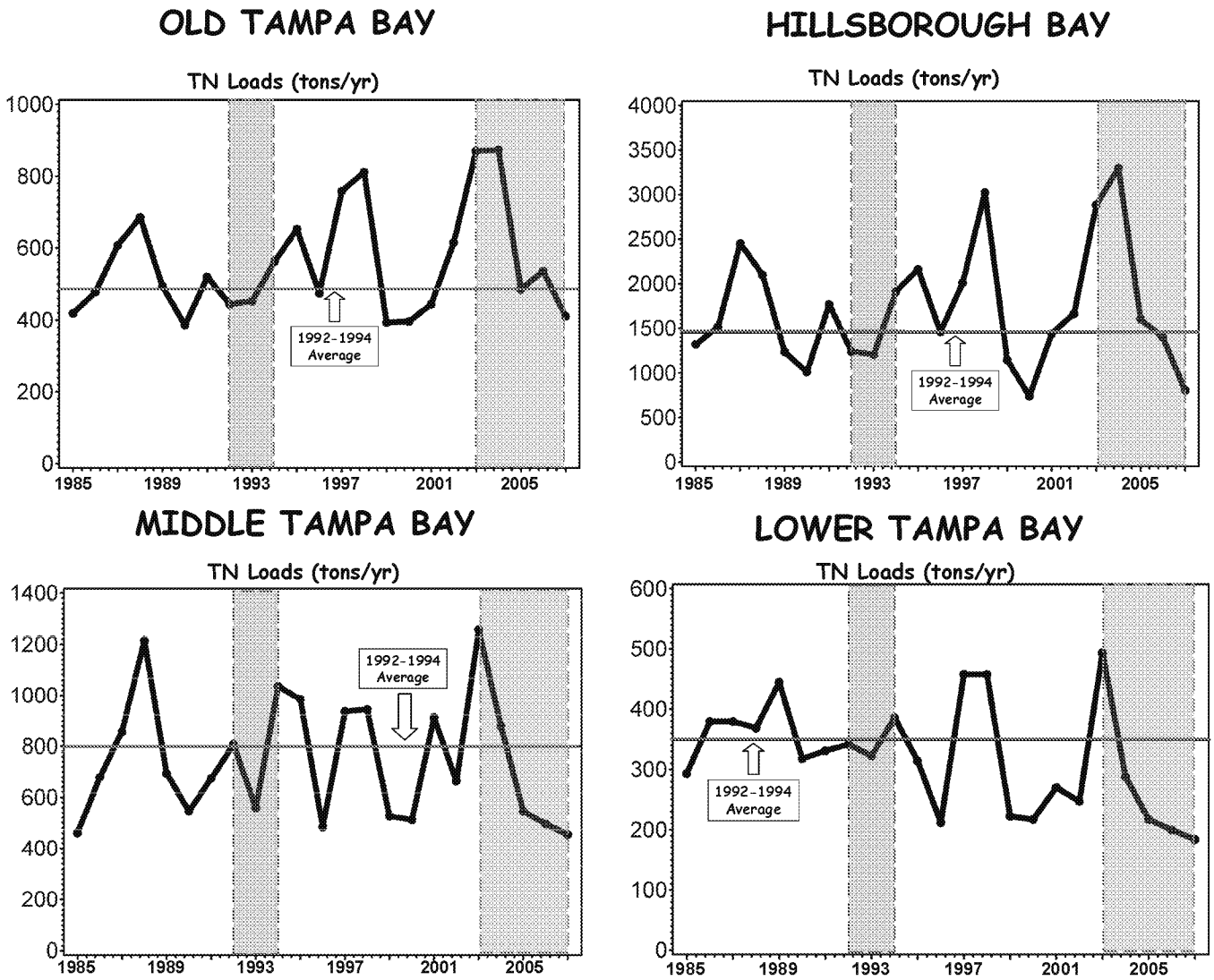


Figure 2. Compliance with FDEP recognized annual mean chlorophyll *a* concentration targets for the four major bay segments, 1974-2007. Green = annual chl-*a* concentration at or below target value; Red = annual chl-*a* concentration above target value.

Year	Hills. Bay	Old Tampa Bay	Mid. Tampa Bay	Lower Tampa Bay
1974	Red	Red	Red	Green
1975	Red	Red	Red	Green
1976	Red	Red	Red	Green
1977	Red	Red	Red	Red
1978	Red	Red	Red	Green
1979	Red	Red	Red	Red
1980	Red	Red	Red	Red
1981	Red	Red	Red	Red
1982	Red	Red	Red	Red
1983	Red	Red	Red	Red
1984	Green	Green	Red	Green
1985	Red	Red	Red	Green
1986	Red	Red	Green	Green
1987	Green	Red	Red	Green
1988	Green	Green	Green	Green
1989	Green	Red	Green	Green
1990	Green	Red	Green	Green
1991	Green	Green	Green	Green
1992	Green	Green	Green	Green
1993	Green	Green	Green	Green
1994	Red	Red	Red	Red
1995	Red	Red	Red	Green
1996	Green	Green	Green	Green
1997	Green	Green	Green	Green
1998	Red	Red	Red	Red
1999	Green	Green	Green	Green
2000	Green	Green	Green	Green
2001	Green	Green	Green	Green
2002	Green	Green	Green	Green
2003	Green	Red	Green	Green
2004	Green	Red	Green	Green
2005	Green	Green	Green	Red
2006	Green	Green	Green	Green
2007	Green	Green	Green	Green

FDEP Recognized Targets:

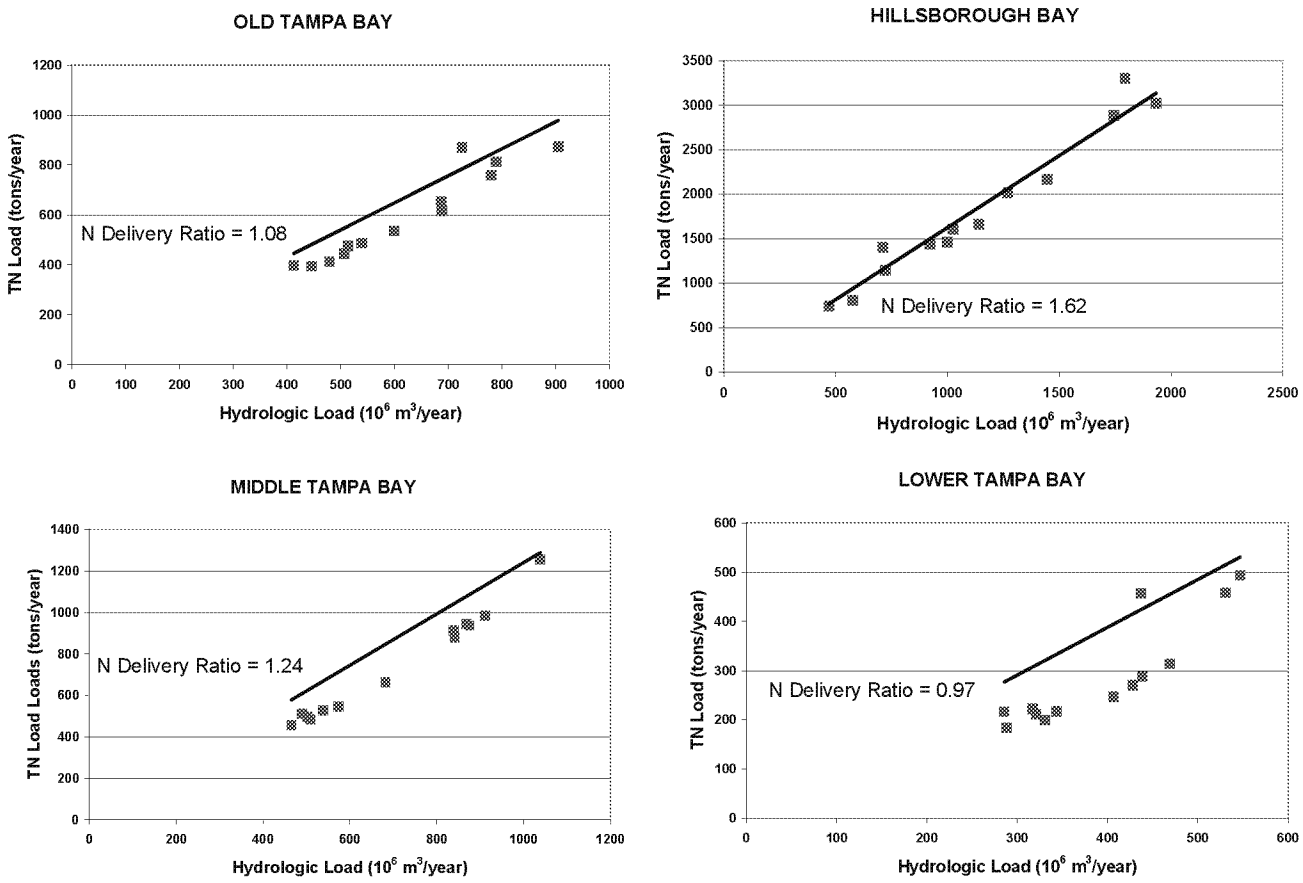
Hillsborough Bay - 15.0 ug/L

Old Tampa Bay - 9.3 ug/L

Middle Tampa Bay - 8.5 ug/L

Lower Tampa Bay - 5.1 ug/L

Figure 3. Observed annual TN loads compared to observed hydrologic loads, 1995- 2007. The straight line on each graphic depicts the 1992-1994 TN load:hydrologic load ratio, or benchmark "N Delivery Ratio."



From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 13, 2009 12:30 PM
To: holly greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov; Giattina.Jim@epamail.epa.gov; Coram, Phil; Drew, Richard; Greenwell, Jeff; Kovach, Charles
Subject: TBNMC Recommendations

Holly,

This is in response to your January 29, February 10, and February 12 e-mails requesting the Department's position on Actions 10 and 11, and clarification on the process the Department plans to follow to convert the recommended allocations into permit limits for individual permits. We have reviewed the three issues raised by the Tampa Bay Nitrogen Management Consortium (Consortium), and our specific responses are provided below.

1) Action #10

We agree with the Consortium's clarification/re-statement of the 2007 RA agreement that, as part of the re-allocation process, the total bay-segment-specific TMDL will remain the same as in the 1998 federally-approved TMDL, but that the allocations for different source categories can be revised to reflect the Consortium's proposed allocations to individual permitted facilities and unpermitted source. As further clarification, we anticipate that loads from Municipal Separate Storm Sewer Systems (MS4s), which were previously placed in the nonpoint source load category, will be placed under a separate wasteload allocation for NPDES stormwater discharges.

2) Action #11

We remain open to the concept of incorporating segment-specific hydrologic adjustments to normalize conditions to those observed during the TMDL baseline period (1992-1994). However, it is still not clear from the February submittal how the adjustments will be used in the allocation and assessment process. We acknowledge that some of this information was presented at the last Consortium meeting (including description of how adjustments would be used to determine compliance with target reductions at the bay segment and individual facility level), but it is our understanding that the Consortium has not made final recommendations on these issues. As such, we will defer a final decision on the hydrologic adjustments until the Consortium provides more detailed recommendations on these implementation issues.

3) Anticipated Process to Assign Permit Limits

As indicated in our May 28, 2008 letter to the Consortium, we plan to adopt the entity-specific allocations in the RA submittal as Water Quality-Based Effluent Limits (WQBELs) by Secretarial Order, pursuant to Chapter 62-650, Florida Administrative Code (relevant portions attached). As part of the adoption process, the Department will issue a notice of proposed agency action and provide notice to the each entity receiving an allocation and any other parties substantially affected by the WQBEL. This notice provides a 21-day period for interested parties to file a petition for an administrative hearing to

challenge the WQBEL (petitions must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first). The rule requires that the notice include a statement indicating the date by which compliance with the WQBEL is required, and we currently plan to include a general statement that the WQBELs will be used to set permit limits as part of the next permit renewal (the permit will allow for a reasonable compliance schedule).

After the notice period is over, the Department plans to issue a Secretarial Order that will list the allocations as effluent limits, noting that the WQBELs will be used to set permit limits upon permit renewal. The allocations will be final and binding, and all permits issued will be consistent with the order.

We would like to remind the Consortium that our previous approval of the 2007 RA Update was contingent on (among other things) a resolution signed by the Consortium members accepting the revised load allocations and acknowledging that the facility-specific wasteload allocations will be adopted by FDEP as WQBELs. While this resolution is important, we must move forward with the adoption of WQBELs even if the resolution is not unanimous. However, we will not be able to conclude that reasonable assurance exists until after the WQBELs are in effect.

We would like to take this opportunity to encourage entities to continue their participation with the Consortium to develop the entity-specific allocations. We believe the cooperative, stakeholder-driven process is the best way to attain equitable allocations and WQBELS that ensure that the cumulative loading to the bay will not lead to an imbalance in flora or fauna. Further, we would like to note that the Consortium's approach, which includes hydrologic adjustments, aggregate allocations, and potentially trading, provides strong incentives for entities to participate.

While we encourage entities to continue to participate with the Consortium, we would like to be involved in the determination of existing loadings for some industrial wastewater facilities that have highly variable effluent flow due to rainfall. We are willing to work with the Consortium and representatives of these facilities on their allocations, but would like to make it clear to the facility representatives that the discussion is still part of the Consortium's allocation process.

We very much appreciate the Consortium efforts to reallocate the TMDL as part of the Reasonable Assurance (RA) process, and agree that it is important for the NMC to document its recommendations, and our position on those recommendations, along the way. If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thank you,

Drew Bartlett, Assistant Director
Department of Environmental Assessment and Restoration

Applicable Text From Chapter 62-650

WATER QUALITY BASED EFFLUENT LIMITATIONS F.A.C.

(8) After the Department has reviewed the WQBEL technical report and evaluated other factors as indicated above, the district office shall issue a notice of proposed agency action pursuant to Rule 62-103.150, F.A.C., and provide notice to the affected dischargers, and any other parties substantially affected by the WQBEL technical report. This notice shall set forth those WQBELs that have been established by the Level II process and may include any conditions or monitoring requirements to be imposed on the affected discharge(s). The notice shall include a statement indicating the date by which compliance with the requirements of the notice must be achieved. Compliance with WQBELs as set forth in the letter of notice may be required:

(a) For Existing Dischargers:

1. Within 90 days of final agency action when public health impacts or serious adverse environmental impacts are occurring with the present discharge (modification of the existing permit pursuant to Rule 62-4.080, F.A.C., may be initiated depending upon the severity of the impact), or

2. Within a period of time defined in a compliance schedule based on a consideration of the current or potential environmental and public health impacts of the discharge or other permitting factors, or

3. At the time of the next operating permit renewal.

(b) For Proposed Dischargers: At the time of the issuance of a construction permit for a new discharger.

(9) The Department shall issue a final order, which may be a permit, setting forth the effluent limits and permitting requirements and the required date of compliance with the specified requirements. The requirements thereof shall be final and binding for a period of five years except as provided for in Rule 62-650.500(10), F.A.C., below. All permits issued during that time shall be in conformity with the order establishing the WQBELs. Other permit provisions shall be established at the time a permit is issued.

(10) The Department may modify the WQBELs that are established by this process under the same circumstances and by the same procedures as are specified for permit modifications under Rules 62-4.080, F.A.C., and 62-4.242(2), F.A.C.

Specific Authority 403.051, 403.061, 403.062, 403.087, 403.088 FS. Law Implemented 403.021, 403.051, 403.061, 403.062, 403.085, 403.086, 403.087, 403.088 FS. History-

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FEB 2 6 2009

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

The Environmental Protection Agency (EPA) received your three letters concerning several aspects of the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) process to reallocate the nutrient Total Maximum Daily Load (TMDL) for Tampa Bay. In your letters, you specifically request EPA's response regarding the reallocation of the TMDL's total nitrogen (TN) loads, the incorporation of segment-specific hydrologic adjustments to normalize TMDL conditions and the overall process to assign permit limits to the point sources in Tampa Bay. This letter provides the TBEP and the Consortium our response to these requests.

With regards to your first letter concerning TBEP's and the Consortium's process to reallocate the federally approved nutrient TMDL for Tampa Bay, EPA maintains its highest support of this process. We understand that the reallocation process will include reallocating the overall total nitrogen (TN) load as expressed in the 1998 federally approved nutrient TMDL for Tampa Bay across all TN sources in the four major segments in Tampa Bay(Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay).

The second letter specifically requests EPA's feedback regarding the incorporation of segment-specific hydrologic adjustments in the reallocation process. Based on the information presented in your letter and at our meeting on January 14, 2009, the Consortium's approach to create consistent hydrologic conditions to those conditions presented in the TMDL baseline period (1992-1994) appears reasonable. With regards to permit limits, we understand that this approach will be applied under wet and dry conditions. We are looking forward to reviewing the normalized TN loads that are associated with the hydrologic adjustments.

In the third letter, you request a general overview of the anticipated process to assign permit limits from the recommended allocations the TBEP and the Consortium determine through their reallocation process. Because the Florida Department of Environmental Protection is authorized to issue these National Pollutant Discharge Elimination System (NPDES) permits, they have the primary responsibility for this

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assignment. The EPA's role in this regard will be to overview selected NPDES permits to ensure that those limits are consistent with any allocations that are developed.

Thank you for the opportunity for EPA to provide feedback to this ongoing critical process to reallocate the nutrient TMDL for Tampa Bay. If we may be of further assistance, please feel free to contact Jennifer Eason of my staff at 404-562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.12. Clarification of Regulatory Process after Reasonable Assurance is Submitted (February 12, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Holly Greening, TBEP Executive Director

DATE: February 12, 2009

SUBJECT: Clarification of process after Reasonable Assurance is submitted

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell, Chris Thomas (EPA Region 4)
Ed Sherwood (TBEP)
Rob Brown, Jeff Stewart (Consortium Co-chairs)

As the Consortium moves forward in their discussion of proposed TN allocations to entities and facilities, it will be important for them to understand the process that the Department will be employing to move from the Consortium's recommended allocations to individual permits. The Consortium will provide their recommendations for assessing compliance with the finalized recommended allocations in their Assessment and Allocation Report as part of the 2009 Reasonable Assurance document.

In my role as coordinator of the Consortium, I would like to request a summary of your anticipated process to assign permit limits from recommended allocations determined through the RA process. I would like to provide this summary to the Consortium members prior to their next meeting on February 27th, if possible. Details are not needed at this time, but a general overview would be very helpful to ensure that all entities and facility operators are cognizant of the regulatory process that will ensue once allocations are established.

As you know, we are striving to develop fair and equitable allocations for all sources, and are making every attempt to ensure that all Consortium members remain at the table. Your assistance with defining the expected process to move from recommended allocations in the Reasonable Assurance to individual permits at this point of the discussion is much appreciated.

ED_002491_00001148-00288

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 13, 2009 12:30 PM
To: holly greening
Cc: Joyner, Daryll; Eason.Jennifer@epamail.epa.gov; Giattina.Jim@epamail.epa.gov; Coram, Phil; Drew, Richard; Greenwell, Jeff; Kovach, Charles
Subject: TBNMC Recommendations

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Thank you,

Drew Bartlett, Assistant Director
Department of Environmental Assessment and Restoration

Applicable Text From Chapter 62-650

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Specific Authority 403.051, 403.061, 403.062, 403.087, 403.088 FS. Law Implemented 403.021, 403.051, 403.061, 403.062, 403.085, 403.086, 403.087, 403.088 FS. History-

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FEB 2 6 2009

Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

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assignment. The EPA's role in this regard will be to overview selected NPDES permits to ensure that those limits are consistent with any allocations that are developed.

Thank you for the opportunity for EPA to provide feedback to this ongoing critical process to reallocate the nutrient TMDL for Tampa Bay. If we may be of further assistance, please feel free to contact Jennifer Eason of my staff at 404-562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.13. Adoption of RA Chlorophyll-a Targets as Site-Specific Numeric Nutrient Criteria (Mar. 11, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Jim Giattina, US EPA Region 4
Drew Bartlett, FDEP

FROM: Rob Brown, NMC Local Government Co-Chair
Jeff Stewart, NMC Industry Co-Chair

DATE: March 9, 2009

SUBJECT: #13- Request for adoption of Tampa Bay Reasonable Assurance chlorophyll-a targets as site-specific numeric nutrient water quality criteria

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen, Daryll Joyner, Richard Drew, Phil Coram (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell, Chris Thomas (EPA Region 4)
Holly Greening, Ed Sherwood (TBEP)

On January 14, 2009, the EPA issued a formal determination under the Clean Water Act that numeric nutrient water quality criteria are necessary in Florida, and requested that Florida accelerate its efforts to adopt numeric nutrient criteria into state regulations. EPA expects proposed numeric nutrient criteria for lakes and flowing waters within 12 months, and for estuaries and coastal waters, within 24 months of the January 14, 2009 determination.

At the Nitrogen Management Consortium's February 5, 2009 meeting, members questioned how the development of general Florida numeric nutrient criteria will affect implementation of the Tampa Bay Reasonable Assurance (RA). Currently, the state has accepted site-specific thresholds for chlorophyll-a in each of the major bay segments as water quality targets under the RA update. Consortium members had the following concerns if new state criteria were developed:

- Could the development of state numeric nutrient criteria supersede the established site-specific RA thresholds?
- Will emerging numeric nutrient criteria be incorporated into state rule (IWR)? If so, could the site-specific thresholds recognized under the Tampa Bay RA be adopted into rule as well?
- Once established, could the emerging state criteria effectively alter allocations determined and finalized in the RA update submittal to FDEP?
- How will numeric nutrient criteria be implemented for MS4 operators?

Consortium members request that in light of these outstanding issues that EPA and FDEP adopt the site-specific RA chlorophyll-a thresholds as site-specific numeric nutrient criteria for Tampa

Bay proper. This measure would ensure consistency between the upcoming nutrient criteria regulatory requirements and thresholds adopted through the Tampa Bay Reasonable Assurance determination.

Consortium members respectfully request that EPA/FDEP provide some guidance on these matters prior to our next meeting, scheduled for March 26, 2009.

-----Original Message-----
From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 27, 2009 4:05 AM
To: hgreening@tbep.org; Joyner, Daryll; Greenwell, Jeff; Kovach, Charles
Cc: Drew, Richard; Coram, Phil; Hewitt, Betsy; Brooks, Jerry; eason.jennifer@epa.gov; giattina.jim@epa.gov
Subject: Responses to Decision Memos 13, 14, and 15

Holly,

This is in response to your March 11 e-mail requesting the Department's position on Decision Memos 13, 14, and 15. We have reviewed the three issues raised by the Tampa Bay Nitrogen Management Consortium (Consortium), and our specific responses are provided below.

1) Memo #13 (Adoption of Tampa chl-a targets as SSACs)

As we move forward with the adoption of numeric nutrient criteria, we intend to include rule language that recognizes site specific analysis over numeric criteria that are adopted by waterbody type and region. Site specific analysis can take the form of Total Maximum Daily Loads (TMDLs) or site specific alternative criteria (SSACs). Given the nature of nutrients, it is critical to recognize site specific circumstances of waterbodies in the water quality standards regardless of the forum for which the analysis was conducted. The Department continues to analyze the procedural aspects of implementing this concept, but whatever the procedure turns out to be, site specific analysis established as criteria and approved by EPA will definitely be recognized as the overriding water quality standard.

As part of the numeric criterion rulemaking, the Department is evaluating a new "Type III" SSAC provision that is specific for nutrients that will help provide consistency and help streamline the SSAC process. Initial draft language is available on the Department's numeric nutrient criteria webpage (http://www.dep.state.fl.us/water/wqssp/nutrients/index.htm), but it should be noted that the current language is only applicable to fresh waters, and we will need to develop additional language for estuaries.

The numeric criteria will be adopted in Florida's Surface Water Quality Standards (Chapter 62-302, F.A.C.), and the Impaired Waters Rule (IWR, Chapter 62-303, F.A.C.) will be revised to implement the new criteria. The specific revisions needed to the IWR are not yet known for chlorophyll a because we do not know whether we will adopt water quality criteria for chlorophyll a in Chapter 62-302, or rely on the current chlorophyll a thresholds (and site-specific thresholds) in the IWR. However, regardless of the approach, we believe the chlorophyll a targets developed by the Tampa Bay Estuary Program are sound and should supercede the adopted chlorophyll a criteria/thresholds, either as an approved SSAC or as a site-specific listing threshold.

Assuming the bay segment targets are approved as SSACs or otherwise are deemed to supercede the adopted numeric criteria, the criteria adopted as part of the overall numeric nutrient criteria effort will not effect the allocations in the final RA update. As indicated in a separate

response related to MS4 permitting, MS4s will be required to implement the projects needed to meet their allocations listed in the RA demonstration and adopted
as WQBELS.

2) Memo #14 (Process to replace the federally-recognized nitrogen TMDL)

It has been our understanding for some time that EPA will revise the federally-approved TMDL for Tampa Bay to reflect, or otherwise federally recognize, the revised allocations that are submitted by the Consortium and adopted by the Department as WQBELs. We also understand that the concept of rescinding the TMDL was previously discussed with EPA and will defer to EPA to answer whether this is an option under federal law, and to describe the process to either revise or rescind the TMDL.

3) Memo #15 (Clarification of Watershed Boundaries)

Based on a comparison of the Consortium's and Department's watershed and WBID boundaries, there seem to be only minor differences between the watershed boundaries and we agree with the proposed watershed assignments for the listed facilities. However, we will need to discuss how the reductions in nitrogen loading via reduced air emissions from the TECO Big Bend facility will be assigned to the different watersheds.

If you have any questions about our responses, please call Daryll Joyner at(850) 245-8431 or me at (850)245-8446.

Thank you,

Drew

The Department of Environmental

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Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

APR 6 2009

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

The U.S. Environmental Protection Agency (EPA), Region 4, received your memorandum concerning three aspects of the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) process to reallocate the nutrient Total Maximum Daily Load (TMDL) for Tampa Bay. In your memorandum you specifically requested EPA to respond to the following: 1) adopt the Tampa Bay Reasonable Assurance chlorophyll-a targets as site-specific numeric water quality criteria, 2) determine whether the federally-recognized TMDL can be revised or replaced to be consistent with the Tampa Bay Reasonable Assurance document, and 3) provide clarification on the watershed boundaries used to define the bay segments in Tampa Bay. The following is our response to the requests.

EPA Region 4 is working closely with the Florida Department of Environmental Protection (FDEP) on the numeric nutrient criteria. Under the January 14, 2009 determination, criteria for estuaries and coastal regions will not be proposed until January 2011. It is reasonable to expect that EPA and FDEP would consider utilizing Tampa Bay's site-specific thresholds for chlorophyll-a in the promulgated criteria.

EPA continues to support the Consortium's process to reallocate the previously approved nutrient TMDL for Tampa Bay. EPA maintains a strong line of communication with FDEP to ensure that the allocations included in the reasonable assurance document will be incorporated into the reallocated TMDL. EPA will review selected NPDES permits to ensure that the limits are consistent with any allocations that are developed as part of the reallocated TMDL process.

Since FDEP is responsible for delineating the watersheds in the State of Florida, they are the appropriate agency to provide the Consortium with any clarification regarding the boundaries used to define the bay segments in Tampa Bay.

ED_002491_00001148-00299

If you have any questions regarding our response to your three requests, please contact Jennifer Eason at (404) 562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.14. Process to Replace Federally-Recognized TMDL with RA Determination (Mar. 11, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Jim Giattina, US EPA Region 4
Drew Bartlett, FDEP

FROM: Rob Brown, NMC Local Government Co-Chair
Jeff Stewart, NMC Industry Co-Chair

DATE: March 9, 2009

SUBJECT: #14- Process to replace the federally-recognized nitrogen TMDL for Tampa Bay with the Reasonable Assurance determination

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen, Daryll Joyner, Richard Drew (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell, Chris Thomas (EPA Region 4)
Holly Greening, Ed Sherwood (TBEP)

During our meeting in Atlanta on January 14, 2009 to discuss the incorporation of hydrologic considerations into the Tampa Bay nitrogen TMDL, the notion of replacing the federally-recognized TMDL was briefly discussed. The rationale for potentially replacing or rescinding the federally-recognized TMDL is:

- The Tampa Bay Estuary Program partners developed and approved resource goals (seagrass acreage recovery) and a nitrogen management strategy to meet the resource goals in 1996. The public and private partners in the Tampa Bay Nitrogen Management Consortium committed to implementing the strategy prior to EPA's adoption of the nutrient TMDL for Tampa Bay.
- An approved nutrient load reduction plan (Tampa Bay Reasonable Assurance) was accepted by the state to establish and maintain nitrogen load and water quality targets for Tampa Bay pursuant to the 1999 Watershed Restoration Act. Therefore, the 1998 state-recommended TMDL to EPA was never ratified as a state TMDL, and inconsistencies exist between the state and federal definitions of the nutrient impairment status of Tampa Bay;
- Annual water quality assessments show that the bay has consistently met established water quality targets since the state-approved Reasonable Assurance Plan has been in place (2002). The 2008 results show that state-approved chlorophyll *a* targets continue to be met in all four major bay segments.
- The federally-recognized TMDL loads originally proposed by the state for Tampa Bay were not developed to represent the maximum amount of nitrogen the bay can assimilate and still maintain water quality targets, and therefore most likely do not represent the bay's nitrogen assimilative capacity.

Given these circumstances, the Consortium requests that the EPA and FDEP provide a formal determination on whether the federally-recognized TMDL can be replaced with the RA determination of the State, and the process or procedure necessary to do so. Federal recognition of the Reasonable Assurance determination would address the existing legal inconsistency between State and Federal definitions of the impairment status of Tampa Bay.

But for the timing and legal disconnect between the 1998 TMDL and the State's approval of the Consortium's RA determination pursuant to the Florida Watershed Restoration Act approved in 1999, Tampa Bay would seem to fall squarely into the State's Category 4b: "Impaired for one or more designated uses but does not require TMDL development because the water will attain water quality standards due to existing or proposed measures." As concluded by FDEP in May 2008, the Consortium's 2007 Update provides continued reasonable assurance that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed. In addition, as presented during the January meeting with EPA, the Consortium has provided the appropriate measures to assure that Tampa Bay continues to meet nutrient water quality standards.

The Consortium understands that, if the federally-recognized TMDL is replaced with the State's RA determination, TN load allocations will still be required to all entities and sources within the Tampa Bay watershed to ensure the continued maintenance of target water quality conditions to support seagrass recovery. The Consortium remains committed to develop fair and equitable allocations for all sources through the Reasonable Assurance process.

Your assistance in determining whether the federally-recognized TMDL can be revised or replaced to be consistent with the RA determination of the State is much appreciated. We request a response from EPA and FDEP by March 26, 2009, prior to our scheduled Consortium meeting on March 27th.

-----Original Message-----
From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 27, 2009 4:05 AM
To: hgreening@tbep.org; Joyner, Daryll; Greenwell, Jeff; Kovach, Charles
Cc: Drew, Richard; Coram, Phil; Hewitt, Betsy; Brooks, Jerry; eason.jennifer@epa.gov; giattina.jim@epa.gov
Subject: Responses to Decision Memos 13, 14, and 15

Holly,

This is in response to your March 11 e-mail requesting the Department's position on Decision Memos 13, 14, and 15. We have reviewed the three issues raised by the Tampa Bay Nitrogen Management Consortium (Consortium), and our specific responses are provided below.

1) Memo #13 (Adoption of Tampa chl-a targets as SSACs)

As we move forward with the adoption of numeric nutrient criteria, we intend to include rule language that recognizes site specific analysis over numeric criteria that are adopted by waterbody type and region. Site specific analysis can take the form of Total Maximum Daily Loads (TMDLs) or site specific alternative criteria (SSACs). Given the nature of nutrients, it is critical to recognize site specific circumstances of waterbodies in the water quality standards regardless of the forum for which the analysis was conducted. The Department continues to analyze the procedural aspects of implementing this concept, but whatever the procedure turns out to be, site specific analysis established as criteria and approved by EPA will definitely be recognized as the overriding water quality standard.

As part of the numeric criterion rulemaking, the Department is evaluating a new "Type III" SSAC provision that is specific for nutrients that will help provide consistency and help streamline the SSAC process. Initial draft language is available on the Department's numeric nutrient criteria webpage (http://www.dep.state.fl.us/water/wqssp/nutrients/index.htm), but it should be noted that the current language is only applicable to fresh waters, and we will need to develop additional language for estuaries.

The numeric criteria will be adopted in Florida's Surface Water Quality Standards (Chapter 62-302, F.A.C.), and the Impaired Waters Rule (IWR, Chapter 62-303, F.A.C.) will be revised to implement the new criteria. The specific revisions needed to the IWR are not yet known for chlorophyll a because we do not know whether we will adopt water quality criteria for chlorophyll a in Chapter 62-302, or rely on the current chlorophyll a thresholds (and site-specific thresholds) in the IWR. However, regardless of the approach, we believe the chlorophyll a targets developed by the Tampa Bay Estuary Program are sound and should supercede the adopted chlorophyll a criteria/thresholds, either as an approved SSAC or as a site-specific listing threshold.

Assuming the bay segment targets are approved as SSACs or otherwise are deemed to supercede the adopted numeric criteria, the criteria adopted as part of the overall numeric nutrient criteria effort will not effect the allocations in the final RA update. As indicated in a separate

response related to MS4 permitting, MS4s will be required to implement the projects needed to meet their allocations listed in the RA demonstration and adopted
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ED_002491_00001148-00306

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Sincerely,

James D. Giattina
Director
Water Protection Division

A.15. Clarification of TBEP Bay Segment Boundaries and Point Sources Discharging to Each Segment (Mar. 11, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Jim Giattina, US EPA Region 4
Drew Bartlett, FDEP

FROM: Rob Brown, NMC Local Government Co-Chair
Jeff Stewart, NMC Industry Co-Chair

DATE: March 9, 2009

SUBJECT: #15- Clarification of Tampa Bay Estuary Program watershed boundaries and sources discharging to Lower Tampa Bay, Middle Tampa Bay, Hillsborough Bay and Old Tampa Bay

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen, Daryll Joyner, Richard Drew, Phil Coram (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell, Chris Thomas (EPA Region 4)
Holly Greening, Ed Sherwood (TBEP)

At the Nitrogen Management Consortium's February 27, 2009 meeting, members requested that FDEP and EPA provide formal concurrence on the boundaries used to define the major bay segments of Tampa Bay. Please find attached a shapefile and PDF map defining these boundaries (Figure 1). The 68 major point sources (preliminarily identified as discharging >0.1MGD on average) for which allocations will be developed in the 2009 Reasonable Assurance Update and the major bay segment to which they discharge are listed in Table 1.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

On behalf of the Tampa Bay Nitrogen Management Consortium, the TBNMC Co-Chairs respectfully request that FDEP and EPA provide concurrence on the bay segment boundaries used to define WLA and LA sources in the watershed. In addition, the TBNMC Co-Chairs request for FDEP and EPA concurrence of the bay segment assignments to each major point source as listed in Table 1 during the Tampa Bay re-allocation process.

Table 1: The 68 major point sources identified in the Tampa Bay Reasonable Assurance Update and their associated discharge locations in the watershed (bay segment assignment).

Facility Name	Permit No.	Type	Bay Segment(s) Assignment	Facility and/or Discharge Location	
				Latitude	Longitude
South Cross Bayou AWWTF	FL0040436	Domestic	Boca Ciega Bay	27.8209950	-82.7402060
South County Regional WWTP	FL0028061	Domestic	HB/MTB	27.7239740	-82.3857010
Agrifos Nichols Preparation Complex	FL0000299	Industrial	Hillsborough Bay	27.9089300	-82.0145290
AOC, LLC	FL0029653	Industrial	Hillsborough Bay	28.1006560	-82.0065320
Brewster Phosphogypsum Stack System	FL0132381	Industrial	Hillsborough Bay	27.7895200	-81.9777290
CF Industries Bartow	FL0000523	Industrial	Hillsborough Bay	27.8664250	-81.9283480
CF Industries Tampa Ammonia Terminal	FL0187313	Industrial	Hillsborough Bay	27.9175460	-82.4394050
CF Industries Tampa Phosphate Warehouse	FL0166057	Industrial	Hillsborough Bay	27.9271920	-82.4352070
CF Industries, Inc. Plant City Chemical Complex	FL0000078	Industrial	Hillsborough Bay	28.1606140	-82.1537960
City of Lakeland Glendale WRF	FL0039772	Domestic	Hillsborough Bay	28.0075190	-81.9278260
City of Zephyrhills WWTF	FLA012744	Domestic	Hillsborough Bay	28.2194130	-82.1601080
Coronet Industries Inc.	FL0034657	Industrial	Hillsborough Bay	27.9869950	-82.0817180
CSX Transportation Winston Yard	FL0032581	Industrial	Hillsborough Bay	28.0226700	-82.0049730
Estech, Inc. - Agricola Plant	FL0160083	Industrial	Hillsborough Bay	27.7900000	-81.8838900
Exxon-Mobil ElectroPhos Site	FL0002666	Industrial	Hillsborough Bay	27.8359640	-81.9610350
Falkenburg Road AWWTP	FL0040614	Domestic	Hillsborough Bay	27.9525720	-82.3351680
Howard F. Curren AWWTF	FL0020940	Domestic	Hillsborough Bay	27.9104360	-82.4402810
Kerry I&F Contracting (fka Master Taste, Crystals International)	FL0037389	Industrial	Hillsborough Bay	28.0124420	-82.1333680
Kinder Morgan Ammonia Facility (fka IMC Port Sutton)	FL0000264	Industrial	Hillsborough Bay	27.9061280	-82.4071270
Kinder Morgan Hartford Terminal (fka Nitram)	FL0001643	Industrial	Hillsborough Bay	27.9117890	-82.3950550
Kinder Morgan Port Sutton (fka Pakhoed Dry Bulk)	FL0122904	Industrial	Hillsborough Bay	27.9007820	-82.4177990
Mosaic Bartow Phosphate Complex	FL0001589	Industrial	Hillsborough Bay	27.8947220	-81.9209880
Mosaic Fertilizer LLC Riverview Chemical Complex	FL0000761	Industrial	Hillsborough Bay	27.8635750	-82.3850470
Mosaic Fort Lonesome Mine	FL0033332	Industrial	Hillsborough Bay	27.8931000	-81.9908940
Mosaic Green Bay	FL0000752	Industrial	Hillsborough Bay	27.8331100	-81.8785490
Mosaic Hookers Prairie Mine	FL0033294	Industrial	Hillsborough Bay	27.7943000	-81.9822040
Mosaic Hopewell Mine	FL0032590	Industrial	Hillsborough Bay	27.9152710	-82.1266650
Mosaic Kingsford Mine Complex	FL0000256	Industrial	Hillsborough Bay	27.7943000	-81.9822040
Mosaic Mulberry	FL0000671	Industrial	Hillsborough Bay	27.8940200	-81.9731240
Mosaic New Wales North Stack Closure	FL0178527	Industrial	Hillsborough Bay	27.8506630	-82.0543530
Mosaic Nichols Plant Stack Closure	FL0030139	Industrial	Hillsborough Bay	27.8878900	-82.0278560
Mosaic Riverview Closed Phosphogypsum Stack	FL0177130	Industrial	Hillsborough Bay	27.8635750	-82.3850470
Mosaic South Pierce	FL0000370	Industrial	Hillsborough Bay	27.7434550	-81.9640480
Mulberry WWTP	FL0020338	Domestic	Hillsborough Bay	27.8931310	-81.9769260
Pebble Creek AWWTP	FL0039896	Domestic	Hillsborough Bay	28.1562010	-82.3458780
Plant City WRF	FL0026557	Domestic	Hillsborough Bay	28.0173150	-82.1253940
Southeast Pasco Subregional WWTF	FLA012737	Domestic	Hillsborough Bay	28.2241880	-82.3658080
Southwest Regional WWTF	FLA012954	Domestic	Hillsborough Bay	27.9100240	-81.9945840
TECO Bayside (fka Gannon)	FL0000809	Industrial	Hillsborough Bay	27.9065290	-82.4222480
Trademark Nitrogen Corporation	FL0000647	Industrial	Hillsborough Bay	27.9544050	-82.3529670
Valrico AWWTP	FL0040983	Domestic	Hillsborough Bay	27.9871090	-82.2195680
Wesley Center Subregional WWTF	FLA016094	Domestic	Hillsborough Bay	28.2666060	-82.3203060
Yara North America Port Sutton Ammonia Terminal	FL0038652	Industrial	Hillsborough Bay	27.9062480	-82.4245470
Manatee County North Regional WRF	FLA012617	Domestic	Lower Tampa Bay	27.5716980	-82.4780150

Facility Name	Permit No.	Type	Bay Segment(s) Assignment	Facility and/or Discharge Location	
				Latitude	Longitude
Piney Point Facility	FL0000124	Industrial	Lower Tampa Bay	27.6335650	-82.5395210
City of Bradenton WRF	FL0021369	Domestic	Manatee River	27.4991350	-82.5797310
Manatee County Southeast Regional WRF	FLA012618	Domestic	Manatee River	27.4696860	-82.4586270
Tropicana Products Inc.	FL0000043	Industrial	Manatee River	27.4881800	-82.5541940
MacDill AFB WWTP	FLA012124	Domestic	Middle Tampa Bay	27.8537580	-82.4889470
Mosaic Four Corners Mine	FL0036412	Industrial	Middle Tampa Bay	27.6463890	-82.1016700
TECO Big Bend Power Station	FL0000817	Industrial	Middle Tampa Bay	27.7951000	-82.4062000
TECO Big Bend Station	FLA017047	Industrial	Middle Tampa Bay	27.7951000	-82.4062000
Bridgeway Acres Class I Landfill	FL0168505	Industrial	Old Tampa Bay	27.8762330	-82.6739500
City of Clearwater East	FL0021865	Domestic	Old Tampa Bay	27.9605600	-82.7067950
City of Clearwater Northeast	FL0128937	Domestic	Old Tampa Bay	28.0272180	-82.7011380
City of Largo AWWTP	FL026603	Domestic	Old Tampa Bay	27.9084740	-82.7032940
City of Oldsmar WRF	FL0027651	Domestic	Old Tampa Bay	28.0314460	-82.6553910
Dale Mabry AWWTP	FL0036820	Domestic	Old Tampa Bay	28.0689390	-82.5270910
Northwest Regional Water Reclamation Facility	FL0041670	Domestic	Old Tampa Bay	28.0846150	-82.6056920
On Top Of The World WWTP	FLA012905	Domestic	Old Tampa Bay	27.9901420	-82.7370230
River Oaks AWWTP	FL0027821	Domestic	Old Tampa Bay	28.0268680	-82.5827980
Van Dyke WWTP	FLA012234	Domestic	Old Tampa Bay	28.1431400	-82.5460690
William E. Dunn WRF	FL0128775	Domestic	Old Tampa Bay	28.1092530	-82.7646890
City of St. Petersburg Albert Whitted WRF	FLA128830	Domestic	OTB/MTB/BCB	27.7641550	-82.6448210
City of St. Petersburg Northeast WRF	FLA128856	Domestic	OTB/MTB/BCB	27.8283230	-82.6502060
City of St. Petersburg Northwest WRF	FLA128821	Domestic	OTB/MTB/BCB	27.7953170	-82.7424980
City of St. Petersburg Southwest WRF	FLA128848	Domestic	OTB/MTB/BCB	27.7186920	-82.6844190
City of Palmetto	FL0020401	Domestic	Terra Ceia Bay	27.5286620	-82.5708920

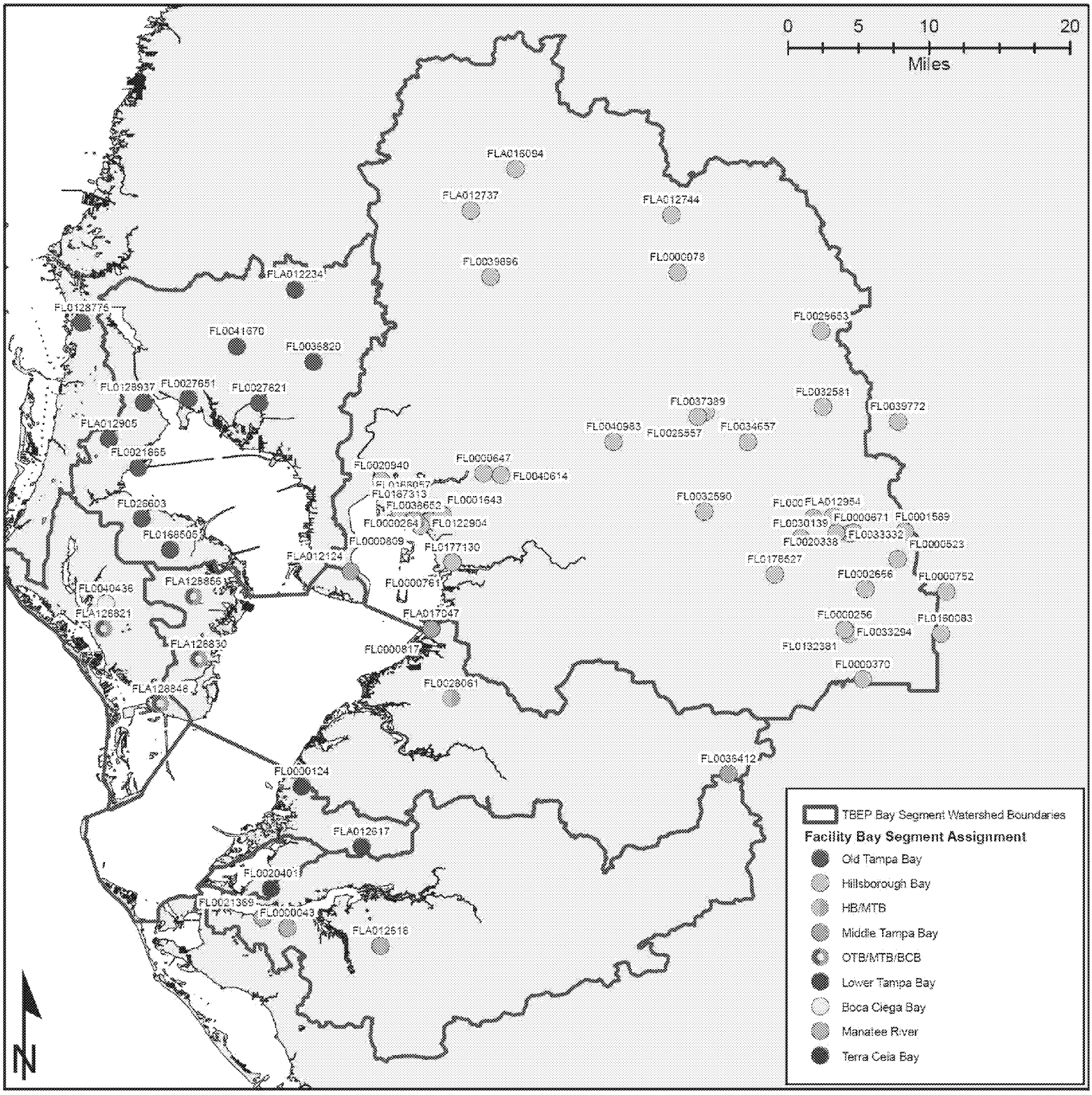

Figure 1: TBEP bay segment boundaries and major point sources (>0.1MGD) contributing loads to the bay segments (color coded to bay segment to which they discharge).

-----Original Message-----
From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, March 27, 2009 4:05 AM
To: hgreening@tbep.org; Joyner, Daryll; Greenwell, Jeff; Kovach, Charles
Cc: Drew, Richard; Coram, Phil; Hewitt, Betsy; Brooks, Jerry; eason.jennifer@epa.gov; giattina.jim@epa.gov
Subject: Responses to Decision Memos 13, 14, and 15

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St. Petersburg, Florida 33701

Dear Ms. Greening:

The U.S. Environmental Protection Agency (EPA), Region 4, received your memorandum concerning three aspects of the Tampa Bay Estuary Program's (TBEP's) and the Tampa Bay Nitrogen Management Consortium's (Consortium's) process to reallocate the nutrient Total Maximum Daily Load (TMDL) for Tampa Bay. In your memorandum you specifically requested EPA to respond to the following: 1) adopt the Tampa Bay Reasonable Assurance chlorophyll-a targets as site-specific numeric water quality criteria, 2) determine whether the federally-recognized TMDL can be revised or replaced to be consistent with the Tampa Bay Reasonable Assurance document, and 3) provide clarification on the watershed boundaries used to define the bay segments in Tampa Bay. The following is our response to the requests.

EPA Region 4 is working closely with the Florida Department of Environmental Protection (FDEP) on the numeric nutrient criteria. Under the January 14, 2009 determination, criteria for estuaries and coastal regions will not be proposed until January 2011. It is reasonable to expect that EPA and FDEP would consider utilizing Tampa Bay's site-specific thresholds for chlorophyll-a in the promulgated criteria.

EPA continues to support the Consortium's process to reallocate the previously approved nutrient TMDL for Tampa Bay. EPA maintains a strong line of communication with FDEP to ensure that the allocations included in the reasonable assurance document will be incorporated into the reallocated TMDL. EPA will review selected NPDES permits to ensure that the limits are consistent with any allocations that are developed as part of the reallocated TMDL process.

Since FDEP is responsible for delineating the watersheds in the State of Florida, they are the appropriate agency to provide the Consortium with any clarification regarding the boundaries used to define the bay segments in Tampa Bay.

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If you have any questions regarding our response to your three requests, please contact Jennifer Eason at (404) 562-9268.

Sincerely,

James D. Giattina
Director
Water Protection Division

A.16. Letter to FDEP: MS4 Monitoring Framework (Apr. 6, 2009)

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

April 6, 2009

Steven Michael Kelly, Program Administrator
NPDES Stormwater Section
Florida Department of Environmental Protection
Mail Station 2500
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: NPDES Phase I Municipal Separate Storm Sewer System (MS4) Program Draft Monitoring Plan Guidance Request for Comment

Dear Mr. Kelly,

The Tampa Bay Nitrogen Management Consortium (NMC) discussed the proposed monitoring guidelines for the state's Phase I MS4 permittees at our March 26 and 27, 2009 meetings. The local monitoring agencies represented within the Consortium agree that the three goals established by FDEP are practical and attainable. The Consortium members maintain that existing ambient monitoring programs, coupled with assessment and reporting through the Tampa Bay Reasonable Assurance process, address these goals for nitrogen management as follows:

- *Identify potential water quality problem areas related to stormwater runoff that can be targeted for corrective action. Corrective action(s) include but are not limited to retrofits, structural BMPs, and non-structural BMPs (e.g., public education, street sweeping);*

  For open waters of Tampa Bay:
  - Continue to use EPCHC's existing baywide ambient monitoring program to provide long-term measures and trends used to identify water quality problem areas and "hot spots" within the open waters of Tampa Bay.
  - Ongoing annual assessment of open water bay water quality based upon the ambient monitoring program data collection efforts will provide a timely response to any identified problem areas that can be targeted for corrective action, as defined by the TBNMC Decision Framework.
  - A full review of status and trends of baywide water quality will occur and be documented through the Reasonable Assurance process every 5 years.

  For watersheds contributing to Tampa Bay:
  - Continue to use existing water quality monitoring programs required for MS4 Part V monitoring requirements for Consortium members to identify water quality problem areas and "hot spots" within the water bodies of the RA boundary of Tampa Bay.
  - Annual reporting of watershed monitoring activities by each Consortium member will continue.

- A full review of status and trends of watershed water quality will occur through the Reasonable Assurance process every 5 years.

Local monitoring entities are participating in the Southwest Florida Regional Ambient Monitoring Program (RAMP), which provides a mechanism for comparability and quality assurance between regional monitoring programs.

- *Measure the effectiveness of stormwater pollution reduction measures (i.e., BMPs) that have been or will be implemented;*
  - Continue project-specific detailed monitoring which is conducted for all projects funded through state 319 funds, other federal stormwater projects, and some SWFWMD cooperative funding projects.
  - Detailed monitoring results from the projects mentioned above are being used to measure effectiveness of BMPs and other stormwater projects. These results may be applied to similar projects within the region in the future. The NMC, with TBEP coordination, plans to track and report the monitoring results of the projects mentioned above through implementation of the TBEP Action Plan Database, which will be updated every 5 years as an element of the Tampa Bay Reasonable Assurance documentation.

- *Identify, define and document land-use specific pollutant loadings, and/or trends in pollutant loadings for specific watersheds or outfalls.*
  - Existing water quality monitoring programs within the Tampa Bay watershed are used to define trends in pollutant concentrations.
  - Existing flow measurements will provide trends in pollutant loading for specific watersheds within the RA region.
  - A full review of status and trends of watershed pollutant loadings will occur through the Reasonable Assurance process every 5 years.

The monitoring programs within the region are robust, and the intent of the RA monitoring strategy is to compile the information from the individual MS4 annual reports into the 5-year Reasonable Assurance documentation.

We look forward to continuing to work with the Department to ensure that MS4 monitoring programs for nitrogen management within the Tampa Bay region meet the needs of all interested parties.

Sincerely,

Rob Brown
TBNMC Local Government Co-Chair
Manatee County

Cc: Tampa Bay Nitrogen Management Consortium members
Drew Bartlett, Phil Coram, Daryll Joyner, FDEP
Holly Greening, Ed Sherwood, TBEP

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Thursday, May 14, 2009 5:49 PM
To: hgreening@tbep.org
Cc: Kovach, Charles; Joyner, Daryll; Livingston, Eric; Greenwell, Jeff; Eason.Jennifer@epamail.epa.gov; Coram, Phil; Kelly, Steven Michael
Subject: NMC #16- MS4 monitoring process

Holly,

This is in response to the Tampa Bay Nitrogen Management Consortium's (Consortium) April 6 letter requesting the Department's feedback on the Consortium's Proposed MS4 Monitoring Framework. You should receive a separate response from Steven Kelly, Program Administrator of the Department's NPDES Stormwater Program, regarding the adequacy of the proposed monitoring towards meeting MS4 Program needs, but I also wanted to provide some brief feedback on the proposed monitoring as it related to the requirements of the Reasonable Assurance (RA) determination.

It is our understanding that the Consortium plans to continue to rely on EPCHC's existing baywide ambient monitoring program to evaluate the response of the bay to the proposed and existing management activities, and we agree that this information, along with the data collected by Manatee County, Pinellas County and the City of Tampa, should provide the key ambient data needed. However, final approval of the monitoring component of the RA submittal cannot, of course, be provided at this time as the Consortium will need to describe it's full Monitoring and Reporting Strategy, including how the Consortium will track implementation of control measures and the final strategy for evaluating progress. As a reminder, the elements that need to be addressed for the Monitoring and Reporting Results section of the RA document include:

a. A description of the water quality monitoring program to be implemented
b. Quality Assurance/Quality Control elements of monitoring
c. Procedures for entering all appropriate data into STORET:
d. Responsible monitoring and reporting entity:
e. Frequency and reporting format for reporting monitoring results:
f. Frequency and format for reporting on the implementation of all proposed management activities:
g. Methods for evaluating progress towards goals.

If you have any questions about our responses, please call Daryll Joyner at (850) 245-8431 or me at (850)245-8446.

Thanks,
Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS 2500
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 13, 2009

Mr. Rob Brown, Manatee County
Local Government Co-Chair
Tampa Bay Nitrogen Management Consortium
100 8th Avenue S.E.
MS I-1 /NEP
St. Petersburg, Florida 33701

RE: MS4 Monitoring Network - NMC Memorandum #16

Dear Mr. Brown:

Thank you for your letter dated April 6, 2009 conveying the Tampa Bay Nitrogen Management Consortium's (TBNMC) comments on the proposed Guidance for Preparing Stormwater Monitoring Plans as Required for Phase I Municipal Separate Storm Sewer System (MS4) Permits."

You and Jeff Stewart also sent a memorandum entitled *MS4 Monitoring Framework* (NMC #16) on April 6, 2009 to Drew Bartlett, FDEP and Jim Giattina, US EPA, requesting concurrence or questions on the Consortium's Tampa Bay Reasonable Assurance (RA) monitoring strategy. This letter provides feedback from the NPDES Stormwater Program on the TBNMC comments on the MS4 monitoring guidance. A separate response from Drew Bartlett will be sent on the RA monitoring strategy.

We concur that portions of the existing municipal separate storm sewer system (MS4) monitoring framework may also support the RA monitoring strategy. However, we need to point out that the RA demonstration process is separate from the monitoring required by individual MS4 permits as each has separate purposes and goals.

As Phase I MS4 permits are reissued or revised in the Tampa Bay area, their monitoring plans may change due to permit specific water quality considerations, changes in water quality standards, impacts on receiving waters, changes in regulatory requirements, or the addition of new permittees.

The following provides specific feedback on your April 6 letter providing comments on the draft DEP MS4 monitoring strategy:

- We concur that use of the EPCHC existing baywide ambient monitoring program as part of a MS4 monitoring strategy is likely to be sufficient to provide long term measures and trends to identify water quality problems and "hot spots" within the open areas of Tampa Bay.
- At this time, we cannot concur that all existing MS4 monitoring plans are sufficient to provide long term measures and trends to identify water quality problems and "hot spots" within the tributaries of Tampa Bay. As discussed above, local impacts to receiving waters may necessitate changes in monitoring strategies.
- We concur that use of the TBEP Action Plan Database to compile and document monitoring results from 319 projects, other federal stormwater water projects, and some SWFWMD cooperative funding projects is a good way to measure the effectiveness of stormwater pollution reduction measures (BMPs) that have been or will be implemented.
- While FDEP does recognize the commitment from MS4 permit holders to collect water quality data and address water quality concerns, at this time, we cannot concur that all existing MS4 monitoring plans are sufficient to identify, define, and document land-use specific pollutant loadings, and/or trends in pollutant loadings for specific watersheds or outfalls.

We encourage the Consortium and the MS4s to continue working together on joint and collaborative monitoring strategies within Tampa Bay Region that can be used for both TMDL reasonable assurance and MS4 permitting purposes.

We appreciate the efforts of the TBNMC to maintain and improve Tampa Bay. If you have any questions, please contact me at (850) 245-7518 or by email at Steven.Kelly@dep.state.fl.us.

Sincerely,

Steven Kelly

Steven Michael Kelly, Program Administrator
NPDES Stormwater Section

Cc: Jeff Greenwell, FDEP Tampa
Holly Greening, TBEP
Jim Giattina, US EPA Region 4
Drew Bartlett, FDEP Tallahassee
Daryll Joyner, FDEP Tallahassee

A.17. Clarification of RA Protection from Third Party Challenges (FDEP Clarifying Response: Apr. 21, 2009)

DRAFT Clarification
Tampa Bay Reasonable Assurance
April 21, 2009

Question: Will the approved RA provide some protection from third party challenges to individual entities participating in the Tampa Bay Reasonable Assurance process?

FDEP Response:

Section 403.067(7)(b) (below) is only applicable to BMAPs, not to RA determinations or WQBEL.

> i. A landowner, discharger, or other responsible person who is implementing applicable management strategies specified in an adopted basin management action plan shall not be required by permit, enforcement action, or otherwise to implement additional management strategies to reduce pollutant loads to attain the pollutant reductions established pursuant to subsection (6) and shall be deemed to be in compliance with this section. This subparagraph does not limit the authority of the department to amend a basin management action plan as specified in subparagraph (a)5.

However, the Department would provide notice of any proposed agency action adopting the RA and WQBEls. This notice of proposed agency action provides a level of administrative finality with respect to a potential third party challenge to individual entities. A third-party waives the right to challenge the Department's adoption of the RA or WQBEL if it fails to timely challenge the Department's proposed agency action. If the RA determination and WQBELs are not challenged, then it would be difficult for third parties to later challenge individual permit actions as not being adequately protective of the Bay if they are consistent with the adopted WQBELs.

A.18. Clarification of SWFWMD Stormwater ERP Requirements for Tampa Bay (SWFWMD Clarifying Response: Jul. 15, 2009)

Southwest Florida
Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Lecanto Service Office
Suite 226
3600 West Sovereign Path
Lecanto, Florida 34461-8070
(352) 527-8131

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

July 15, 2009

Todd Pressman
Chair, Pinellas
Ronald E. Oakley
Vice Chair, Pasco
Hugh M. Gramling
Secretary, Hillsborough
Sallie Parks
Treasurer, Pinellas
Bryan K. Beswick
DeSoto
Jennifer E. Closshey
Hillsborough
Neil Combee
Polk
Patricia M. Glass
Manatee
Albert G. Joerger
Sarasota
Maritza Rovira-Forino
Hillsborough
H. Paul Senft, Jr.
Polk
Douglas B. Tharp
Sumter
Judith C. Whitehead
Hernando

David L. Moore
Executive Director
William S. Bilenky
General Counsel

Ms. Holly Greening
Tampa Bay Estuary Program
100 Eighth Avenue, Southeast
MS I-1/NEP
St. Petersburg, Florida 33701

Subject: Response to Inquiry Regarding Net Improvement

Dear Ms. Greening:

This is in response to your recent inquiry regarding net improvement requirements as applied to stormwater discharges to Tampa Bay. Specifically, you asked "How will the Southwest Florida Water Management District's stormwater rule affect nitrogen pollution reduction requirements in Environmental Resource Permits within the Tampa Bay Reasonable Assurance geographic area? "

Chapter 373.414(1)(b)(3), Florida Statutes, states: "If the applicant is unable to meet water quality standards because existing ambient water quality does not meet standards, the governing board or the department shall consider mitigation measures proposed by or acceptable to the applicant that cause net improvement of the water quality in the receiving body of water for those parameters which do not meet standards." ERP Conditions for Issuance in Rule 40D-4.301(2), Florida Administrative Code, state: "If the applicant is unable to meet water quality standards because existing ambient water quality does not meet standards, the applicant shall comply with the requirements set forth in Section 3.2.4.5 of the Basis of Review." Based on specific direction from the Department of Environmental Protection, the Southwest Florida Water Management District (District) informed ERP applicants in October, 2008, that stormwater discharges contributing to violations of water quality standards must comply with the net improvement requirements of Florida law and Environmental Resource Permitting rules.

Additionally, the State of Florida has an agreement with the United States Environmental Protection Agency regarding State Water Quality Certification. Pursuant to this agreement, issuance of an Environmental Resource Permit constitutes state certification of compliance with state water quality standards for the purposes of state certification of federal licenses or permits for activities permitted by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. One aspect of this agreement addresses net improvement and discharges to waters not meeting standards. Specifically, the agreement states that water quality certification will be waived when the permit is issued pursuant to the net improvement provisions for water quality provided by paragraph 373.414(1)(b), Florida Statutes.

Water bodies designated as impaired through the TMDL process require net improvement because they fail to meet water quality standards. According to the Florida Department of Environmental Protection (DEP), some of Tampa Bay does not meet the state's dissolved oxygen standards or chlorophyll concentration guidelines with nutrients being the cause. Because Tampa Bay Estuary Program (TBEP), has pursued the Reasonable Assurance approach, Tampa Bay is designated as a Category 4b water body (impaired, but no TMDL required) rather than a Category 5 (impaired, needing TMDL), based on the Integrated Reporting Classification of water bodies. Based on DEP's determination that Tampa Bay does not currently meet water quality standards, net improvement is required.

In summary, net improvement is required for discharges to Tampa Bay. As a member of the Tampa Bay Nitrogen Management Consortium, the District supports the implementation of the Tampa Bay Reasonable Assurance determination. The District is committed to our continued partnerships with the TBEP and local governments to restore and protect Tampa Bay. In requiring net improvement, the District is meeting the requirements of Florida law while contributing to our mutual objective of a better Tampa Bay.

Sincerely,

Richard S. Owen

Richard S. Owen, AICP
Deputy Executive Director
Resource Regulation Division

A.19. Guidelines for Transfer of 2008-2012 Nitrogen Allocations and Credits (May 21, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: May 21, 2009

SUBJECT: N allocation and credit transfers

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram, Steven Kelly (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider the attached Guidelines for N Allocation and Credit Transfer within the Tampa Bay Reasonable Assurance process. Please note the Consortium's request for FDEP clarification on two points, noted in red font.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

As you know, we are very quickly approaching the final deadline for RA submittal. To allow the Consortium members to move forward with allowable transfers prior to RA submittal, we are requesting your concurrence and response to the attached Guidelines no later than June 5, 2009.

Tampa Bay Reasonable Assurance
Guidelines for transfer of 2008-2012 nitrogen allocations and credits

TB NMC Concurrence: May 19, 2009

I. General guidelines

1. Transfers are allowed within a bay segment drainage area. Any inter-bay-segment transfers would require documentation that the transfer does not result in an exceedence of any bay segment nitrogen TMDL. Direct offsets may need to be documented for inter-bay-segment transfers.

2. Transfer credits defined as:
   - Transfer credits for set allocations- same as RA allocations (tons/year)
   - Transfer credits for adjusted allocations - calculate tons/year for TMDL load conditions (1992-1994).

3. Transfers are not allowed for interim allocations or those provided for alternative surface water discharges in the event existing discharge is not available (as defined in the RA documentation).

4. Negotiations for transfers will occur between consenting parties, and are not the responsibility of the Consortium or the Department. Implementation of agreed upon transfers will be addressed within the Department's WQBEL.

5. Note from FDEP: For transfers prior to RA finalization, credit life is limited to the duration of the Reasonable Assurance determination. For the limited transfers that occur after RA finalization on a case-by-case basis as "offsets", the credit life will be the life of the permit that authorizes the offset. However, permittees should be advised that the permit can be re-opened and revised in the event the next RA determination revises the underlying allocations.

II. Transfer prior to RA finalization

1. Within an entity (like and non-like sources)

   a. Transfers between like-sources within an entity are allowed as long as total entity allocation and the bay segment TMDL are not exceeded. Entity provides letter to the Consortium (C/O TBEP Executive Director) for inclusion in RA package no later than June 1, 2009. Entities with multiple allocations also have the option of requesting an aggregate allocation (see II.1.c. below), which would be implemented via revisions to existing permits.

   b. Transfers between source types (non-like sources) within an entity are allowed as long as total entity allocation is not exceeded. Transfers between wastewater facility WLAs

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and MS4 WLAs are preferred, but entities also have the option of an aggregate allocation, which would be implemented via an aggregate permit (see II.1.c. below). The source giving up allocation should provide documentation in the RA package on how their reduced allocation will be met. Authorities from both source types provide a letter for inclusion in RA package.

c. An "aggregate" permit for nitrogen only issued to the entity (by basin), could include like and non-like sources, as an alternative to a. or b. above.

> **Note from FDEP**: Permit conditions would include a limit for the aggregate of the individual five-year average loads and would likely include a maximum annual limit for each source, with load information submitted monthly. In addition, the permittee will also be required to submit an annual report reporting its annual nitrogen loading from all sources under the aggregate permit, and addressing how that load compares to the allocation on an annual and 5 year basis. Entities interested in aggregate allocations should provide a letter to NMC (C/O TBEP Executive Director) as part of the RA submittal requesting an aggregate allocation.

NOTE: FDEP representatives expressed a preference for options a. and b. when an entity has both WWTP and MS4 sources (transfers between sources), but did not rule out option c (an entity aggregate nitrogen permit).

d. Transfers are allowed within an entity between permitted WLA and unpermitted LA sources with nitrogen loading allocations during the pre-RA period. The source giving up allocation should provide documentation in the RA package on how their reduced allocation will be met. A letter defining the transfers is provided for inclusion in the RA package.

The Consortium requests clarification from FDEP regarding how aggregate permits will be implemented.

Recommended Deadlines:

Letter of Request for Pre-RA transfers or aggregate allocations within an entity (with new, proposed RA allocations): June 1, 2009

III. Transfers after RA is finalized and approved

NOTE FROM FDEP: Because 403.067, F.S., limits trading to the Lower St. Johns River Basin, it is DEP's position that a formal transfer program cannot be authorized to address transfers after RA adoption. Instead, entities that want to transfer allocations should wait until the next RA review occurs so that the transfer can be incorporated into a revised RA demonstration, and subsequently adopted by the Department as a revision to the WQBEL. However, transfers can be authorized on a case-by-case basis as "offsets" for new or expanding facilities that request to increase their loading to a given bay

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segment. These facilities will be required to demonstrate that a reduction in loading will occur to offset their requested increase. If an offset in authorized, then the WQBELs for the facility and the entity transferring part of its allocation will likely need to be re-adopted.[2]

[2]Transfer Subcommittee comments to FDEP: Adopted WQBEL language should allow potential transfers on a case-by-case basis without re-opening WQBEL. *FDEP Response* – Receptive of the comment, will need to check; Contingent upon magnitude of transfer (case-by-case basis). NMC requests clarification from FDEP of WQBEL re-opening effects on all entity allocations within a WQBEL.

Transfers post-RA will be addressed by the Consortium in the Implementation Plan.

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From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, June 19, 2009 4:31 PM
To: Holly Greening
Cc: Joyner, Daryll; Kovach, Charles; Greenwell, Jeff; Coram, Phil; Eason.Jennifer@epamail.epa.gov
Subject: TBNMC Decision Memos

Holly,

Our answers to the Nitrogen Management Consortium's last four decision memos are below.

Decision Memo 19 – Guidelines for Nitrogen Allocation and Credit Transfers

The Department agrees with both the general guidelines and the guidelines for transfers prior to RA finalization, but would like to reiterate our position (as articulated in a note embedded in the guidance) that post RA adoption transfers can only be authorized on a case-by-case basis. We have discussed the Transfer Subcommittee's request that any case-by-case authorizations for post RA transfers not require re-opening of the WQBEL, and have concluded that we will need to revise and re-adopt the WQBELs for the parties involved with the transfer. However, the WQBELs for other entities discharging to the same bay segment would not be affected by this action and would not be re-adopted.

For entities that requested an aggregate wasteload allocation (WLA) that combined the WLAs for multiple NPDES permitted sources, the aggregate WLA will be adopted as an aggregate WQBEL. We would like to note that aggregation of WLAs will only be allowed for discharges within a Bay Segment. The aggregate WQBEL will then be implemented by revising one of the existing permits (typically the wastewater permit) to include effluent limits for the aggregate 5-year annual average load AND aggregate maximum annual loads (in some cases, we may issue an additional, "aggregate permit" that includes the aggregate permit limits, rather than revise one of the existing permits). For the case of an aggregate WLA that includes the load for an MS4, the load for the MS4 will be set at the load for the TMDL load conditions (1992-1994), which is the same process as recommended by the NMC for transfer purposes. It should be noted that this load will be presumed to be fixed for the life of the permit, and would not be hydrologicly normalized. To be in compliance, the total of the measured loads from wastewater discharges, plus the fixed MS4 load, minus any agreed-upon reductions attributed to stormwater-related management activities, must be below the aggregate load limit.

Decision Memo 20 – Framework to Assess Compliance

We agree that the proposed steps to be completed by the Consortium on an annual basis are adequate to assess progress of the overall RA Program. However, the Department cannot agree to the suggested regulatory actions because the specific enforcement response to an entity's noncompliance will be determined on a case-by-case basis. We would like to note that some of the concepts embodied in the NMC's recommendations are consistent with our enforcement policies. For example, when evaluating an exceedance of a permit limit, we take into account the potential for harm, which would generally be expected to be less if the facility discharges to a bay segment that meets its nitrogen target. We also

take into account, at a minimum, the duration, extent, and number of exceedances when determining the appropriate response.

Decision Memo 21 – 5-Year Reporting Period & 5-Year Annual Average Allocation Compliance Assessments

The Department agrees that the 5-year annual average allocations should remain fixed throughout the RA Implementation Period. In fact, as noted in other responses, the Department plans to adopt the allocations as Water Quality-Based Effluent Limitations (WQBELs), and we do not plan to revise the WQBELs until requested by the NMC (most likely as part of the 2012 RA Update) or by an entity that requests an offset that results in a revision to their allocation. However, we do, of course, reserve the right to revise the allocations in the unlikely event that the RA approval is revoked and a new, more stringent TMDL is developed.

The Department also agrees that the 5-year reporting period will be the primary basis to assess RA compliance if the bay chlorophyll a thresholds are met (as articulated in Decision Memo #20). However, we would like to reiterate that this does not apply to assessment of compliance for individual entities, which will be required to meet both their 5-year annual average loading limit and a maximum annual loading limit.

Decision Memo 22 – Future Assessments of Tampa Bay

While we understand that the bay chlorophyll a targets were established for the bay-wide scale, we think it is important to assess smaller portions of the bay to ensure there are no localized water quality problems due to nutrients or other pollutants. As such, we plan to continue to assess the bay at the WBID scale. We would like to note that we have adjusted our WBID boundaries so that they better nest within the bay segments.

We appreciate the Consortium's continued efforts to protect Tampa Bay from excess nitrogen loading. If you have any questions, please feel free to contact me or Daryll Joyner.

Thanks,

Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 4 2009

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your May 21, 2009, memorandum requesting the Environmental Protection Agency's (EPA's) feedback regarding the Tampa Bay Nitrogen Management Consortium's (Consortium's) recommendation to develop guidelines for nitrogen allocation and credit transfers within the reasonable assurance process. As requested, this letter provides the Consortium with our feedback regarding this request.

While we appreciate the Consortium's interest in developing guidelines for the transfer of nitrogen allocations and credits within the reasonable assurance process, it is our understanding that these guidelines are intended as a placeholder and their implementation would not be effective until the next five-year reasonable assurance process, at the earliest. Therefore, we are not commenting on the guidelines contained in the memorandum at this time, but reserve the right to provide comments once their implementation is more certain.

We appreciate the Consortium's continuous efforts to maintain communication with EPA throughout the total nitrogen reallocation process. We look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries. If you have any questions regarding our response, please contact Jennifer Eason DiMaio at (404) 562-9268.

Sincerely,

for James D. Giattina
Director
Water Protection Division

ED_002491_00001148-00335

A.20. Decision Framework for Assessing Annual Allocation Reasonable Assurance (May 22, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: May 26, 2009

SUBJECT: Decision Framework for Assessing Annual Allocation Compliance

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram, Steven Kelly (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider as a framework to assess compliance with N allocations developed through the Tampa Bay Reasonable Assurance process.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

As you know, we are very quickly approaching the final deadline for RA submittal, therefore we are requesting your concurrence and response no later than June 18, 2009.

Background:
As an element of the Tampa Bay Reasonable Assurance implementation, Consortium members have developed a framework for assessing annual N allocation compliance. The annual compliance assessment is comprised of 1) steps to be completed by the Consortium on an annual basis, and 2) suggested regulatory assessment steps. The Consortium's assessment responsibilities are shown in green and suggested regulatory actions are shown in blue in Attachment 1a.

The framework is applied on a bay-segment basis, and is predicated on assessing annual attainment of the bay segment chlorophyll *a* concentration target as the initial step, as defined by the approved TBEP Decision Matrix process. If the bay segment-specific chlorophyll *a* target is met, the Consortium reports the results to FDEP and EPA, and additional assessment steps are not required by the Consortium. If annual average chlorophyll *a* targets are not met in one or more bay segments, additional assessment steps are required by the Consortium as noted in the attached Framework and notes (Attachments 1a, b, and c).

The suggested regulatory assessment steps are based on observed responses in bay segment chlorophyll *a* concentrations to short-term N loading events, such as high rainfall or accidental N loading releases or spills. Over the last 15 years, application of the adopted Decision Matrix show that bay segment chlorophyll *a* targets are met within two years of even a large event, such as the El Nino heavy rains and associated spills in 1998 (Attachment 2). Seagrass coverage has also shown recovery within a short period of time following significant events (Attachment 3). The suggested regulatory actions are focused on identifying sources with large magnitude and/or long duration non-attainment of their N allocation, and take into account the attainment of bay segment-specific chlorophyll *a* targets.

Attachment 1 includes a flowchart assessing annual N allocation compliance (Attachment 1a); a table defining the activity for each diamond-shaped assessment step, keyed to the Roman Numerals in the flowchart (Attachment 1b); and recommended actions for both the NMC and regulatory agencies, keyed to the round or oval action points shown on the flowchart (Attachment 1c).

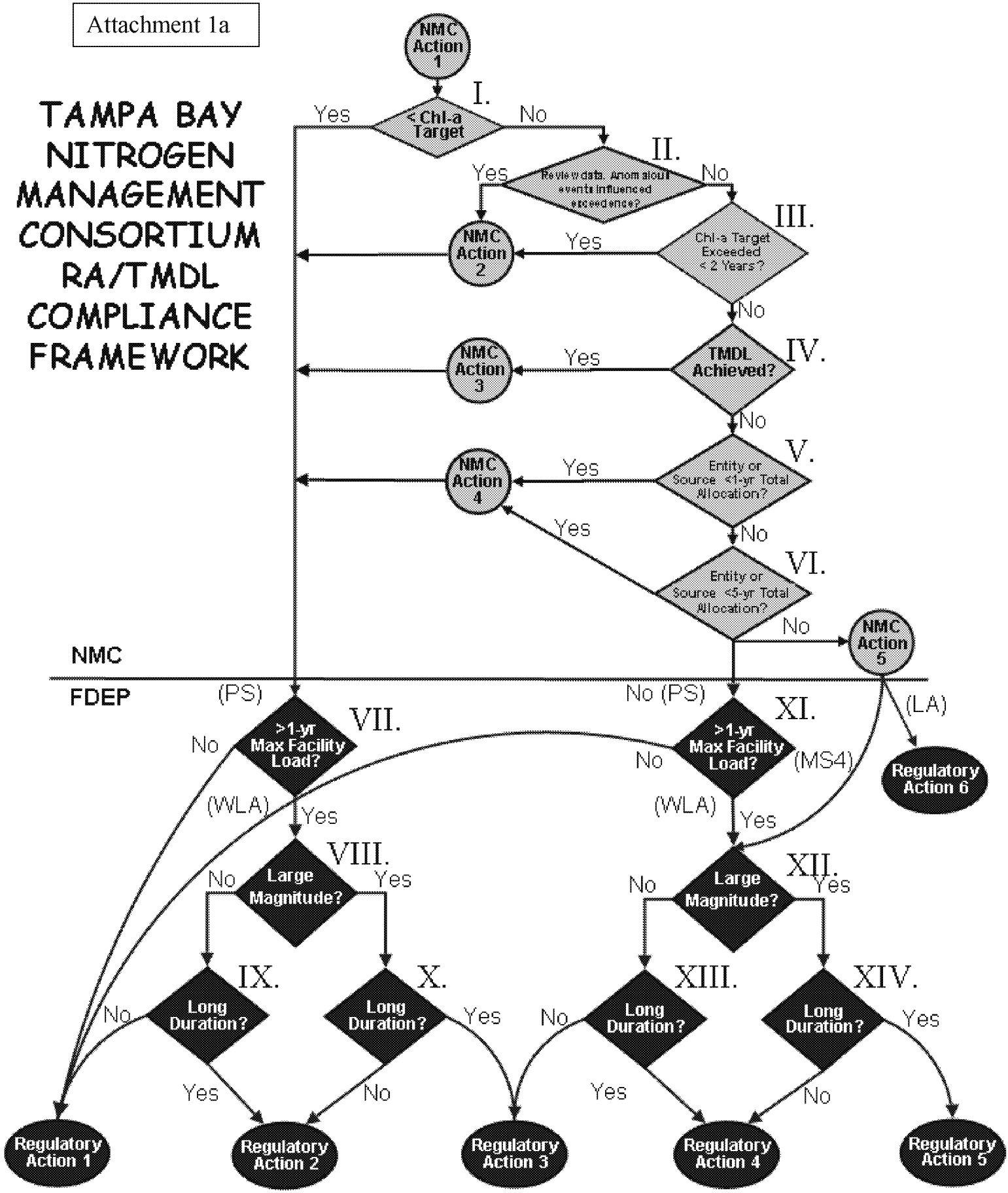
As added clarification to the framework in Attachment 1, a glossary of terms is provided below:

Chl-a Target:	Bay segment specific chlorophyll-a thresholds recognized by FDEP in the Tampa Bay Reasonable Assurance Updates;
Entity:	Municipalities, MS4 permittees, private industry, and LA sources listed in the Final TMDL Allocation tables as an entity;
LA:	Unpermitted load allocation sources listed in the Final TMDL Allocation tables as Non-MS4/Non-Ag NPS, Atmospheric Deposition, Other (groundwater, springs, conservation lands), FDACS (agricultural lands), and small sources (<0.1 MGD dischargers);
Large Magnitude:	An exceedence of the annual not-to-exceed permit limit set by FDEP that is considered a significant deviation;
Long Duration:	An exceedence of the annual not-to-exceed permit limit set by FDEP over a significant timeframe;

MS4:	Phase 1 and 2 municipal separate stormwater system permittees (i.e., entities with nonpoint source NPDES permits) listed in the Final TMDL Allocation tables as an entity;
NMC Action:	Specific action undertaken by the Consortium (or resulting body created during implementation);
Regulatory Actions:	Suggested actions undertaken by the FDEP/EPA when allocations or permit limits are exceeded;
PS:	NPDES point source permittees (domestic and industrial wastewater permittees with >0.1 MGD discharges) who have received a set allocation in the Final Allocation table;
WLA:	Waste load allocation sources including both MS4 and PS entities; 1-yr Max Facility Load: Annual not to exceed limits set by FDEP during permit renewals for PS

Attachment 1a

TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM RA/TMDL COMPLIANCE FRAMEWORK



The TBEP and its technical contractor have provided technical support and information to the EPA and FDEP in their determination of TMDLs for nitrogen in Tampa Bay. Neither the TBEP nor its technical contractor are responsible for the allocation of TMDLs by EPA and the FDEP, and neither the TBEP nor its technical contractor assume any liability for the information provided or recommendations made in this process.

DRAFT 21 May 2009

Attachment 1b. Key to Assessing Annual N Allocation Compliance:

Assessment Step	Result	Action
I. Determine annual bay segment specific chlorophyll-a threshold attainment as traditionally assessed using the Decision Matrix management strategy developed by the TBEP (TBEP Technical Publication 04-00).	**Yes**	**NMC Action 1; go to VII.**
	No	**NMC Action 1; go to II.**
II. Review data and determine if an anomalous event(s) influenced non-attainment of the bay segment specific chlorophyll-a threshold.	**Yes**	**NMC Action 2; go to VII.**
	No	**Go to III.**
III. Determine if the chlorophyll-a thresholds have been exceeded for <2 consecutive years.	**Yes**	**NMC Action 2; go to VII.**
	No	**Go to IV.**
IV. Determine if the bay segment specific federally-recognized TMDL has been achieved using the hydrologically-adjusted compliance assessment outlined in NMC Decision Memo #11.	**Yes**	**NMC Action 3; go to VII.**
	No	**Go to V.**
V. For a given year, determine if an entity's combined source loads for a particular year are less than the 5-yr annual average allocation.	**Yes**	**NMC Action 4; go to VII.**
	No	**Go to VI.**
VI. For multiple years, determine if an entity's combined source loads are less than the 5-yr annual average allocation.	**Yes**	**NMC Action 4; go to VII.**
	No (LA)	**NMC Action 5; Regulatory Action 6**
	No (MS4)	**NMC Action 5; go to XII.**
	No (WLA)	**Go to XI.**
VII. For entity's PS, determine if individual facility is >1-yr max facility load determined by FDEP, with the understanding that bay segment chlorophyll-a thresholds have been achieved	**No**	**Regulatory Action 1**
	Yes	**Go to VIII.**
VIII. Determine if the magnitude of an individual PS facility or MS4 source is significantly large, with the understanding that bay segment chlorophyll-a thresholds have been achieved	**No**	**Go to IX.**
	Yes	**Go to X.**
IX. Determine if the duration of an individual PS facility or MS4 source is significantly long, with the understanding that the magnitude of the	**No**	**Regulatory Action 1**

exceedence is significantly small and the bay segment chlorophyll-a thresholds have been achieved		
	Yes	**Regulatory Action 2**
X. Determine if the duration of an individual PS facility or MS4 source is significantly long, with the understanding that the magnitude of the exceedence is significantly large and also that the bay segment chlorophyll-a thresholds have been achieved	**No**	**Regulatory Action 2**
	Yes	**Regulatory Action 3**
XI. For entity's WLA sources, determine if individual PS facility is >1-yr max facility load determined by FDEP, with the understanding that bay segment chlorophyll-a thresholds and the federally-recognized TMDL have not been achieved	**No**	**Regulatory Action 1**
	Yes	**Go to XII.**
XII. Determine if the magnitude of an individual PS facility or MS4 source is significantly large, with the understanding that bay segment chlorophyll-a thresholds and the federally-recognized TMDL have not been achieved	**No**	**Go to XIII.**
	Yes	**Go to XIV.**

XIII. Determine if the duration of an individual PS facility or MS4 source is significantly long, with the understanding that the magnitude of the exceedence is significantly small, but that the bay segment chlorophyll-a thresholds and the federally-recognized TMDL have not been achieved	**No**	**Regulatory Action 3**
	Yes	**Regulatory Action 4**
XIV. Determine if the duration of an individual PS facility or MS4 source is significantly long, with the understanding that the magnitude of the exceedence is significantly large and also that the bay segment chlorophyll-a thresholds and the federally-recognized TMDL have not been achieved	**No**	**Regulatory Action 4**
	Yes	**Regulatory Action 5**

Attachment 1c. Key to Suggested Actions

NMC Actions during RA Implementation (2008-2012):

1. A report assessing attainment of bay segment specific chlorophyll-a thresholds using the EPCHC dataset, as traditionally assessed using the Decision Matrix management strategy developed by the TBEP (TBEP Technical Publication 04-00) will be delivered to FDEP and EPA.
2. A report of the anomalous event(s) or data which influenced the bay segment chl-a exceedence will be delivered to FDEP and EPA, upon review by NMC members.
3. Consider re-evaluation of the bay segment assimilative capacity based on nonattainment of bay segment chl-a target while meeting federally-recognized TMDL.
4. A report comparing combined entity/source annual or multiple year loadings to 2008-2012 annual average allocations will be delivered to FDEP and EPA. Report will identify any exceedences among combined entity/source load categories.
5. A report on any MS4 or LA exceedences will be delivered to FDEP and EPA.

Suggested Regulatory Actions during RA Implementation (2008-2012):

1. No action required if specific entity/facility is below its 2008-2012 annual average allocation.
2. Entity required to identify projects or transfers that would bring specific PS facility/MS4 source into compliance over a **15-yr implementation period**.
3. Entity required to identify projects or transfers that would bring specific PS facility/MS4 source into compliance over a **10-yr implementation period**.
4. Persistent or large exceedences are documented, entity immediately required to pursue projects or transfers that would bring specific PS facility/MS4 into compliance **during the next 5-yr RA Update Cycle**.
5. Persistently large exceedences documented, entity immediately required to pursue projects or transfers that would bring specific PS facility/MS4 into compliance **before the next 5-yr RA Update Cycle**.
6. Regulatory agencies and NMC work towards identifying necessary reductions needed for LA sources to come into compliance with 2008-2012 annual average allocations

Attachment 2

Progress Towards Meeting Regulatory Goals

An initiative of the Tampa Bay Nitrogen Management Consortium (NMC)

FDEP Reasonable Assurance for Tampa Bay

In November 2002, the Florida Department of Environmental Protection (FDEP) concluded that the Tampa Bay Estuary Program's (TBEP) nitrogen management strategy provided "Reasonable Assurance" (RA) that the state water quality criteria for nutrients would be met. The U.S. Environmental Protection Agency (EPA) in the meantime continues to recognize a 1998 action by FDEP that proposed a total maximum load of nitrogen that could be discharged to the bay annually and still meet state water quality criteria. Both FDEP's reasonable assurance determination and the total maximum nitrogen loading recognized by EPA are based on statistical modeling and data analyses conducted by the TBEP and its partners. Efforts are continuing through 2009 to meet both regulatory goals established by FDEP and EPA based upon FDEP acceptance of the TBEP's RA update submitted in January 2008.

The recovery of the Tampa Bay ecosystem after decades of decline is unique among urban estuaries worldwide. The rebound in water quality and ecological health of the bay has been maintained despite continuing population growth during the recovery period. FDEP, EPA, the NMC and other partners in the TBEP want to continue the success of the collaborative nitrogen management strategy spearheaded by the TBEP and the Consortium. To achieve this, FDEP used the TBEP-defined "large magnitude difference thresholds" rather than the chlorophyll-a management targets listed on page 1, as indicators of impairment for future assessments of the Tampa Bay segments. These are: Old Tampa Bay, 9.3 ug/L; Hillsborough Bay, 15.0 ug/L; Middle Tampa Bay, 8.5 ug/L; and Lower Tampa Bay, 5.1 ug/L. As noted in the figure to the left, all bay segments in Tampa Bay have met the regulatory goals established by FDEP annually since 2006. These annual water quality assessments in concert with tracking increases in seagrass acreage in the bay (Fig. 5) have served to maintain FDEP "Reasonable Assurance" that water quality criteria are being met for Tampa Bay.

2008 Chl-a Monthly Variation Compared to 1974-2007

Based upon the yellow cautionary management response for some of the bay segments in 2008, chlorophyll-a concentrations were evaluated within the bay (Fig. 3) and monthly during 2008 (Fig. 4) to discern where and when target exceedences occurred, respectively. Observed 2008 monthly averages were generally within the range of historic levels except for in OTB during July and August 2008 (Fig. 4, circled in yellow).

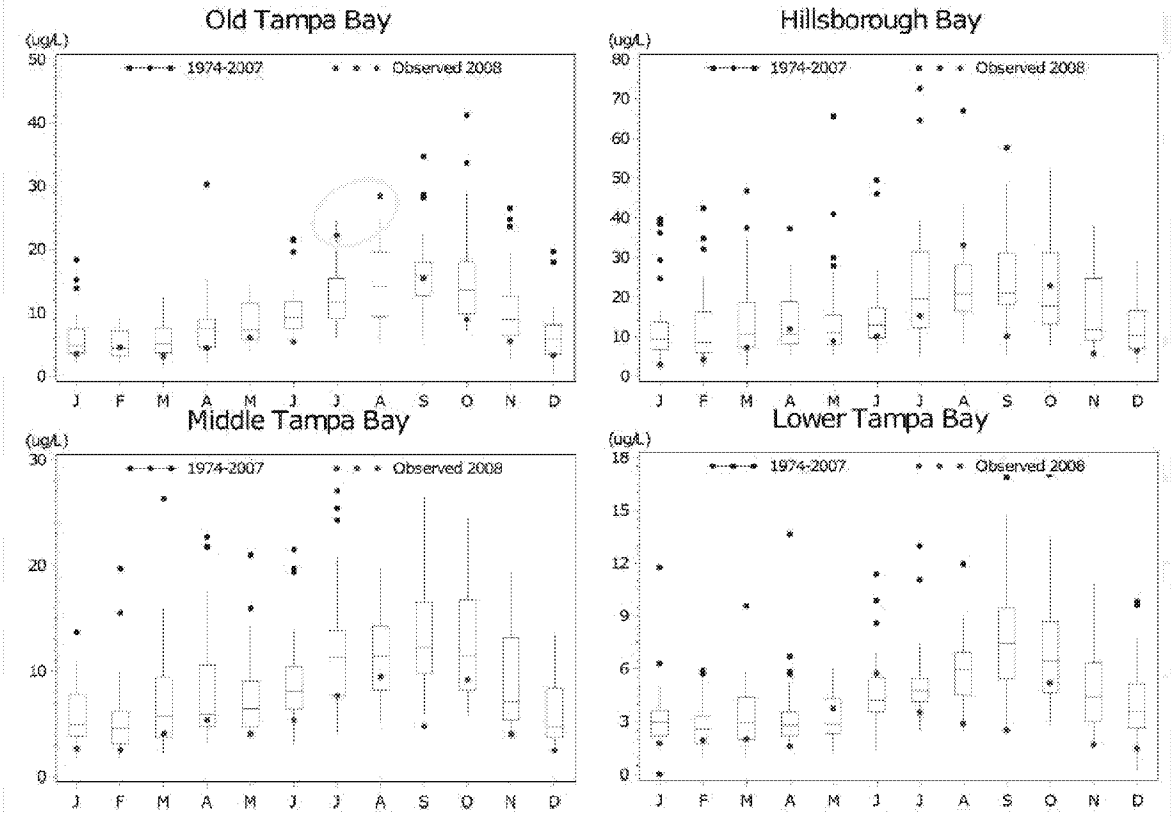
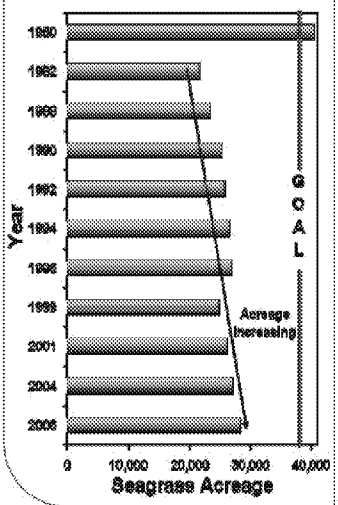


Figure 4: 2008 monthly chlorophyll-a bay segment averages (red dots) compared to monthly distributions for 1974-2007 (blue box plots). Boxes encompass the 25th and 75th percentiles, while whiskers bound the interquartile range. Blue dots represent outliers.

FDEP Targets Met:

Year	Old TB	Hills. Bay	Mid. TB	Low. TB
1975	Yes	Yes	Yes	Yes
1976	Yes	Yes	Yes	Yes
1977	Yes	Yes	Yes	Yes
1978	Yes	Yes	Yes	Yes
1979	Yes	Yes	Yes	Yes
1980	Yes	Yes	Yes	Yes
1981	Yes	Yes	Yes	Yes
1982	Yes	Yes	Yes	Yes
1983	Yes	Yes	Yes	Yes
1984	Yes	Yes	Yes	Yes
1985	Yes	Yes	Yes	Yes
1986	Yes	Yes	Yes	Yes
1987	Yes	Yes	Yes	Yes
1988	Yes	Yes	Yes	Yes
1989	Yes	Yes	Yes	Yes
1990	Yes	Yes	Yes	Yes
1991	Yes	Yes	Yes	Yes
1992	Yes	Yes	Yes	Yes
1993	Yes	Yes	Yes	Yes
1994	Yes	Yes	Yes	Yes
1995	Yes	Yes	Yes	Yes
1996	Yes	Yes	Yes	Yes
1997	Yes	Yes	Yes	Yes
1998	Yes	Yes	Yes	Yes
1999	Yes	Yes	Yes	Yes
2000	Yes	Yes	Yes	Yes
2001	Yes	Yes	Yes	Yes
2002	Yes	Yes	Yes	Yes
2003	Yes	Yes	Yes	Yes
2004	Yes	Yes	Yes	Yes
2005	Yes	Yes	Yes	Yes
2006	Yes	Yes	Yes	Yes
2007	Yes	Yes	Yes	Yes
2008	Yes	Yes	Yes	Yes

Figure 5: Historic seagrass acreage estimates for Tampa Bay from 1950-2006 (Source: SWFWMD).



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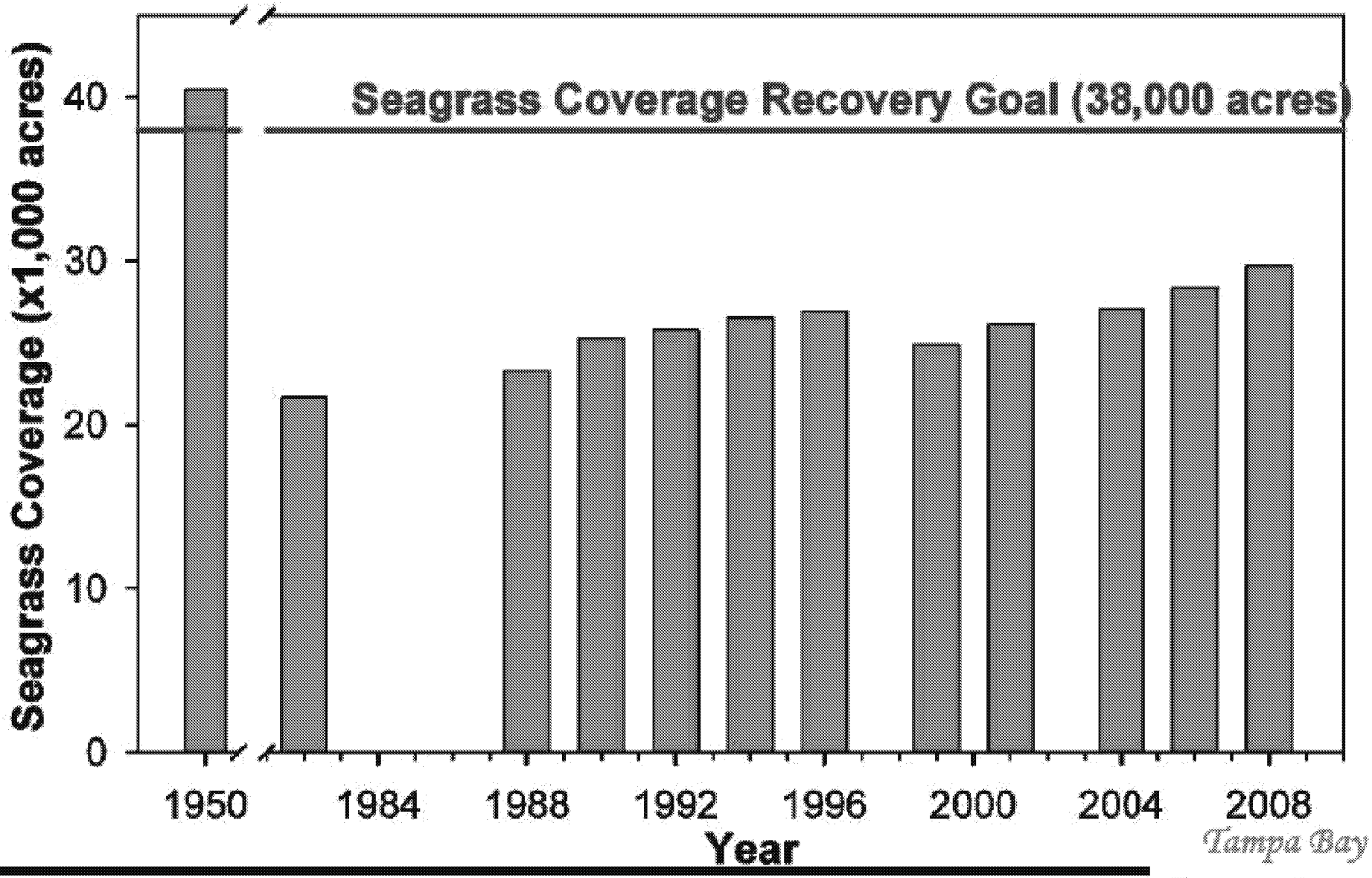
Attachment 3

Historic Trends in Seagrass Acreage



Tampa Bay Estuary Program

Data Source: SWFWMD

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, June 19, 2009 4:31 PM
To: Holly Greening
Cc: Joyner, Daryll; Kovach, Charles; Greenwell, Jeff; Coram, Phil; Eason.Jennifer@epamail.epa.gov
Subject: TBNMC Decision Memos

Holly,

Our answers to the Nitrogen Management Consortium's last four decision memos are below.

Decision Memo 19 – Guidelines for Nitrogen Allocation and Credit Transfers

The Department agrees with both the general guidelines and the guidelines for transfers prior to RA finalization, but would like to reiterate our position (as articulated in a note embedded in the guidance) that post RA adoption transfers can only be authorized on a case-by-case basis. We have discussed the Transfer Subcommittee's request that any case-by-case authorizations for post RA transfers not require re-opening of the WQBEL, and have concluded that we will need to revise and re-adopt the WQBELs for the parties involved with the transfer. However, the WQBELs for other entities discharging to the same bay segment would not be affected by this action and would not be re-adopted.

For entities that requested an aggregate wasteload allocation (WLA) that combined the WLAs for multiple NPDES permitted sources, the aggregate WLA will be adopted as an aggregate WQBEL. We would like to note that aggregation of WLAs will only be allowed for discharges within a Bay Segment. The aggregate WQBEL will then be implemented by revising one of the existing permits (typically the wastewater permit) to include effluent limits for the aggregate 5-year annual average load AND aggregate maximum annual loads (in some cases, we may issue an additional, "aggregate permit" that includes the aggregate permit limits, rather than revise one of the existing permits). For the case of an aggregate WLA that includes the load for an MS4, the load for the MS4 will be set at the load for the TMDL load conditions (1992-1994), which is the same process as recommended by the NMC for transfer purposes. It should be noted that this load will be presumed to be fixed for the life of the permit, and would not be hydrologicly normalized. To be in compliance, the total of the measured loads from wastewater discharges, plus the fixed MS4 load, minus any agreed-upon reductions attributed to stormwater-related management activities, must be below the aggregate load limit.

Decision Memo 20 – Framework to Assess Compliance

We agree that the proposed steps to be completed by the Consortium on an annual basis are adequate to assess progress of the overall RA Program. However, the Department cannot agree to the suggested regulatory actions because the specific enforcement response to an entity's noncompliance will be determined on a case-by-case basis. We would like to note that some of the concepts embodied in the NMC's recommendations are consistent with our enforcement policies. For example, when evaluating an exceedance of a permit limit, we take into account the potential for harm, which would generally be expected to be less if the facility discharges to a bay segment that meets its nitrogen target. We also

take into account, at a minimum, the duration, extent, and number of exceedances when determining the appropriate response.

Decision Memo 21 – 5-Year Reporting Period & 5-Year Annual Average Allocation Compliance Assessments

The Department agrees that the 5-year annual average allocations should remain fixed throughout the RA Implementation Period. In fact, as noted in other responses, the Department plans to adopt the allocations as Water Quality-Based Effluent Limitations (WQBELs), and we do not plan to revise the WQBELs until requested by the NMC (most likely as part of the 2012 RA Update) or by an entity that requests an offset that results in a revision to their allocation. However, we do, of course, reserve the right to revise the allocations in the unlikely event that the RA approval is revoked and a new, more stringent TMDL is developed.

The Department also agrees that the 5-year reporting period will be the primary basis to assess RA compliance if the bay chlorophyll a thresholds are met (as articulated in Decision Memo #20). However, we would like to reiterate that this does not apply to assessment of compliance for individual entities, which will be required to meet both their 5-year annual average loading limit and a maximum annual loading limit.

Decision Memo 22 – Future Assessments of Tampa Bay

While we understand that the bay chlorophyll a targets were established for the bay-wide scale, we think it is important to assess smaller portions of the bay to ensure there are no localized water quality problems due to nutrients or other pollutants. As such, we plan to continue to assess the bay at the WBID scale. We would like to note that we have adjusted our WBID boundaries so that they better nest within the bay segments.

We appreciate the Consortium's continued efforts to protect Tampa Bay from excess nitrogen loading. If you have any questions, please feel free to contact me or Daryll Joyner.

Thanks,

Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 1 6 2009

RECEIVED
JUN 2009
TAMPA BAY
ESTUARY PROGRAM

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your memoranda requesting the Environmental Protection Agency's (EPA) feedback regarding the three action items (#20, 21 and 22) that pertain to the Tampa Bay Nitrogen Management Consortium's (Consortium's) reasonable assurance process. This letter provides the Consortium with our feedback regarding these requests.

The Consortium's action item #20 recommends a framework to assess annual compliance with the total nitrogen allocations developed through the Tampa Bay reasonable assurance process. EPA appreciates the Consortium's desire to have some degree of certainty regarding the regulatory responses to any excursion of an entity's waste load allocations and permit limits. We recognize that the Consortium's framework was drafted on that basis. As you know, the Florida Department of Environmental Protection (FDEP) will have the primary responsibility to respond to any permit excursion that is reported. EPA will retain its enforcement oversight role. As such, however, EPA does not specify or detail in advance how it will respond to future permit limit exceedances. Those responses are case- and fact-specific, and agreeing with such a framework at this time may limit EPA's enforcement discretion.

The Consortium's action item #21 recommends assigning a five-year annual average allocation as well as an annual allocation to each entity located in one of the four major segments in Tampa Bay (Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay). Thus, action item #21 also recommends assessing an entity's compliance on a five-year reporting period, unless the annual average Tampa Bay segment *chlorophyll a* concentrations exceed their respective annual allocation for two consecutive years. In our oversight role, EPA will continue to ensure that permit limits are consistent with the allocations developed in the Total Maximum Daily Load (TMDL). It is EPA's understanding that the total nitrogen allocations and permit limits will be expressed as both five-year average and as annual average loadings.

The Consortium's action item #22 recommends assessing and reporting *chlorophyll a* compliance at the bay-segment scale. As previously mentioned, FDEP is responsible for delineating watersheds for assessment and reporting purposes. Thus, FDEP is the appropriate agency to respond to this request. However, it is our

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understanding that the federally recognized TMDL is at the Bay segment level, which is consistent with the Consortium's reporting scale.

Thank you for the opportunity to provide feedback regarding these three action items. As always, we look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Protection Division

A.21. Definition of 5-Year Reporting Period & 5-yr Annual Average Allocation Reasonable Assurance Assessments (May 22, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: May 22, 2009

SUBJECT: 5-Year Reporting Period & 5-yr Annual Average Allocation Compliance Assessments

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram, Steven Kelly (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached a summary of the Consortium's recommendation for FDEP and EPA to consider with regards to the compliance assessment and definition of adopted Reasonable Assurance allocations for the 2008-2012 Implementation period.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

As you know, we are very quickly approaching the final deadline for RA submittal, and therefore request your concurrence and response no later than June 18, 2009.

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Background:
At the May 19, 2009 Full Consortium meeting, members of the Consortium agreed to the following two points and requested that FDEP and EPA provide concurrence with regards to the process to assign allocations to entities and then to assess compliance during RA Implementation:

1. The 5-year annual average allocations proposed in the Final TMDL tables will remain fixed throughout the Reasonable Assurance Implementation Period (2008-2012). The Consortium has developed allocations as annual set allocations in tons/year or as a percentage of the hydrologically-normalized remaining bay segment load, as will be defined in the Final TMDL Allocation tables.

2. Based on the defined allocations for an entity, a 5-year reporting period will be the primary basis to assess Reasonable Assurance compliance if FDEP-recognized chlorophyll-a thresholds are met each year of the Implementation period (2008-2012). RA compliance is assessed as defined by the Decision Framework outlined in Consortium Decision Memo #20. Therefore for the 2008-2012 allocations, compliance will be assessed in 2012 unless annual average bay segment chlorophyll *a* concentrations exceed threshold levels for 2 consecutive years.

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, June 19, 2009 4:31 PM
To: Holly Greening
Cc: Joyner, Daryll; Kovach, Charles; Greenwell, Jeff; Coram, Phil; Eason.Jennifer@epamail.epa.gov
Subject: TBNMC Decision Memos

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Decision Memo 22 – Future Assessments of Tampa Bay

While we understand that the bay chlorophyll a targets were established for the bay-wide scale, we think it is important to assess smaller portions of the bay to ensure there are no localized water quality problems due to nutrients or other pollutants. As such, we plan to continue to assess the bay at the WBID scale. We would like to note that we have adjusted our WBID boundaries so that they better nest within the bay segments.

We appreciate the Consortium's continued efforts to protect Tampa Bay from excess nitrogen loading. If you have any questions, please feel free to contact me or Daryll Joyner.

Thanks,

Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 16 2009

RECEIVED
JUN 2009
TAMPA BAY
ESTUARY PROGRAM

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your memoranda requesting the Environmental Protection Agency's (EPA) feedback regarding the three action items (#20, 21 and 22) that pertain to the Tampa Bay Nitrogen Management Consortium's (Consortium's) reasonable assurance process. This letter provides the Consortium with our feedback regarding these requests.

The Consortium's action item #20 recommends a framework to assess annual compliance with the total nitrogen allocations developed through the Tampa Bay reasonable assurance process. EPA appreciates the Consortium's desire to have some degree of certainty regarding the regulatory responses to any excursion of an entity's waste load allocations and permit limits. We recognize that the Consortium's framework was drafted on that basis. As you know, the Florida Department of Environmental Protection (FDEP) will have the primary responsibility to respond to any permit excursion that is reported. EPA will retain its enforcement oversight role. As such, however, EPA does not specify or detail in advance how it will respond to future permit limit exceedances. Those responses are case- and fact-specific, and agreeing with such a framework at this time may limit EPA's enforcement discretion.

The Consortium's action item #21 recommends assigning a five-year annual average allocation as well as an annual allocation to each entity located in one of the four major segments in Tampa Bay (Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay and Lower Tampa Bay). Thus, action item #21 also recommends assessing an entity's compliance on a five-year reporting period, unless the annual average Tampa Bay segment *chlorophyll a* concentrations exceed their respective annual allocation for two consecutive years. In our oversight role, EPA will continue to ensure that permit limits are consistent with the allocations developed in the Total Maximum Daily Load (TMDL). It is EPA's understanding that the total nitrogen allocations and permit limits will be expressed as both five-year average and as annual average loadings.

The Consortium's action item #22 recommends assessing and reporting *chlorophyll a* compliance at the bay-segment scale. As previously mentioned, FDEP is responsible for delineating watersheds for assessment and reporting purposes. Thus, FDEP is the appropriate agency to respond to this request. However, it is our

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understanding that the federally recognized TMDL is at the Bay segment level, which is consistent with the Consortium's reporting scale.

Thank you for the opportunity to provide feedback regarding these three action items. As always, we look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Protection Division

A.22. Guidance for Future Tampa Bay Impaired Waters Assessments (May 22, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: May 22, 2009

SUBJECT: Future Tampa Bay Impaired Waters Assessments

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram, Steven Kelly (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Eason, Tom Welborn, Shawneille Campbell (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

At the May 19, 2009 Full Consortium meeting, members of the Consortium requested that FDEP and EPA concur with the recommendation that future IWR assessments for chlorophyll *a* compliance using the FDEP-recognized thresholds adopted in the 2002 Tampa Bay Reasonable Assurance submittal for the four major segments of Tampa Bay should only be conducted and reported at the bay-segment scale. The adopted bay-segment-specific chlorophyll *a* thresholds have been developed using statistical methods appropriate at the bay segment spatial scale (as defined in the original 2002 RA submittal) and may not be appropriate for conducting compliance assessments at either smaller or larger geographic areas. It is the Consortium's recommendation that future IWR assessments for N impairments (using average annual chlorophyll *a* concentration) for the four major Tampa Bay segments be conducted and reported at the bay segment scale.

The Consortium members wish to ensure that decisions or recommendations made by the group are documented throughout this process, and believe these action memos will assist with that documentation. The members also believe concurrence by FDEP and EPA for each major step or product is critical to ensure that all parties are in agreement throughout this process. We believe that because FDEP and EPA are involved with the Consortium's work at every level, many issues should be worked out through the process prior to Consortium action. However, if one or both agencies do not concur with the Consortium's findings or guiding principle processes or wish to examine alternative or revised actions, the documentation and concurrence request process will allow us to work through the issue at an early stage.

As you know, we are very quickly approaching the final deadline for RA submittal, and therefore request your concurrence and response no later than June 18, 2009.

ED_002491_00001148-00358

From: Bartlett, Drew [mailto:Drew.Bartlett@dep.state.fl.us]
Sent: Friday, June 19, 2009 4:31 PM
To: Holly Greening
Cc: Joyner, Daryll; Kovach, Charles; Greenwell, Jeff; Coram, Phil; Eason.Jennifer@epamail.epa.gov
Subject: TBNMC Decision Memos

Holly,

Our answers to the Nitrogen Management Consortium's last four decision memos are below.

Decision Memo 19 – Guidelines for Nitrogen Allocation and Credit Transfers

The Department agrees with both the general guidelines and the guidelines for transfers prior to RA finalization, but would like to reiterate our position (as articulated in a note embedded in the guidance) that post RA adoption transfers can only be authorized on a case-by-case basis. We have discussed the Transfer Subcommittee's request that any case-by-case authorizations for post RA transfers not require re-opening of the WQBEL, and have concluded that we will need to revise and re-adopt the WQBELs for the parties involved with the transfer. However, the WQBELs for other entities discharging to the same bay segment would not be affected by this action and would not be re-adopted.

For entities that requested an aggregate wasteload allocation (WLA) that combined the WLAs for multiple NPDES permitted sources, the aggregate WLA will be adopted as an aggregate WQBEL. We would like to note that aggregation of WLAs will only be allowed for discharges within a Bay Segment. The aggregate WQBEL will then be implemented by revising one of the existing permits (typically the wastewater permit) to include effluent limits for the aggregate 5-year annual average load AND aggregate maximum annual loads (in some cases, we may issue an additional, "aggregate permit" that includes the aggregate permit limits, rather than revise one of the existing permits). For the case of an aggregate WLA that includes the load for an MS4, the load for the MS4 will be set at the load for the TMDL load conditions (1992-1994), which is the same process as recommended by the NMC for transfer purposes. It should be noted that this load will be presumed to be fixed for the life of the permit, and would not be hydrologicly normalized. To be in compliance, the total of the measured loads from wastewater discharges, plus the fixed MS4 load, minus any agreed-upon reductions attributed to stormwater-related management activities, must be below the aggregate load limit.

Decision Memo 20 – Framework to Assess Compliance

We agree that the proposed steps to be completed by the Consortium on an annual basis are adequate to assess progress of the overall RA Program. However, the Department cannot agree to the suggested regulatory actions because the specific enforcement response to an entity's noncompliance will be determined on a case-by-case basis. We would like to note that some of the concepts embodied in the NMC's recommendations are consistent with our enforcement policies. For example, when evaluating an exceedance of a permit limit, we take into account the potential for harm, which would generally be expected to be less if the facility discharges to a bay segment that meets its nitrogen target. We also

take into account, at a minimum, the duration, extent, and number of exceedances when determining the appropriate response.

Decision Memo 21 – 5-Year Reporting Period & 5-Year Annual Average Allocation Compliance Assessments

The Department agrees that the 5-year annual average allocations should remain fixed throughout the RA Implementation Period. In fact, as noted in other responses, the Department plans to adopt the allocations as Water Quality-Based Effluent Limitations (WQBELs), and we do not plan to revise the WQBELs until requested by the NMC (most likely as part of the 2012 RA Update) or by an entity that requests an offset that results in a revision to their allocation. However, we do, of course, reserve the right to revise the allocations in the unlikely event that the RA approval is revoked and a new, more stringent TMDL is developed.

The Department also agrees that the 5-year reporting period will be the primary basis to assess RA compliance if the bay chlorophyll a thresholds are met (as articulated in Decision Memo #20). However, we would like to reiterate that this does not apply to assessment of compliance for individual entities, which will be required to meet both their 5-year annual average loading limit and a maximum annual loading limit.

Decision Memo 22 – Future Assessments of Tampa Bay

While we understand that the bay chlorophyll a targets were established for the bay-wide scale, we think it is important to assess smaller portions of the bay to ensure there are no localized water quality problems due to nutrients or other pollutants. As such, we plan to continue to assess the bay at the WBID scale. We would like to note that we have adjusted our WBID boundaries so that they better nest within the bay segments.

We appreciate the Consortium's continued efforts to protect Tampa Bay from excess nitrogen loading. If you have any questions, please feel free to contact me or Daryll Joyner.

Thanks,

Drew

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ESTUARY PROGRAM

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
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Dear Ms. Greening:

Thank you for your memoranda requesting the Environmental Protection Agency's (EPA) feedback regarding the three action items (#20, 21 and 22) that pertain to the Tampa Bay Nitrogen Management Consortium's (Consortium's) reasonable assurance process. This letter provides the Consortium with our feedback regarding these requests.

The Consortium's action item #20 recommends a framework to assess annual compliance with the total nitrogen allocations developed through the Tampa Bay reasonable assurance process. EPA appreciates the Consortium's desire to have some degree of certainty regarding the regulatory responses to any excursion of an entity's waste load allocations and permit limits. We recognize that the Consortium's framework was drafted on that basis. As you know, the Florida Department of Environmental Protection (FDEP) will have the primary responsibility to respond to any permit excursion that is reported. EPA will retain its enforcement oversight role. As such, however, EPA does not specify or detail in advance how it will respond to future permit limit exceedances. Those responses are case- and fact-specific, and agreeing with such a framework at this time may limit EPA's enforcement discretion.

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understanding that the federally recognized TMDL is at the Bay segment level, which is consistent with the Consortium's reporting scale.

Thank you for the opportunity to provide feedback regarding these three action items. As always, we look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Protection Division

A.23. TMDL replacement and request for RA submittal date extension (June 29, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: June 29, 2009

SUBJECT: Decision Memo #23: TMDL replacement and request for RA submittal date extension

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell, Steven Kelly (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Dimaio, Tom Welborn, Shawneille Campbell, Tara Houda (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

At the full Consortium meeting held on June 25, 2009, the Consortium members requested responses from FDEP and EPA to the following two requests. Please respond to these requests no later than July 15, to allow distribution to the Consortium by the next scheduled meeting on July 17, 2009.

As always, thank you for your timely responses, and for your continued engagement with the Consortium throughout this process.

1. Replacement or revision to the federally-recognized TMDL

The 1998 federally-recognized TMDL was submitted to EPA by FDEP, based on 1992-1994 TN loading estimates developed by the Tampa Bay Estuary Program (at that time known as the Tampa Bay National Estuary Program). The 1992-1994 TN loading estimates were observed to occur when bay-segment annual average chlorophyll *a* concentrations were adequate for sufficient light levels to support restoration of seagrasses to depths observed in 1950. In 1996, the TBNEP adopted a long-term seagrass restoration goal (38,000 acres baywide) and associated chlorophyll-*a* targets and nitrogen load target of "holding the line" at loads observed in 1992-1994 as management goals and targets for Tampa Bay. The "hold the line" strategy for nitrogen management in Tampa Bay appears to have been effective for maintaining ambient chlorophyll *a* concentrations at or below target levels in most years. Seagrass acreage has increased by almost 4,000 acres since 1992, despite a regional setback in 1998 associated with heavy El Niño rains (Section II).

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The nitrogen load targets adopted by the TBNEP partners in 1996 were developed as management tools to support seagrass recovery, not as an assimilative capacity for nitrogen loading for Tampa Bay. A TMDL assumes that maximum loading limit of a particular parameter (TN for Tampa Bay) does not exceed the assimilative capacity of the receiving water body (in this case, the four major bay segments of Tampa Bay) associated with meeting water quality criteria. Methods and models used by TBNEP in the mid-1990s for management purposes did not address assimilative capacity. Observations since 1992 (Section IV) show that TN loads can be much higher than the federally-recognized TMDL limit while chlorophyll *a* concentrations are at or below the target levels, indicating that the current TMDLs may not accurately define assimilative capacity.

The Consortium requests assurance from FDEP and EPA that technically-defensible assimilative capacity estimates for each bay segment, if developed by the Consortium, will be considered as replacements for the existing federally-recognized TMDLs.

2. Request for extension of due date for the 2009 RA Update documentation

At the June 25, 2009 full Consortium meeting, FDEP informed the members that WQBELs would be developed for the surface water discharges from WWTP, but not for reclaimed water discharges ("groundwater discharges"). For the last several months, Consortium members have been reviewing draft WWTP allocations based on the combined loads from surface water and reclaimed water discharges. FDEP will now require that the surface water and reclaimed water loads are listed separately on the allocation tables. Revised allocation tables are now being prepared for Consortium review.

In addition to the need to review and understand the revised allocation tables, the Consortium is requesting clarification from FDEP on how the WQBELs will be developed and implemented through permits. Questions include, but are not limited to, the following (a final list of questions will be submitted to FDEP and EPA by July 2, 2009):

> Will a WQBEL be developed for a bay segment, each entity within a bay segment, or both? If both, please clarify how the WQBELs will be structured at the different scales.
>
> How will WQBELs and permits be structured when containing both surface water discharge and reuse/groundwater discharge for an entity?
>
> Will the WQBELs developed for Tampa Bay nutrients be considered Level 1 or Level 2?
>
> How will reuse be reflected in WWTP permits? Will there be a load limit in Groundwater/Reuse permits, or concentration limit, or both?

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If a WQBEL or permit is applied to Reclaimed Water Discharge, how would the limit take into account reclaimed water application on properties that do not drain to the Bay Segment or alternative uses of reclaimed water (such as cooling towers)?

Please clarify the location of compliance point(s) in the WQBELs (i.e., point of discharge, bay segment boundary, stream gauge stations, etc)

The Department has indicated that post-RA transfers will be allowable on a case-by-case basis. How will transfers be accommodated for Surface Water discharges (WLA) and Groundwater/Reuse discharges (LA) post-RA?

Please clarify how post-RA transfers may be accomplished within an entity between MS4 permits and NPDES/Reuse permits post-RA.

If the WQBEL contains an allocation for a source, does the allocation become incorporated into the permit only upon permit renewal, or immediately upon WQBEL finalization?

Please consider structuring the WQBELs to list allocation to the bay segment, and reference to the RA document for individual entity allocations.

Will there be an opportunity to challenge permits after the WQBEL is adopted? How does this affect the WQBEL adoption process?

Please provide a template of a bay segment and an entity WQBEL and associated permit(s), including the language proposed for each.

FDEP participants at the July 25 meeting indicated that responses to the Consortium's questions would probably not be available until after the July 31, 2009 due date for RA submittal. The Consortium has scheduled a meeting for August 6 to review the new tables and discuss response to the WQBEL questions. We expect that at least two more meetings may be needed to fully review and address issues associated with the revised allocation tables and resulting permitting implications.

Given the new requirements from FDEP, the need for Consortium members to fully understand the final suggested allocations, and the progress made to date on the draft RA 2009 Update, the Consortium members respectfully request an extension to the due date for the final 2009 Reasonable Assurance Update and suggested allocations to **Friday, September 25, 2009.**

Thank you for your timely responses to both these requests.

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From: Joyner, Daryll [mailto:Daryll.Joyner@dep.state.fl.us]
Sent: Wednesday, July 15, 2009 4:52 PM
To: hgreening@tbep.org
Cc: Bartlett, Drew; Brooks, Jerry; Greenwell, Jeff; Kovach, Charles
Subject: DEP's Response to Decision Memo#23

Holly,

This is in response to the Nitrogen Management Consortium's (NMC) Decision Memo #23 (submitted by letter dated June 29, 2009) requesting the Department's responses to questions about revision of the Total Maximum Daily Load (TMDL) for the bay and extension of the due date for the 2009 RA Update documentation. Our responses are provided below.

Replacement or Revision to the Federally-recognized TMDL

The Department is receptive to the NMC determining the assimilative capacity of each bay segment and using the assimilative capacities as the water quality targets for the 2012 Reasonable Assurance documentation, rather than the current targets based on the "hold the line" strategy. Assuming the NMC provides sufficient technical justification for the assimilative capacity estimates, we will also support the efforts of the NMC to request revision of the federally-recognized TMDL, but that decision will, of course, ultimately be made by EPA.

Request for Extension of Due Date for the 2009 RA Update Documentation

The Department agrees that extension of the due date for the 2009 RA Update to September 25, 2009 is appropriate.

We appreciate the Consortium's continued efforts to determine a fair and equitable allocation of the federally-approved TMDL for the bay. If you have any questions about this response, please feel free to contact me at (850)245-8431.

Thanks,

Daryll

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

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TAMPA BAY
ESTUARY PROGRAM

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue Southeast
St. Petersburg, Florida 33701

Dear Ms. Greening:

Thank you for your June 29, 2009, and July 2, 2009, memoranda requesting the Environmental Protection Agency's (EPA's) feedback on questions submitted by the Nitrogen Management Consortium (Consortium). These questions relate to: 1) whether EPA would consider any revised Total Maximum Daily Load (TMDL) based on assimilative capacity; and 2) the process that the Florida Department of Environmental Protection (DEP) intends to take regarding the development of water quality-based effluent limits from the Tampa Bay reasonable assurance document and how those limits will be translated into permits.

Regarding the first question above, the Consortium is welcome to conduct any studies that assess assimilative capacity and to work with DEP to submit those results as a revised TMDL for EPA review and final action. This revised TMDL, upon EPA approval, would replace the existing TMDL.

Regarding the second question above, because DEP is the National Pollutant Discharge Elimination System (NPDES) permitting authority and since many of the questions involve the interaction of reuse and NPDES permitting requirements, we will defer to DEP to provide those answers. We will continue to review NPDES permits drafted by DEP to ensure that they are consistent with the NPDES regulations and Florida water quality standards.

We appreciate the Consortium's continuous efforts to maintain communication with EPA throughout the total nitrogen reallocation process. We look forward to continuing our work with the Consortium to restore the water quality in Tampa Bay and its tributaries.

Sincerely,

for James D. Giattina
Director
Water Protection Division

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A.24. Requests for Clarification of WQBEL Process (July 2, 2009)

Tampa Bay NMC

A Public - Private Partnership

THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM
PARTNERSHIP FOR PROGRESS

TO: Drew Bartlett, FDEP
Jim Giattina, US EPA Region 4

FROM: Rob Brown, TBNMC Local Government Co-Chair
Jeff Stewart, TBNMC Industry Co-Chair

DATE: July 2, 2009

SUBJECT: Decision Memo #24- WQBEL requests for clarification

cc: Eric Livingston, Kevin Petrus, Terry Hansen, Jan Mandrup-Poulsen,
Daryll Joyner, Richard Drew, Phil Coram (FDEP Tallahassee)
Charles Kovach, Jeff Greenwell, Steven Kelly (FDEP Tampa)
Annie Godfrey, Marshall Hyatt, Felicia Burks, Virginia Buff, Jennifer Dimaio, Tom Welborn, Shawneille Campbell, Tara Houda (EPA Region 4)
Tampa Bay Nitrogen Management Consortium
Holly Greening, Ed Sherwood (TBEP)

On behalf of the Tampa Bay Nitrogen Management Consortium, please find below questions and issues concerning the process FDEP intends to use in developing WQBELs from the Tampa Bay Reasonable Assurance document, and how those WQBELs will be reflected in permits.

The Consortium requests your written response no later than August 2, 2009, to allow review prior to the full Consortium meeting scheduled for Friday, August 6. The Consortium also requests representatives from the Department attend the August 6 meeting in person, to allow further discussion of this important topic. As you know, the draft RA document and suggested allocations have been developed and are in review by the Consortium—clarification of the WQBEL and permit process will be critical to allow Consortium members to finalize the RA documentation.

Thank you again for your continued participation in the Consortium's process. As always, please contact us or Holly Greening with any questions about the Consortium's request.

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Please clarify in writing how the suggested allocations in the RA document will be incorporated into permits, and how WQBELs will be structured. Please respond to the specific issues listed below, and clarify how each issue will be addressed in the WQBEL process.

1. Please consider structuring the WQBELs to list allocation to the bay segment, and reference to the RA document for individual entity allocations.

2. Will a WQBEL be developed for a bay segment, each entity within a bay segment, or both? If both, please clarify how the WQBELs will be structured at the different scales.

3. Will the WQBELS developed be considered Level 1 or Level 2?

4. How will WQBELs and permits be structured when containing both surface water discharge and reuse/groundwater discharge for an entity?

5. How will reuse be reflected in WWTP permits? Will there be a load limit in Groundwater/Reuse permits, or concentration limit, or both?

6. If a WQBEL is applied to Reclaimed Water Discharge, how would the limit take into account reclaimed water application on properties that do not drain to the Bay Segment or alternative uses of reclaimed water (such as cooling towers)?

7. To what "groundwater" permit was the Department referring to regarding reclaimed?

8. How will reclaimed water expansions, either through municipal interconnect or local distribution expansion, impact permit limits?

9. For sources with both surface water discharge and groundwater (reuse) discharges, the Consortium's RA implementation guidelines combine both into a single RA allocation. If that source reduces its surface water discharge by discharging more through reuse, the total load is reduced due to the 90% attenuation factor associated with reuse discharge. That source then can use the reduction in load to compensate for growth, to bank for future growth, or to transfer under the Consortium's transfer guidelines, while still maintaining the original allocation. In other words, the total entity RA allocation would not be reduced due to increased reuse. Does the Department agree with this process?

10. For sources with both surface water and groundwater (reuse) discharge, please define how increases in reuse discharge (with growth) will be addressed in permits, if the surface water discharge is not increased.

11. Please clarify what would be the result in the "split allocation" between point source discharges and reclaimed as described at the last NMC meeting. Would the result be as reclaimed is implemented the allowed discharge allocation would be reduced and assigned to the reclaimed allocation so that the overall allocation number remains the same but no allocation is then available for discharge allowing for growth?

12. The Department has indicated that post-RA transfers will be allowable on a case-by-case basis. How will transfers be accommodated for Surface Water discharges (WLA) and Groundwater/Reuse discharges (LA) post-RA?

13. Please clarify how post-RA transfers may be accomplished within an entity between MS4 permits and NPDES/Reuse permits post-RA.

14. If the WQBEL contains an allocation for a source, does the allocation become incorporated into the permit only upon permit renewal, or immediately upon WQBEL finalization?

15. Please clarify the location of compliance point(s) in the WQBELs (i.e., point of discharge, bay segment boundary, stream gauge stations, etc)

16. Will there be an opportunity to challenge permits after the WQBEL is adopted? How does this affect the WQBEL adoption process?

17. Once a WQBEL is in place, will there be additional monitoring or reporting requirements above and beyond what is proposed in the Tampa Bay RA document? If so, what will those be?

18. Please explain the basis for the numeric limit for nitrogen discharge that DEP is proposing to include for sources for which no surface water discharge (NPDES Permit) is in place. For example, please explain the basis for the numeric limit for nitrogen discharge to Hillsborough Bay that DEP is proposing to include in Pasco County's Master Reuse System Permit, which includes no surface water discharge (NPDES Permit) to the Hillsborough Bay or other water body. How will it be calculated and how will compliance be measured or otherwise determined?

19. Please identify the FDEP Rule(s) that authorize the inclusion of a numeric limit for nitrogen load for which no there is no surface water discharge. Specifically, what DEP Rules authorize the inclusion of a numeric limit for nitrogen discharge to Hillsborough Bay in Pasco County's Master Reuse System Permit, which includes no surface water discharge? Unlike those wastewater utilities that will receive a

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WQBEL that is well established in regulations, Pasco County is having difficulty understanding the DEP requirements that must be met if we agree to the RA.

20. Please clarify how entities with no surface water discharge can accumulate nitrogen load credits to offset future growth. In particular, please clarify how DEP will provide a means for Pasco County's Master Reuse System, which includes no surface water discharge to Hillsborough Bay, to accumulate nitrogen reduction credits that will help to offset the impacts of future growth. To be equitable and prevent Pasco County from being penalized for having moved forward with a system that reuses 100% of its treated effluent, credits for the more progressive Pasco County Reuse System should exceed (or in the worst case equal) the credits described in our meeting of June 25th for those wastewater utilities that will increase their reclaimed water systems and decrease their surface water discharge.

21. How will WQBELs and permits be structured for material handling facilities? How will transfers be accommodated for material handling facilities?

22. Will the individual entity permits include both the load allocation and a WQBEL?

23. Please provide a template or example of a bay segment and an entity WQBEL and associated permit(s), including the language proposed for each.

From: "Bartlett, Drew"
Date: Tue, 4 Aug 2009 11:28:49 -0400
To: Holly Greening<hgreening@tbep.org>
Subject: Response to Decision Memo 24

Holly,

Below are answer to the questions and comments posed to the Department in Decision Memo 24.

Please clarify in writing how the suggested allocations in the RA document will be incorporated into permits, and how WQBELs will be structured.

Response: Our overall plan for incorporating the allocations into permits is described in detail as part of the responses to the specific questions asked by the NMC. However, our general plan for adopting the allocations and incorporating them into permits is summarized as follows:

Wastewater Discharges with NPDES Permits

1) We plan for the adopted WQBELs to match the proposed WLAs for NPDES permits (wastewater and stormwater), with both bay-specific WQBELs and entity-specific WQBELs, organized by bay segment, and with aggregate WLAs, if requested.

2) All WQBELs for entities discharging to the same bay segment will get the same case number, and if someone challenges a WQBEL, all of the WQBELs for that bay segment will be held in abeyance until the hearing is resolved. DEP will not be able to approve the RA (for any segment) until the hearing is resolved.

3) Once the WQBELs are formally adopted, the Department will incorporate the WQBELs into individual permits at the time of permit renewal, and will provide a reasonable time to come into compliance (if necessary).

4) Wastewater permits will include effluent limits for both the five-year average and annual maximum load.

MS4 Permits

1) We plan for the adopted WQBELs to match the proposed WLAs expressed as a "percent reduction" for the MS4s.

2) Same as above.

3) For any MS4 requiring a percent reduction, the MS4 will need to submit to the NMC sufficient projects (including both structural projects and non-structural) that are expected reduce the load by that percentage. The expected reductions and the proposed schedule for the project(s) will need to be reviewed and agreed upon by the NMC and the Department. The projects/activities will be included in the RA document with a schedule for implementation.

4) Once the WQBELs and RA approval are adopted by Secretarial Order, the MS4 permits will not be revised, but the MS4s will be required to implement the projects consistent with the proposed schedule based on the "self-implementing" clause in their existing permit.

"Ground Water Discharges" (including reuse/reclaimed water distribution)

1) We will not include entity-specific WQBELs for nonpoint sources or ground water discharges, but the total load for these (and other nonpoint sources) will be provided by bay segment in the WQBEL, and the WQBEL will note that loads from these sources will be addressed by the RA Process.

2) The RA document, which will be adopted by Secretarial Order, will include the entity-specific LAs. If an entity challenges the approval of the RA document or individual LAs, the DEP will not be able to approve the RA until the hearing is resolved.

3) Once the RA approval is effective, the Department plans to wait until renewal before incorporating the LA into individual permits, and will provide a reasonable time to come into compliance.

4) Wastewater permits will include both concentration limits to ensure compliance with ground water criteria and a load limit to ensure compliance with the LA.

5) For wastewater permits that address both a surface water discharge and reuse, the permits will include permit limits consistent with both the WLA/WQBEL and the LA. Such entities may wish to request an aggregate allocation to allow maximum operational flexibility.

Please respond to the specific issues listed below, and clarify how each issue will be addressed in the WQBEL process.

1. Please consider structuring the WQBELs to list allocation to the bay segment, and reference to the RA document for individual entity allocations.

Response: The Department plans to include both WQBELs for each bay segment and for each entity receiving a WLA. We considered the request to reference the RA document for the individual WQBELs, and while we agree that referencing would be legally adequate, we believe it is more transparent and helpful to stakeholders to include them in the adopted WQBEL.

2. Will a WQBEL be developed for a bay segment, each entity within a bay segment, or both? If both, please clarify how the WQBELs will be structured at the different scales.

Response: Both. We plan to list all of the individual WQBELs by bay segment, and provide the total WQBEL at the end of the entries. We will also list the applicable LAs for each bay segment and note that the LAs for nonregulated sources will be addressed as part of the RA document. As noted previously, we plan to establish one "case number" for each bay segment, which means that if an entity challenges the WQBEL for a given bay segment, all of the WQBELs within the bay segment will be held in abeyance until the challenge is resolved. The Department will also not be able to approve the RA submittal until the challenge is resolved.

3. Will the WQBELS developed be considered Level 1 or Level 2?

Response: Level II. As described in our response to Action Issues #10 and 11, we plan to adopt the entity-specific allocations in the RA submittal by Secretarial Order, pursuant to Subsection 62-650.500(8), F.A.C. As part of the adoption process, the Department will issue a notice of proposed agency action and provide notice to the each entity receiving an allocation and any other parties substantially affected by the WQBEL. This notice provides a 21-day period for interested parties to file a petition for an administrative hearing to challenge the WQBEL (petitions must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first). The rule requires that the notice include a statement indicating the date by which compliance with the WQBEL is required, and we currently plan to include a

general statement that the WQBELs will be used to set permit limits as part of the next permit renewal (the permit will allow for a reasonable compliance schedule).

The Department will issue the Secretarial Order adopting the WQBELs after the notice period is over, noting that the WQBELs will be used to set permit limits upon permit renewal. The allocations will be final and binding, and all permits issued will be consistent with the order.

4. How will WQBELs and permits be structured when containing both surface water discharge and reuse/groundwater discharge for an entity?

Response: For surface water discharges, the Department will establish effluent load limits for the five-year average load (based on the WQBEL) and the annual maximum load (with the limit set at 1.5 times the WQBEL for most wastewater discharges and at the highest annual load during the baseline period for contact stormwater discharges). For ground water/reuse discharges, the Department will establish a load limit in the permit consistent with the LA for the facility/entity.

5. How will reuse be reflected in WWTP permits? Will there be a load limit in Groundwater/Reuse permits, or concentration limit, or both?

Response: We plan to include both concentration limits to ensure compliance with ground water criteria and a load limit to ensure compliance with the LA.

6. If a WQBEL is applied to Reclaimed Water Discharge, how would the limit take into account reclaimed water application on properties that do not drain to the Bay Segment or alternative uses of reclaimed water (such as cooling towers)?

Response: The Department does not plan to apply WQBELs to reclaimed water discharges, but as noted above, does plan to account for the nitrogen load that is expected to make its way to the bay from reclaimed water discharges by establishing loading limits in the ground water/reuse permit. If the reclaimed water is not expected to drain into the bay, then it will not be counted towards the LA for that entity.

7. To what "groundwater" permit was the Department referring to regarding reclaimed?

Response: This was meant as a general term for any non-NPDES wastewater permit (permits authorizing discharge of reclaimed water to other than surface waters, including land application, reuse systems, and underground injection).

8. How will reclaimed water expansions, either through municipal interconnect or local distribution expansion, impact permit limits?

Response: There should be enough flexibility under the LAs to accommodate some minor level of expansion over the next two years, but significant expansions of reclaimed water systems that are expected to drain to the bay will require an increased LA or equivalent offset, or a site-specific demonstration that the expansion will not increase the Nitrogen load to the bay.

9. For sources with both surface water discharge and groundwater (reuse) discharges, the Consortium's RA implementation guidelines combine both into a single RA allocation. If that source reduces its surface water discharge by discharging more through reuse, the total load is reduced due to the 90% attenuation factor associated with reuse discharge. That source then can use the reduction in load to compensate for growth, to bank for future growth, or to transfer under the Consortium's transfer guidelines, while still maintaining the original allocation. In other words, the total entity RA allocation would not be reduced due to increased reuse. Does the Department agree with this process?

Response: While the Department has requested that the loads for surface water discharges and ground water discharges be broken out into WLA (WQBEL) and LA, the Department will allow entities to internally transfer loads between their WLA and LA. As such, the Department agrees that load that is shifted from surface water discharge to reclaimed water should free up loading that could cover the increase in reclaimed water and result in additional available load for future growth. For example, if 100 pounds of Nitrogen that had previously been discharged to the bay was transferred to a reuse discharge with a 90% attenuation factor, it would free up 90 pounds of allocation that could be used to further increase the reclaimed water system. The actual WLA allocation would remain constant.

10. For sources with both surface water and groundwater (reuse) discharge, please define how increases in reuse discharge (with growth) will be addressed in permits, if the surface water discharge is not increased.

Response: As noted in the response to question 8., some minor level of expansion over the next two years should be allowed under the current LAs and resultant permit load limits, but significant expansions of reclaimed water systems that are expected to drain to the bay will require an increased LA or equivalent off-set, or a site-specific demonstration that the expansion will not increase the Nitrogen load to the bay.

11. Please clarify what would be the result in the "split allocation" between point source discharges and reclaimed as described at the last NMC meeting. Would the result be as reclaimed is implemented the allowed discharge allocation would be reduced and assigned to the reclaimed allocation so that the overall allocation number remains the same but no allocation is then available for discharge allowing for growth?

Response: See previous responses.

12. The Department has indicated that post-RA transfers will be allowable on a case-by-case basis. How will transfers be accommodated for Surface Water discharges (WLA) and Groundwater/Reuse discharges (LA) post-RA?

Response: As noted in the response to question 9., the Department will allow entities to transfer loads between their WLA and LA. The key will be proper documentation of the transfer during the permitting process so that the Department can adequately track any loads transferred from the WLA to LA. If the transfer is between two separate entities, the entity that is receiving additional load will be required to provide documentation on how the offset is generated. If an offset in authorized, then the WQBELs for both entities will need to be re-adopted.

13. Please clarify how post-RA transfers may be accomplished within an entity between MS4 permits and NPDES/Reuse permits post-RA.

Response: If an entity plans to transfer loads between it's MS4 permits and NPDES wastewater permits, we recommend the entity request an aggregate WLA. As described in our response to Decision Memo 19, the aggregate WLA would be the sum of the WLAs for the NPDES wastewater permits and the load for the MS4 during the TMDL load conditions (1992-1994). This load will be presumed to be fixed for the life of the permit, and would not be hydrologicly normalized. To be in compliance, the total of the measured loads from wastewater discharges, plus the fixed MS4 load, minus any agreed-upon reductions attributed to stormwater-related management activities, must be below the aggregate load limit.

If an entity does not request an aggregate WLA, post-RA transfers would still be an option, but it would be evaluated on a case-by-case basis and would require revisions to both permits involved in the transfer. The entity would be required to demonstrate that a reduction in loading will occur below the WLA for the either the MS4 or wastewater facility to offset their requested increase. If

an offset is authorized, then the WQBELs for both the wastewater and MS4 permit will also need to be re-adopted.

14. If the WQBEL contains an allocation for a source, does the allocation become incorporated into the permit only upon permit renewal, or immediately upon WQBEL finalization?

Response: For WWTFs, the allocation will be incorporated only upon permit renewal. MS4s will be required to implement the projects/activities identified in the RA implementation schedule upon WQBEL finalization.

15. Please clarify the location of compliance point(s) in the WQBELs (i.e., point of discharge, bay segment boundary, stream gauge stations, etc).

Response: For WWTFs the point of compliance will be the same effluent monitoring location that is currently in the facility's permit.

16. Will there be an opportunity to challenge permits after the WQBEL is adopted? How does this affect the WQBEL adoption process?

Response: Yes. Both permittees and third parties will have an opportunity to challenge subsequent permits that incorporate the WQBELs. However, issues related to the WQBELs would have already been addressed at the time of the adoption of the WQBEL, and the Department would presume that it would be unlikely that entities would prevail if they challenged the WQBEL at permit renewal.

17. Once a WQBEL is in place, will there be additional monitoring or reporting requirements above and beyond what is proposed in the Tampa Bay RA document? If so, what will those be?

Response: We do not anticipate any additional monitoring requirements at this time related specifically to the RA document. However, as noted in our response to Decision #21, we plan to revise wastewater permits to include both a 5-year annual average loading limit and a maximum annual loading limit. There may be additional monitoring requirements for individual Phase I MS4s as determined during permit renewal unrelated to the RA process.

18. Please explain the basis for the numeric limit for nitrogen discharge that DEP is proposing to include for sources for which no surface water discharge (NPDES Permit) is in place. For example, please explain the basis for the numeric limit for nitrogen discharge to Hillsborough Bay that DEP is proposing to include in Pasco County's Master Reuse System Permit, which includes no surface water discharge (NPDES Permit) to the Hillsborough Bay or other water body. How will it be calculated and how will compliance be measured or otherwise determined?

Response: The Department plans to use the LAs developed by the NMC as the basis for reviewing and acting on permits authorizing discharge of reclaimed waters that may indirectly impact the bay. It is our understanding that the NMC membership has (or will via the Declaration) agreed to the LAs for reclaimed water discharges, including the methodology that was used to estimate the percentage of the load that will make it to the bay. This methodology, as articulated in the Loading Reports that are available on the TBEP NMC website, estimates that 90% of the load from reclaimed water discharges is attenuated for most reuse sources, but allows for a higher attenuation (95%) for St. Petersburg's reuse projects because the City provided site-specific information via a USGS report. If other entities believe a larger attenuation factor should be applied to their reuse system, they should provide the supporting information to the TBEP and NMC for review. Permit load limits will be for the entire load discharged from the facility but will take into account the agreed upon attenuation factor (the limit would establish the total allowable load that, with attenuation, would result in the allowed LA for the facility).

19. Please identify the FDEP Rule(s) that authorize the inclusion of a numeric limit for nitrogen load for which no there is no surface water discharge. Specifically, what DEP Rules authorize the inclusion of a numeric limit for nitrogen discharge to Hillsborough Bay in Pasco County's Master Reuse System Permit, which includes no surface water discharge? Unlike those wastewater utilities that will receive a WQBEL that is well established in regulations, Pasco County is having difficulty understanding the DEP requirements that must be met if we agree to the RA.

Response: Rule 62-610.850 (Protection of Surface Water and Ground Water Quality), F.A.C., provides the Department with general authority to address protection of surface water quality as part of reuse and land application projects. The rule states that such projects "shall not cause or contribute to violations of water quality standards in surface waters". However, the Department does not plan to directly rely on this rule provision for the proposed load limits for "ground water" permits, and instead plans to rely on the Secretarial Order that will be used to approve and adopt the RA demonstration. This Order will make the LAs for ground water permits binding, and therefore provide the legal basis for the load limits.

20. Please clarify how entities with no surface water discharge can accumulate nitrogen load credits to offset future growth. In particular, please clarify how DEP will provide a means for Pasco County's Master Reuse System, which includes no surface water discharge to Hillsborough Bay, to accumulate nitrogen reduction credits that will help to offset the impacts of future growth. To be equitable and prevent Pasco County from being penalized for having moved forward with a system that reuses 100% of its treated effluent, credits for the more progressive Pasco County Reuse System should exceed (or in the worst case equal) the credits described in our meeting of June 25th for those wastewater utilities that will increase their reclaimed water systems and decrease their surface water discharge.

Response: The current allocation approach selected by the NMC does not provide a mechanism for Pasco County to accumulate nitrogen reduction credits based on its prior efforts to move toward a system that reuses 100% of its treated effluent. Pasco County may wish to explore and propose a modified allocation approach that better accounts for such prior efforts when the assimilative capacity of the bay is evaluated as part of the 2012 RA submittal.

21. How will WQBELs and permits be structured for material handling facilities? How will transfers be accommodated for material handling facilities?

Response: The Department will establish effluent load limits (five-year average and annual maximum) for the surface water discharge based on the WQBEL, and will establish a load limit for material losses consistent with the LA for the facility/entity. While the Department has requested that the loads for surface water discharges and material losses be broken out into WLA (WQBEL) and LA, the Department will allow entities to internally transfer loads between their WLA and LA. The key will be proper documentation of the transfer during the permitting process

so that the Department can adequately track any loads transferred from the WLA to LA. If the transfer is between two separate entities, the entity that is receiving additional load will be required to provide documentation on how the offset is generated. If an offset in authorized, then the WQBELs for both entities will need to be re-adopted.

22. Will the individual entity permits include both the load allocation and a WQBEL?

Response: Yes, both LAs for material losses and WLA (WQBEL) will be reflected in the individual entity permits when appropriate.

23. Please provide a template or example of a bay segment and an entity WQBEL and associated permit(s), including the language proposed for each.

Response: The Department will need additional time to provide example WQBEL and permit language.

Daryll Joyner will be present at the next Consortium's meeting Thursday if you have any questions regarding our responses.

Thank you,
Drew

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

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APPENDIX B: Completed Action Plan Projects from 1992-2007 (B.1) and Future Action Plan Projects Anticipated During the 2008-2012 RA Implementation Period (B.2)

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Appendix B.1. Completed Action Plan Projects from 1992-2007

Bay Segment: Old Tampa Bay

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Clearwater					
	1996	48	Del Oro Phase 1	Ungaged	59
	1999	115	Allens Creek Rehabilitation at Lake View and	Ungaged	1,403
	2002	465	Cliff Stephens Park Stormwater Retrofitting	Ungaged	11,600
	2006	464	Kapok Restoration Project	Ungaged	644
				Bay Segment / Entity Total:	13,705

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Largo					
	1997	64	Septic To Sewer Conversions In Largo	Ungaged	3,000
	1997	679	City of Largo Reclaimed Water (Reuse)	Ungaged	58,593
				Bay Segment / Entity Total:	61,593

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Safety Harbor					
	1995	61	Safety Harbor Stormwater Retrofit Project	Ungaged	1,079
				Bay Segment / Entity Total:	1,079

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Tampa					
	1994	58	Al Lopez Park Pond Enhancement	Ungaged	44
	1997	59	Lois And Henry Avenues Retention Pond (Drew	Ungaged	49
				Bay Segment / Entity Total:	93

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
FDOT					
	2005	1053	Outfall from SR 580 to Sweetwater Creek Canal	Ungaged	34
				Bay Segment / Entity Total:	34

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Bay Segment: Old Tampa Bay (Continued)

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Hillsborough County					
	1993	56	Brushy Creek Wetland Enhancement Project	Gaged	612
	1993	56	Brushy Creek Wetland Enhancement Project	Gaged	612
	1995	874	Citrus Conversion to Micro-Irrigation	Both	16
	1995	883	Field and Row Crop Conversion to Micro-Irrigation	Both	46
	1995	892	Strawberry Conversion to Micro-Irrigation	Both	91
	2004	884	Field and Row Crop Conversion to Micro-Irrigation	Both	21
				Bay Segment / Entity Total:	1,397

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Pinellas County					
	1992	477	High Ridge Estates	Ungaged	87
	1995	57	Alligator Creek Channel "H" Stormwater	Ungaged	799
	1998	50	Allen's Creek Rehabilitation At Lake View And	Ungaged	1,467
	2002	62	Roosevelt Creek Stormwater - Phase I	Ungaged	121
	2002	65	Alligator Creek Pond at Logan Street	Ungaged	875
	2004	67	Bayside Bridge Pond Rehabilitation	Ungaged	11
				Bay Segment / Entity Total:	3,361

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
SWFWMD					
	2002	511	Bishop Creek Streambank Protection	Ungaged	3
	2002	508	Largo Stormwater Retrofit - CDS Units	Ungaged	63
	2002	506	South Green Springs Phase Two Stormwater	Ungaged	164
	2005	998	East Gate Drainage Improvements	Ungaged	518
				Bay Segment / Entity Total:	748

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	791	Hookers Point facility - shut down	Both	81
	2003	761	Repowering Gannon Power Plant - Bayside Facility	Both	3,877
	2004	771	Big Bend Power Plant improvements	Both	942
	2005	781	Big Bend Power Plant improvements	Both	2,507
				Bay Segment / Entity Total:	7,407

Old Tampa Bay **Total:** **89,417**

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Bay Segment: Hillsborough Bay

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Cargill Fertilizer, Inc.					
	1996	31	Cargill Fertilizer Dedicated Sump By Production	Ungaged	59
	1996	32	Cargill Fertilizer Dedicated Sump At Product	Ungaged	1,584
	1997	33	Cargill Fertilizer Outfall Structural And Procedural	Ungaged	1,962
	1998	30	Cargill Fertilizer Stormwater Ponds	Ungaged	10
				Bay Segment / Entity Total:	3,615

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
CF Industries, Inc.					
	1993	36	CF Industries Product Conveyor System Upgrade	Ungaged	19,600
	1994	37	CF Industries Improved Dust Suppressant	Ungaged	108
	1997	38	CF Industries Product Conveyor System	Ungaged	41
	1997	39	CF Industries Stormwater Management System	Ungaged	3,400
	1999	851	Plant City Phosphate Complex, Process Water	Gaged	6,000
	2001	848	Bartow Phosphate Complex, Enhanced Process	Gaged	12,280
	2004	852	Plant City Phosphate Complex, Process Water	Gaged	6,000
	2005	997	Bartow Phosphate Complex, Enhanced Process	Gaged	3,520
	2006	1003	Bartow Phosphate Complex, Enhanced Process	Gaged	3,520
	2006	849	Bartow Phosphate Complex, Enhanced Process	Gaged	16,600
				Bay Segment / Entity Total:	71,069

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Plant City					
	1997	1062	City of Plant City, Reuse at CF Industries-Plant	Gaged	15,197
				Bay Segment / Entity Total:	15,197

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Tampa					
	1998	11	29th or 30th Street Outfall/ McKay Bay	Ungaged	33
	1998	20	Lowry Park West Stormwater Retrofit Project	Ungaged	168
	2001	14	Palma Ceia Area Stormwater Pond	Gaged	93
	2002	15	North Tampa Pond Enlargements	Ungaged	2
				Bay Segment / Entity Total:	298

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Bay Segment: Hillsborough Bay (Continued)

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
CSX Transportation					
	1997	40	CSX Transportation Rockport Terminal	Ungaged	74,000
	2005	922	Stormwater Connection to Hookers Point	Ungaged	3,200
				Bay Segment / Entity Total:	77,200

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Eastern Terminals					
	1996	28	Eastern Associated Terminals Stormwater	Ungaged	2,190
				Bay Segment / Entity Total:	2,190

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Hillsborough County					
	1995	872	Citrus Conversion to Micro-Irrigation	Both	14
	1995	871	Citrus Conversion to Micro-Irrigation	Both	87
	1995	879	Field and Row Crop Conversion to Micro-Irrigation	Both	106
	1995	875	Citrus Conversion to Micro-Irrigation	Both	110
	1995	890	Strawberry Conversion to Micro-Irrigation	Both	212
	1995	877	Field and Row Crop Conversion to Micro-Irrigation	Both	307
	1995	889	Strawberry Conversion to Micro-Irrigation	Both	613
	1995	885	Field and Row Crop Conversion to Micro-Irrigation	Both	698
	1995	893	Strawberry Conversion to Micro-Irrigation	Both	1,391
	1995	684	Van Dyke Reclaimed	Both	3,053
	1995	685	Northwest and River Oaks Reclaimed	Both	6,472
	1995	683	Dale Mabry Reclaimed	Both	10,946
	1995	686	Falkenburg & Valrico Reclaimed	Both	12,187
	1995	687	South County Reuse System	Ungaged	35,451
	1997	8	Delany Creek Wetland Restoration Project	Ungaged	1,691
	1999	10	Cone Ranch Restoration Project	Gaged	331
	1999	711	MiraBay Property	Ungaged	1,341
	2000	880	Field and Row Crop Conversion to Micro-Irrigation	Both	48
	2000	878	Field and Row Crop Conversion to Micro-Irrigation	Both	139
	2000	886	Field and Row Crop Conversion to Micro-Irrigation	Both	316
	2002	713	Stormwater Research Facility at 132nd and	Ungaged	27
	2004	712	Balm Road Wetland and Stormwater Treatment	Ungaged	911
	2006	1018	Hurley Tailwater Pond	Ungaged	665
				Bay Segment / Entity Total:	77,116

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Bay Segment: Hillsborough Bay (Continued)

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
IMC-Phosphate					
	1994	35	IMC-Agrico Company Shiploading Terminals	Ungaged	25,755
			Bay Segment / Entity Total:		25,755

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Kinder-Morgan/Pakhoed Dry Bulk Terminals					
	1998	920	Onsite Stormwater Management System	Ungaged	13,882
	2005	850	New Stormwater Retrofit 2004	Ungaged	2,720
	2005	921	Kinder-Morgan Tampaplex Terminal (formerly,	Ungaged	18,200
			Bay Segment / Entity Total:		34,802

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Mosaic					
	2003	843	Mosaic Riverview, Modifications to Outfall	Ungaged	20
	2004	844	Mosaic Riverview, Enhanced Housekeeping and	Ungaged	40
	2004	842	Mosaic Riverview Closed Stack Lined Surge	Ungaged	3,400
	2005	845	Mosaic Riverview, Improved drainage in	Ungaged	20
			Bay Segment / Entity Total:		3,480

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
SWFWMD					
	1999	21	Lake Thonotosassa Marsh Restoration Project	Gaged	66
	2000	26	Pistol Range Stormwater Retrofit Project	Gaged	2,809
	2000	19	East Lake (Alum) Stormwater Retrofit Project	Ungaged	5,244
	2001	601	Broadway Outfall Stormwater Retrofit Project	Gaged	139
	2002	122	Lowry Park Zoo Stormwater Rehabilitation	Ungaged	205
	2006	808	McKay Bay - Melbourne Pond SW	Ungaged	532
	2006	696	McKay Bay-East Shore Commerce Park Parcel	Ungaged	2,297
			Bay Segment / Entity Total:		11,292

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Tampa Bay Water					
	2003	461	Tampa Bay Water Regional Surface Water	Gaged	72,440
	2003	1069	Tampa Bay Water Regional Surface Water	Gaged	151,760
			Bay Segment / Entity Total:		224,200

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Bay Segment: Hillsborough Bay (Continued)

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Tampa Bay Water/SWFWMD					
	2006	123	McKay Bay (Eastshore Commerce Park)	Gaged	880
				Bay Segment / Entity Total:	880

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	794	Hookers Point facility - shut down	Both	18
	2002	792	Hookers Point facility - shut down	Both	54
	2002	793	Hookers Point facility - shut down	Both	85
	2003	768	Repowering Gannon Power Plant - Bayside Facility	Both	70
	2003	764	Repowering Gannon Power Plant - Bayside Facility	Both	882
	2003	766	Repowering Gannon Power Plant - Bayside Facility	Both	1,189
	2003	762	Repowering Gannon Power Plant - Bayside Facility	Both	2,592
	2003	765	Repowering Gannon Power Plant - Bayside Facility	Both	3,588
	2003	763	Repowering Gannon Power Plant - Bayside Facility	Both	4,137
	2004	774	Big Bend Power Plant improvements	Both	214
	2004	772	Big Bend Power Plant improvements	Both	630
	2004	775	Big Bend Power Plant improvements	Both	872
	2004	773	Big Bend Power Plant improvements	Both	1,006
	2005	784	Big Bend Power Plant improvements	Both	570
	2005	782	Big Bend Power Plant improvements	Both	1,677
	2005	783	Big Bend Power Plant improvements	Both	2,676
				Bay Segment / Entity Total:	20,260

Hillsborough Bay **Total:** **567,354**

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Bay Segment: Middle Tampa Bay

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Pinellas Park					
	1998	81	Pinellas Park Channel 2 Alum Stormwater Retrofit	Ungaged	272
				Bay Segment / Entity Total:	272

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of St. Petersburg					
	1998	77	Lake Maggiore Alum Injection	Ungaged	6,212
	2000	80	Mirror Lake Stormwater Retrofit	Ungaged	1,553
	2004	367	Urban retrofit projects	Ungaged	119
	2006	126	Lake Maggiore Dredging Project	Ungaged	3,426
				Bay Segment / Entity Total:	11,310

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Florida Power & Light					
	1994	1066	Manatee Plant Cooling Pond Seepage Return	Gaged	12,951
				Bay Segment / Entity Total:	12,951

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Hillsborough County					
	1995	873	Citrus Conversion to Micro-Irrigation	Both	6
	1995	881	Field and Row Crop Conversion to Micro-Irrigation	Both	46
	1995	876	Citrus Conversion to Micro-Irrigation	Both	62
	1995	891	Strawberry Conversion to Micro-Irrigation	Both	91
	1995	887	Field and Row Crop Conversion to Micro-Irrigation	Both	230
	1995	870	Hillsborough County Citrus	Both	295
	1995	894	Strawberry Conversion to Micro-Irrigation	Both	458
	2000	882	Field and Row Crop Conversion to Micro-irrigation	Both	21
	2000	888	Field and Row Crop Conversion to Micro-Irrigation	Both	104
				Bay Segment / Entity Total:	1,312

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
IMC-Phosphate					
	1995	996	IMC Agrico Company Termination of Ammonia in	Gaged	21,000
	1995	34	IMC-Agrico Company Termination Of Ammonia	Gaged	21,000
				Bay Segment / Entity Total:	42,000

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Bay Segment: Middle Tampa Bay (Continued)

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County					
	2003	937	Moody Branch Land Acquisition	Gaged	2,695
				Bay Segment / Entity Total:	2,695

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County CES					
	1995	916	Strawberry Crop Conversion to Micro-Irrigation	Both	0
	1995	917	Strawberry Crop Conversion to Micro-Irrigation,	Both	4
	1995	897	Citrus Conversion to Micro-Irrigation	Both	6
	1995	907	Field and Row Crops to Micro-Irrigation	Both	52
	1995	899	Citrus Conversion to Micro-Irrigation	Both	286
	1995	909	Field and Row Crop Conversion to Micro-	Both	1,272
	2000	898	Citrus Conversion to Micro-Irrigation	Both	1
	2000	908	Field and Row Crop Conversion to Micro-Irrigation	Both	13
	2000	900	Citrus Conversion to Micro-Irrigation	Both	38
	2000	910	Field and Row Crop Converson to Micro-Irrigation,	Both	320
				Bay Segment / Entity Total:	1,992

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Pinellas County					
	1999	86	Sawgrass Lake Pond (Haynesworth Tract)	Ungaged	564
				Bay Segment / Entity Total:	564

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
SWFWMD					
	1996	125	Cockroach Bay Restoration Project	Ungaged	571
	1997	84	Cockroach Bay Regional Stormwater Treatment	Ungaged	1,495
	1998	82	Haynsworth Tract Regional Stormwater Treatment	Ungaged	2,325
	2002	510	St. Petersburg Retrofit - CDS Units (storage yard	Ungaged	5
				Bay Segment / Entity Total:	4,396

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	796	Hookers Point facility - shut down	Both	25
	2004	776	Big Bend Power Plant improvements	Both	289
	2005	786	Big Bend Power Plant improvements	Both	769
				Bay Segment / Entity Total:	1,083

Middle Tampa Bay **Total:** **78,575**

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Bay Segment: Lower Tampa Bay

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County					
	2000	87	Overlay District Projects - Development	Both	2,057
	2000	88	Overlay District Projects - Agriculture	Both	17,155
	2002	952	Grassy Point Project	Ungaged	116
	2005	936	Stormwater Pond	Ungaged	111
	2005	939	Neal Preserve	Ungaged	409
			Bay Segment / Entity Total:		19,847

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County CES					
	1995	915	Strawberry Crop to Micro-Irrigation	Both	1
	1995	895	Citrus Conversion to Micro-Irrigation	Both	197
	1995 220	905	Field and Row Crop Conversion to Micro-Irrigation		Both
	2000	896	Citrus Conversion to Micro-Irrigation	Both	26
	2000	906	Field and Row Conversion to Micro-Irrigation	Both	55
			Bay Segment / Entity Total:		499

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	797	Hookers Point facility - shut down	Both	60
	2003	767	Repowering Gannon Power Plant - Bayside Facility	Both	2,915
	2004	777	Big Bend Power Plant improvements	Both	709
	2005	787	Big Bend Power Plant improvements	Both	1,886
			Bay Segment / Entity Total:		5,570

Lower Tampa Bay **Total:** **25,916**

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Bay Segment: Remainder of Lower Tampa Bay

Segment **Boca Ciega Bay**

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of St. Petersburg					
	1994	98	Jungle Lake Restoration	Ungaged	628
	1999	99	Clam Bayou Borrow Pit Retrofit	Ungaged	530
				Bay Segment / Entity Total:	1,158

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Pinellas County					
	1994	104	Pinellas County EMS Stormwater Pond	Ungaged	17
	1995	100	102nd Avenue Pond Enhancement	Ungaged	130
	1995	101	94th Ave. Pond Enhancement	Ungaged	163
	2001	107	Lake Seminole "Dogleg" Refurbishing	Ungaged	67
	2001	108	St. Pete Junior College Wetland Restoration	Ungaged	147
	2001	475	McKay Creek Sediment Sump	Ungaged	663
	2003	472	Millennium Park Improvement	Ungaged	221
				Bay Segment / Entity Total:	1,408

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
SWFWMD					
	1994	102	Bath Club Concourse Stormwater Retrofit	Ungaged	17
	1994	103	South Pasadena Stormwater Demonstration	Ungaged	24
	1998	94	Wood Ibis Park Stormwater Retrofit Project	Ungaged	260
	2000	124	City of Madeira Beach Public Works Complex	Ungaged	18
	2002	105	Largo Regional Stormwater Treatment Facility	Ungaged	3,065
				Bay Segment / Entity Total:	3,385

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	800	Hookers Point facility - shut down	Ungaged	29
	2003	770	Repowering Gannon Power Plant - Bayside Facility	Ungaged	1,413
	2004	780	Big Bend Power Plant improvements	Ungaged	344
	2005	790	Big Bend Power Plant improvements	Ungaged	915
				Bay Segment / Entity Total:	2,701

Boca Ciega Bay **Sub-Total:** **8,651**

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Bay Segment: Remainder of Lower Tampa Bay (Continued)

Segment **Manatee River**

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Bradenton					
	2000	681	Bradenton Reclaimed	Ungaged	28,084
				Bay Segment / Entity Total:	28,084

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County					
	2003	930	Pine Island	UNKNOWN	120
	2003	91	Central Sewer Hook-up - Manatee County	UNKNOWN	7,375
	2003	92	Tropicana Point Discharge To Deep Well	Ungaged	22,066
	2004	942	Conservatory	UNKNOWN	180
	2004	934	Hidden Harbour	UNKNOWN	1,035
	2005	939	Neal Preserve	Ungaged	409
	2005	932	Manatee River Headwaters Wetlands Restoration	Gaged	2,768
	2006	933	Mining Mitigation Parcel	UNKNOWN	7,207
				Bay Segment / Entity Total:	41,160

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County CES					
	1995	918	Strawberry Crop Conversion to Micro-Irrigation	Both	15
	1995	901	Citrus Conversion to Micro-Irrigation	Both	778
	1995	911	Field and Row Crop Conversion to Micro-Irrigation	Both	4,900
	2000	902	Citrus Conversion to Micro-Irrigation	Both	103
	2000	912	Field and Row Crop Conversion to Micro-	Both	1,230
				Bay Segment / Entity Total:	7,025

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	799	Hookers Point facility - shut down	Both	38
	2002	795	Hookers Point facility - shut down	Both	74
	2003	769	Repowering Gannon Power Plant - Bayside Facility	Both	1,819
	2004	779	Big Bend Power Plant improvements	Both	442
	2005	789	Big Bend Power Plant improvements	Both	1,176
	2005	785	Big Bend Power Plant improvements	Both	2,321
				Bay Segment / Entity Total:	5,870

Manatee River **Sub-Total:** **82,139**

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Bay Segment: Remainder of Lower Tampa Bay (Continued)

Segment **Terra Ceia Bay**

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
City of Palmetto					
	2000	682	City of Palmetto Reclaimed	Ungaged	3,447
				Bay Segment / Entity Total:	3,447

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County					
	2005	943	Watershed Overlay Development	Ungaged	1,119
				Bay Segment / Entity Total:	1,119

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
Manatee County CES					
	1995	919	Strawberry Crop Conversion to Micro-Irrigation	Ungaged	0
	1995	903	Citrus Conversion to Micro-Irrigation	Ungaged	23
	1995	913	Field and Row Crop Conversion to Micro-Irrigation	Ungaged	77
	2000	904	Citrus Conversion to Micro-Irrigation	Ungaged	3
	2000	914	Field and Row Crop Conversion to Micro-Irrigation	Ungaged	19
				Bay Segment / Entity Total:	123

Lead Entity:	Completion Date:	ID	Project Name:	Gage Type:	TN Load Reduction (lbs/year)
TECO					
	2002	798	Hookers Point facility - shut down	Ungaged	1
	2004	778	Big Bend Power Plant improvements	Ungaged	2
	2005	788	Big Bend Power Plant improvements	Ungaged	4
				Bay Segment / Entity Total:	7

Terra Ceia Bay **Sub-Total:** **4,695**

Remainder of Lower Tampa Bay **Total:** **95,485**

ALL BAY SEGMENTS COMBINED REDUCTIONS **Grand Total:** **428 tons**

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Appendix B.2. Future Action Plan Projects Anticipated During the 2008-2012 RA Implementation Period

Bay Segment: Old Tampa Bay

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
City of Clearwater	116, 202	Development and implementation of a City-wide plan for expansion of reclaimed water service	2008-2012		
City of Clearwater	194	Continue support for FY&N	2008-2012	Yes	
City of Clearwater	195	Assist business with implementation of BMP's	2008-2012	Yes	
City of Clearwater	196	Promote use of BMP's on City-owned facilities	2008-2012	Yes	
City of Clearwater	198	Encourage alternative stormwater treatment methods	2008-2012	Yes	
City of Clearwater	203	Expansion of central sewer collection (septic tank elimination)	2008-2012		
City of Clearwater	210	Sewer System Evaluation Study and Self Audit Program	1999		
City of Clearwater	482	Alligator Lake/Ruth Eckerd Wetland Creation	2007		
City of Clearwater	1021	Fairwood Forest Channel Improvements	2009		
City of Clearwater	1023	Bayview Park	2008		
City of St. Petersburg	369, 468	Expand and Improve Reclaimed Water System	2008-2012		
City of Largo	1027	Longbow Lane Drainage Improvements	2016		
City of Largo	1028	Kent Place Drainage Ditch Improvements	2014		
City of Largo	1030	Lucymar Subdivision Drainage Improvements	2013		
City of Largo	1031	Unpaved Alleys Sediment and Erosion Control	2010		
City of Largo	1037	Annual Stormwater Replacement Program	2008-2012		
City of Largo	1040	Stormwater Filtration Units	2012		
City of Largo	1052	Long Branch Creek Drainage Basin Improvements	2009		
City of Tampa	148	Continue support for Florida Yards & Neighborhoods and similar pollution prevention programs.	2008-2012	Yes	
City of Tampa	161	Expand Central Sewer Service to areas served by septic systems	2008-2012		
City of Tampa	974	Reduce Occurrences of Municipal Sewer Overflows to Tampa Bay	2008-2012		
City of Tampa	1017	Bacteria at Ben T. Davis Beach	2008-2012		
FDOT	1054	North Dale Mabry Highway Stormwater Retrofit & Wetland Restoration	2010		
Hillsborough County	55	Lower Sweetwater Creek Regional Stormwater Facility	2010		
Hillsborough County	570	Hillsborough County Adopt-A-Pond	2008-2012	Yes	
Pinellas County	69	FY & N Florida Schoolyard Program	2008-2012	Yes	
Pinellas County	70	Florida Yards & Neighborhoods Program	2008-2012	Yes	
Pinellas County	71	FY & N Concepts For County Buildings And Lands	2008-2012	Yes	
Pinellas County	133	North County Subdivision Reclaimed Water Systems	2008-2012		
Pinellas County	134	Lake Tarpon Septic Tank Removal	2008-2012		
Pinellas County	135	Lake Tarpon Stormwater Treatment (Areas 44/47)	2014		
Pinellas County	331	Florida Yards & Neighborhoods (FY&N) and similar pollution prevention programs	2008-2012	Yes	
Pinellas County	332	Training in Green Industries BMPs	2008-2012	Yes	
Pinellas County	333	FY&N classes, Water-Wise Awards and Workshops	2008-2012	Yes	
Pinellas County	340	Expand sewer service to septic tank users in selected areas	2010		
Pinellas County	483	Brooker Creek Watershed Management Plan	2008-2012		
Pinellas County	484	Mobbly Bayou Wilderness Preserve Restoration	2009		

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Bay Segment: Old Tampa Bay (Continued)

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
Pinellas County	545	Alligator Lake Restoration	2008		
Pinellas County	674	Brownfields Redevelopment Program in Cross Bayou Watershed	2008-2012		
Pinellas County	831	Brooker Creek Exhibits	2008-2012	Yes	
Pinellas County	925	Lake Tarpon Water Quality Area 6 Alum Treatment	2008		
Pinellas County	926	Lake Tarpon Water Quality Area 23 Alum Treatment	2009		
Pinellas County	927	Lake Tarpon Water Quality Area 63 Alum Treatment	2009		
SWFWMD	481	Bayside Bridge Pond Retrofit			
SWFWMD	832	Brooker Creek Watershed Education	2008-2012	Yes	
SWFWMD	836	Starkey Park Exhibits	2005	Yes	
SWFWMD	840	South Cross Bayou Water Reclamation Facility Tour and Education Program	2008-2012	Yes	
Tampa Bay Water	862	Landscape and Irrigation Permit and Code Enforcement Training Program	2008-2012	Yes	
Tampa Bay Water	863	Irrigation, Evaluation Training Program	2008-2012	Yes	

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Bay Segment: Hillsborough Bay

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
CF Industries, Inc.	854	Bartow Phosphate Complex Phosphogypsum Stack Closure	?		
CF Industries, Inc.		Acceptance of City of Plant City reclaimed water at CF Industries-Plant City Facility	Ongoing		7.6 tons/year
City of Lakeland	1057	Lakeland Methane to Energy project – Phase II	Future		
City of Lakeland	1058	Lakeland SCR Project	In Progress		
City of Lakeland	1059	Lakeland Hi-Efficiency Burners	In Progress		
City of Lakeland	1060	Lakeland Water to TECO	Future		
City of Lakeland	1061	Lakeland Methane to Energy project – Phase I	In Progress		
City of Plant City	1063	City of Plant City, Existing Reuse by Reclaimed Water Irrigation	2008		
City of Plant City	1064	City of Plant City, Proposed Reuse by Reclaimed Water Irrigation at City Parks	2009		
City of Plant City	1065	City of Plant City proposed reuse by reclaimed water irrigation at Walden Lake Golf course	2010		
City of Plant City		Plant City Stormwater Inlet Marking Program	2008-2012	Yes	
City of Plant City		Plant City Lift Station Auxiliary Power Program	2008-2012		
City of Plant City		Plant City Lift Station Maintenance	2008-2012		
City of Plant City		Plant City Lift Station Security Program	2008-2012		
City of Plant City		Plant City Grease Management Program	2008-2012		
City of Plant City		Plant City Inflow and Infiltration (I&I) Program	2008-2012		
City of Plant City		Lake Thonotosassa Diagnostic Assessment and Water Quality Treatment Project	2008-2012		
City of Plant City		Plant City Spill Prevention/Response Program	2008-2012		
City of Plant City		Plant City Sewer Line Maintenance Program	2008-2012		
City of Tampa	148	Continue support for Florida Yards & Neighborhoods and similar pollution prevention programs.	2008-2012	Yes	
City of Tampa	158	South Tampa Area Reclaim Project (STAR)	2008-2012		
City of Tampa	161	Expand Central Sewer Service to areas served by septic systems	2008-2012		
City of Tampa	174	Encourage waterfront residents to enhance shorelines and limit runoff from yards	2008-2012	Yes	
City of Tampa		City of Tampa Interactive Watershed Atlas	2008-2012	Yes	
City of Tampa	830	North Tampa Pipeline	?		
City of Tampa	974	Reduce Occurrences of Municipal Sewer Overflows to Tampa Bay	2008-2012		
City of Tampa	1011	Five-Year Stormwater Capital Improvement Program	2010		
City of Tampa		Robles Park Stormwater Improvement	2010		
City of Tampa		River Tower Park Shoreline Restoration and Stormwater Improvements	2009		
City of Tampa		North Boulevard Siphon Rehabilitation Project	2008		
City of Tampa		Urban Lake Rescue–Lake Roberta	2008		
City of Tampa		12th Street Forcemain Replacement	Ongoing		
City of Tampa		City of Tampa Riverwalk Project	Planned		
Eastern Terminals	1001	C2 Transfer Point Enclosure	2007		
Eastern Terminals	28	Updated stormwater improvements (regrading and sodding of swales and berm adjacent to ship transfer, sweeping spilled product, etc.)	2008		
Eastern Terminals		Enclosure of conveyor belt #5	2008		
Eastern Terminals		Enclosure of the 9/4 transfer point	2009-2010		

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Bay Segment: Hillsborough Bay (Continued)

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Implementation Period	Education Credits?	Anticipated N Load Offset
FDEP/FDACS	41, 42	Land Limited BMPs For Dairy Farms In Areas Of Urbanization Within The Hillsborough R. Watershed	2008-2012		
FDOT	1056	River Tower Stormwater Retrofit	2010	Yes	
Hillsborough County	22	Florida Yards And Neighborhood Program	2008-2012	Yes	
Hillsborough County	23	Supplements To FY&N	2008-2012		
Hillsborough County	288	Support implementation of BMPs	2008-2012		
Hillsborough County	298	SCADA for monitoring pump station failure	2011		
Hillsborough County	496	McKay Bay Watershed Projects	2006	Yes	
Hillsborough County	570	Hillsborough County Adopt-A-Pond	2008-2012	Yes	
Hillsborough County	591	Hillsborough Lake Management Program (LaMP)	2008-2012		
Hillsborough County	1000	Hillgrove and Stearns Stormwater Facilities, Phase I-Alafia River	2011		
Hillsborough County	1019	Lake Meade Water Quality Improvement	2011		
Mosaic	719	Alafia Banks Restoration Settling Pond	?		
Mosaic	855	Mulberry RO Process Water Treatment, Prevention Project	?		
Mosaic	856	Mulberry/Bartow Regional Process Water Storage Pond and R/O Treatment	?		
Mosaic	857	Mulberry, Closure of Mulberry phosphogypsum stack	?		
Pasco County		New River and Hillsborough River Watershed Management Plans in Pasco County	2008-2012		
Polk County		Drainage Maintenance on Blackwater Creek	2008-2012		
Polk County		Illicit Discharge Complaint Investigation	2008-2012		
Polk County		Routine Maintenance Erosion Control	2008-2012		
SWFWMD	534	Palm River Restoration	2008-2012		
SWFWMD	742	McIntosh Park Water Quality/Wetland Enhancement	2009		
SWFWMD	810	River Hills Drive Outfall No. 1	?		
SWFWMD	811	River Hills Drive Outfall No.2	?		
SWFWMD	812	South Glen Arven Outfalls SW retrofit	?		
SWFWMD	814	Sumner Road	?	Yes	
SWFWMD	833	Stormwater Education Program at The Florida Aquarium	2008-2012	Yes	
SWFWMD	834	Hillsborough River Watershed Education	2008-2012	Yes	
Tampa Bay Water	860	Green Building Program	2008-2012	Yes	
Tampa Bay Water	862	Landscape and Irrigation Permit and Code Enforcement Training Program	2008-2012		
Tampa Bay Water	864	Downstream Augmentation Project	2011		
Tampa Bay Water	867	Source Water Protection – Land Use and Development Review Program	2008-2012		
Tampa Bay Water	868	Alafia River Water Quality Protection Plan (WQPP)	2008-2012		
Tampa Bay Water	869	Tampa Bypass Canal Water Quality Protection Plan	2008-2012		
Tampa Bay Water	1067, 1078	Tampa Bay Regional Surface Water Treatment Plant Expansion	2008		
Tampa Bay Water	1078	Tampa Bay Regional Surface Water Treatment Plant Expansion	2008	Yes	
Tampa Port Authority	394	Stormwater Pollution Prevention Plan (SWPPP)	2008-2012	Yes	
Tampa Port Authority	397	Reduce pollution from recreational boaters	2008-2012	Yes	
Tampa Port Authority	402	Encourage waterfront homeowners to enhance shorelines and limit runoff	2008-2012	Yes	
Tampa Port Authority	995	Support for Multiple Public Education Projects	2008-2012		

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Bay Segment: Middle Tampa Bay

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
City of St. Petersburg	364	Support for FY&N Program	2008-2012	Yes	
City of St. Petersburg	365	Assist businesses in implementing BMPs to reduce stormwater pollution	2008-2012	Yes	
City of St. Petersburg	369, 468	Expand and Improve Reclaimed Water System	2008-2012		
City of St. Petersburg	370	Expand central sewer system to areas served by septic tanks	2008		
City of St. Petersburg	373	Identify overflow areas and address them in their maintenance plan	2008		
City of St. Petersburg	695	Booker Lake Alum Treatment Facility	2009		
City of St. Petersburg	756	St. Petersburg Municipal Marina – Clean Marina Program	2008-2012	Yes	
City of St. Petersburg	1004	Green City	2008-2012	Yes	
Hillsborough County	570	Hillsborough County Adopt-A-Pond	2008-2012	Yes	
Pinellas County	69	FY & N Florida Schoolyard Program	2008-2012	Yes	
Pinellas County	70	Florida Yards & Neighborhoods Program	2008-2012	Yes	
Pinellas County	71	FY & N Concepts For County Buildings And Lands	2008-2012	Yes	
Pinellas County	331	Florida Yards & Neighborhoods (FY&N) and similar pollution prevention programs	2008-2012	Yes	
Pinellas County	332	Training in Green Industries BMPs	2008-2012	Yes	
Pinellas County	333	FY&N classes, Water-Wise Awards and Workshops	2008-2012	Yes	
Pinellas County	340	Expand sewer service to septic tank users in selected areas	2010		
SWFWMD	478	Sawgrass Lake Improvement / Restoration	?		
SWFWMD	802	Booker Lake Regional Stormwater Treatment Facility	2009		
Tampa Bay Water	863	Irrigation, Evaluation Training Program	2008-2012	Yes	

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Bay Segment: Lower Tampa Bay

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
City of St. Petersburg	369, 468	Expand and Improve Reclaimed Water System	2008-2012		
Manatee County	90	Florida Yards And Neighborhoods Program	2008-2012	Yes	
Manatee County	935	Conservation Easement	2009		
Pinellas County	69	FY & N Florida Schoolyard Program	2008-2012	Yes	
Pinellas County	70	Florida Yards & Neighborhoods Program	2008-2012	Yes	
Pinellas County	71	FY & N Concepts For County Buildings And Lands	2008-2012	Yes	
Pinellas County	331	Florida Yards & Neighborhoods (FY&N) and similar pollution prevention programs	2008-2012	Yes	
Pinellas County	332	Training in Green Industries BMPs	2008-2012	Yes	
Pinellas County	333	FY&N classes, Water-Wise Awards and Workshops	2008-2012	Yes	
Pinellas County	340	Expand sewer service to septic tank users in selected areas	2010		
Tampa Bay Water	863	Irrigation, Evaluation Training Program	2008-2012	Yes	

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Bay Segment: Remainder of Lower Tampa Bay

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Imple-mentation Period	Edu-cation Credits?	Anticipated N Load Offset
City of Anna Maria	1014	Willow/Gulf Dr./Pine Ave.	2007		
City of Gulfport	1006	Tangerine Greenway Project	?		
City of St. Petersburg	364	Support for FY&N Program	2008-2012	Yes	
City of St. Petersburg	365	Assist businesses in implementing BMPs to reduce stormwater pollution	2008-2012	Yes	
City of St. Petersburg	369, 468	Expand and Improve Reclaimed Water System	2008-2012		
City of St. Petersburg	370	Expand central sewer system to areas served by septic tanks	2008		
City of St. Petersburg	373	Identify overflow areas and address them in their maintenance plan	2008		
City of St. Petersburg	999	Tropicana Field Stormwater Enhancements and Education	2008-2012	Yes	
Manatee County	714	Ware's Creek Flood Reduction	?		
Manatee County	928	Braden River Park of Commerce	?		
Manatee County	938	Gulfstream Pipeline Mitigation	2008		
Manatee County	941	Future Land Acquisition at Duette Park	2007		
Manatee County	956	Visitors Center at Emerson Point Park	2008-2012	Yes	
Manatee County	957	Wares Creek Dredging	2008		
Manatee County	1015	Buffalo Canal Watershed Management Program	2008		
Manatee County	1016	Gamble Creek Watershed Management Program	2008		
Pinellas County	736	Pinellas County Adopt-A-Pond	2008-2012	Yes	
Pinellas County	69	FY & N Florida Schoolyard Program	2008-2012	Yes	
Pinellas County	70	Florida Yards & Neighborhoods Program	2008-2012	Yes	
Pinellas County	71	FY & N Concepts For County Buildings And Lands	2008-2012	Yes	
Pinellas County	331	Florida Yards & Neighborhoods (FY&N) and similar pollution prevention programs	2008-2012	Yes	
Pinellas County	332	Training in Green Industries BMPs	2008-2012	Yes	
Pinellas County	333	FY&N classes, Water-Wise Awards and Workshops	2008-2012	Yes	
Pinellas County	340	Expand sewer service to septic tank users in selected areas	2010		
Pinellas County	470	Lake Seminole clean-up	?		
Pinellas County	471	Joe's Creek @ 62nd Avenue	?		
Pinellas County	573	Lake Seminole Watershed Pollution Reduction Project	?		
Pinellas County	671	Shell Key Preserve Management Plan	2008-2012		
Pinellas County	674	Brownfields Redevelopment Program in Cross Bayou Watershed	2008-2012		
Pinellas County	923	Seminole Bypass Canal Regional Stormwater Treatment Facility	2007		
Pinellas County	924	Alum Treatment of Five Priority Subbasins Discharging to Lake Seminole	2009		
SWFWMD	507	Clam Bayou Stormwater Treatment and Habitat Restoration (phase 3)	2008		
SWFWMD	593	Bishop Harbor Road – Land Acquisition	?		

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Bay Segment: Remainder of Lower Tampa Bay (Continued)

Lead Entity	Action Plan ID	Project Name/Description	Completion Year/Implementation Period	Education Credits?	Anticipated N Load Offset
SWFWMD	801	141st Avenue Outfall	?		
SWFWMD	806	Lake Carroll (70th Street)	?		
SWFWMD	807	Largo St. Quality Retrofit - 101st Street	?		
SWFWMD	819	Joe's Creek Greenway Park Stormwater Treat and Wetlands Restoration	2007		
SWFWMD	840	South Cross Bayou Water Reclamation Facility Tour and Education Program	2008-2012	Yes	
SWFWMD	1007	Clam Bayou Stormwater Treatment North "E"	2008		
SWFWMD	1008	Clam Bayou Stormwater Treatment South "U3"	2008		
SWFWMD	1013	Clam Bayou Stormwater Treatment North "Z"	2008		
Tampa Bay Water	863	Irrigation, Evaluation Training Program	2008-2012	Yes	

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APPENDIX C: Demonstration Assessment of 5-yr Reasonable Assurance Similar to the Anticipated Process to Occur in 2012

ED_002491_00001148-00402

Old Tampa Bay Segment Demonstration 5-Year Reasonable Assurance Assessment

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Small Sources	Set Allocation	1.0						1.0
Cheval West	MS4 % Contribution (normalized tons)	0.2%	0.2% (0.9)	0.2% (0.7)	0.2% (0.5)	0.2% (0.5)	0.1% (0.2)	0.2%
City of Clearwater	Set Allocation - Clearwater East SW	9.3	10.4	7.1	10.8	9.4	8.6	9.3
	Set Allocation - Clearwater East RE	0.1	0.5	0.0	0.0	0.0	0.0	0.1
	Set Allocation - Clearwater Northeast SW	16.6	17.3	18.9	19.3	12.8	14.6	16.6
	Set Allocation - Clearwater Northeast RE	1.1	1.5	1.0	0.8	0.7	1.4	1.1
	MS4 % Contribution (normalized tons)	2.7%	2.4% (10.4)	3.6% (13.7)	1.1% (3.4)	2.9% (9.2)	2.6% (7.7)	2.5%
Heritage Harbor	NPS % Contribution (normalized tons)	0.2%	0.2% (0.7)	0.2% (0.6)	0.1% (0.4)	0.2% (0.5)	0.1% (0.2)	0.1%
Hillsborough County	Set Allocation - Dale Mabry SW	7.4	8.6	8.8	9.5	5.4	4.8	7.4
	Set Allocation - Dale Mabry RE	2.8	1.4	2.7	3.3	3.0	3.4	2.8
	Set Allocation - Northwest Regional SW	2.9	7.1	1.4	5.0	0.6	0.6	2.9
	Set Allocation - Northwest Regional RE	5.5	9.3	4.7	6.2	3.7	3.6	5.5
	Set Allocation - River Oaks SW	13.4	13.1	16.7	15.4	13.2	8.7	13.4
	Set Allocation - River Oaks RE	1.6	0.9	1.4	1.6	2.2	1.6	1.6
	Set Allocation - Van Dyke RE	0.8	0.2	0.9	1.0	1.1	0.7	0.8
	MS4 % Contribution (normalized tons)	23.3%	25.2% (108.2)	24.9% (93.9)	20.7% (64.2)	23.8% (74.7)	16.5% (48.2)	22.2%
City of Largo	Set Allocation - Largo SW	16.4	18.8	11.9	12.9	23.0	15.4	16.4
	Set Allocation - Largo RE	2.6	1.1	3.3	3.8	2.5	2.3	2.6
	MS4 % Contribution (normalized tons)	1.4%	1.2% (5.0)	1.6% (6.1)	1.0% (3.0)	1.6% (5.0)	1.7% (4.9)	1.4%

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Old Tampa Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
MacDill Air Force Base	MS4 % Contribution (normalized tons)	0.1%	0.1% (0.3)	0.1% (0.4)	0.1% (0.2)	0.1% (0.3)	0.1% (0.3)	0.1%
City of Oldsmar	Set Allocation - Oldsmar SW	2.7	3.0	2.3	2.7	2.7	2.0	2.5
	Set Allocation - Oldsmar RE	0.5	0.4	0.3	0.5	0.8	0.8	0.5
	MS4 % Contribution (normalized tons)	1.4%	1.2% (5.0)	1.6% (6.0)	1.0% (3.0)	1.6% (4.9)	1.6% (4.8)	1.4%
On Top of the World	Set Allocation - On Top of the World RE	0.5	0.9	0.4	0.3	0.3	0.4	0.5
Palm Bay	NPS % Contribution (normalized tons)	<0.1%	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1%
Park Place	NPS % Contribution (normalized tons)	0.1%	0.1% (0.3)	0.1% (0.4)	0.1% (0.2)	0.1% (0.4)	0.1% (0.3)	0.1%
Pasco County	MS4 % Contribution (normalized tons)	0.4%	0.5% (2.1)	0.5% (1.8)	0.4% (1.3)	0.4% (1.3)	0.2% (0.7)	0.4%
Pinellas County	Set Allocation - W.E. Dunn RE	2.3	0.9	1.9	1.6	5.8	1.3	2.3
	Set Allocation - Bridgeway Acres SW	1.2	2.2	2.8	0.0	1.0	0.0	1.2
	MS4 % Contribution (normalized tons)	14.7%	15.0% (64.2)	16.5% (62.4)	18.3% (56.9)	10.7% (33.5)	9.6% (28.1)	14.0%
City of Pinellas Park	MS4 % Contribution (normalized tons)	1.0%	0.9% (3.6)	1.2% (4.4)	0.7% (2.1)	1.2% (3.6)	1.2% (3.5)	1.0%
City of Safety Harbor	MS4 % Contribution (normalized tons)	1.3%	1.1% (4.7)	1.5% (5.8)	0.7% (2.3)	1.4% (4.4)	1.4% (4.1)	1.2%
City of St. Petersburg	Set Allocation - St. Pete Facilities RE	4.7	3.8	4.2	5.3	5.5	4.6	4.7
	MS4 % Contribution (normalized tons)	0.9%	0.7% (3.2)	1.0% (3.8)	0.6% (1.8)	1.0% (3.2)	1.0% (3.0)	0.9%

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Old Tampa Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Stonebriar	NPS % Contribution (normalized tons)	0.1%	0.1% (0.2)	0.1% (0.2)	0.1% (0.1)	0.1% (0.2)	<0.1% (0.1)	0.1%
City of Tarpon Springs	MS4 % Contribution (normalized tons)	0.4%	0.4% (1.9)	0.5% (1.7)	0.6% (1.9)	0.2% (0.8)	0.2% (0.6)	0.4%
City of Tampa	MS4 % Contribution (normalized tons)	5.3%	4.4% (19.0)	6.1% (22.8)	3.6% (11.2)	6.0% (18.9)	6.3% (18.3)	5.3%
Westchase	NPS % Contribution (normalized tons)	0.4%	0.3% (1.3)	0.4% (1.5)	0.3% (0.8)	0.4% (1.3)	0.4% (1.3)	0.4%
Westchase East	NPS % Contribution (normalized tons)	0.4%	0.4% (1.5)	0.5% (1.8)	0.3% (1.0)	0.5% (1.6)	0.5% (1.5)	0.4%
Non-MS4/Non-Ag NPS	% Contribution (normalized tons)	2.6%	2.1% (9.1)	2.9% (10.8)	1.9% (5.9)	3.0% (9.3)	3.1% (9.2)	2.6%
Atmospheric Deposition	% Contribution (normalized tons)	33.6%	32.5% (139.3)	26.1% (98.7)	37.4% (116.2)	35.4% (111.0)	45.5% (133.1)	35.4%
Other (Groundwater, Springs, Conservation)	% Contribution (normalized tons)	3.6%	3.6% (15.5)	3.9% (14.7)	3.5% (10.8)	3.3% (10.3)	2.9% (8.6)	3.4%
FDACS (Agriculture)	% Contribution (normalized tons)	6.1%	6.4% (27.3)	6.7% (25.3)	5.7% (17.8)	5.9% (18.5)	4.7% (13.6)	5.9%

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Hillsborough Bay Segment Demonstration 5-Year Reasonable Assurance Assessment

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Small Sources	Set Allocation	10.5						10.5
Lowry Park Zoo	Point Source SW	1.0						1.0
Hillsborough County	Set Allocation – Falkenburg SW	15.2	13.1	12.3	17.1	18.1	15.2	15.2
	Set Allocation – Falkenburg RE	2.8	1.5	2.4	2.7	3.6	4.0	2.8
	Set Allocation – South County SW	1.8	1.6	0.0	0.8	2.5	4.1	1.8
	Set Allocation – Valrico SW	5.6	5.0	6.2	8.2	8.8	0.0	5.6
	Set Allocation – Valrico RE	5.0	2.9	3.6	4.2	6.6	7.7	5.0
	MS4 % Contribution (normalized tons)	22.6%	23.5% (295.9)	24.2% (324.5)	17.3% (143.5)	12.6% (151.4)	12.6% (90.3)	18.0%
City of Lakeland	Set Allocation – Lakeland SW	20.0	13.1	14.2	10.2	5.3	4.8	9.5
	Set Allocation – Lakeland RE	0.2	0.9	0.0	0.0	0.0	0.0	0.2
	MS4 % Contribution (normalized tons)	1.1%	1.2% (15.5)	0.9% (12.2)	0.9% (7.5)	0.7% (7.9)	0.6% (4.4)	0.9%
City of Mulberry	Set Allocation – Mulberry SW	2.4	1.7	1.7	1.4	1.4	1.1	1.4
	MS4 % Contribution (normalized tons)	0.2%	0.2% (2.3)	0.2% (2.5)	0.2% (1.3)	0.2% (2.3)	0.2% (1.3)	0.2%
Pasco County	Set Allocation – Master Reuse System RE	5.8	2.4	3.6	3.9	4.6	4.8	3.9
	MS4 % Contribution (normalized tons)	3.7%	5.8% (72.5)	2.8% (36.8)	3.5% (29.2)	0.3% (3.1)	0.1% (0.9)	2.5%
City of Plant City	Set Allocation – Plant City SW	9.5	19.1	12.9	8.0	4.0	3.6	9.5
	Set Allocation – Plant City RE	1.0	2.6	0.7	0.6	0.6	0.8	1.0
	MS4 % Contribution (normalized tons)	0.9%	1.1% (13.8)	0.8% (10.0)	0.8% (6.4)	0.5% (5.5)	0.4% (3.0)	0.7%
Polk County	Set Allocation – NW Regional RE	0.6	0.3	0.8	0.9	0.7	0.4	0.6
	Set Allocation – SW Regional RE	1.1	1.3	1.3	1.2	0.9	1.0	1.1
	MS4 % Contribution (normalized tons)	6.5%	6.8% (85.6)	5.9% (79.2)	5.4% (44.9)	5.2% (62.6)	4.9% (35.4)	5.7%

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Hillsborough Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
City of Tampa	Set Allocation – HF Curren SW	212.2	195.7	232.2	217.3	221.3	194.5	212.2
	Set Allocation – HF Curren RE	1.0	0.5	0.0	1.0	1.7	1.8	1.0
	MS4 % Contribution (normalized tons)	4.8%	3.9% (48.8)	4.4% (59.3)	3.2% (26.9)	5.4% (65.6)	8.5% (60.7)	5.1%*
City of Zephyrhills	Set Allocation – Zephyrhills RE	3.0	2.4	2.5	2.8	4.0	3.1	3.0
	MS4 % Contribution (normalized tons)	0.2%	0.2% (3.1)	0.1% (1.6)	0.2% (1.2)	<0.1% (0.1)	<0.1% (<0.05)	0.1%
CF Industries	Set Allocation – Material Losses	3.4	0.1	0.2	0.2	0.3	0.2	0.2
	Bartow % Contribution (normalized tons)	1.5%	1.1% (14.3)	1.1% (15.2)	2.8% (23.4)	0.9% (11.3)	1.6% (11.4)	1.5%
	Plant City % Contribution (normalized tons)**	0.1%**	0.1% (1.1)	0.1% (1.6)	0.1% (0.4)	<0.1% (0.2)	<0.1% (<0.05)	0.1%
	Tampa Ammonia Terminal % Contribution (normalized tons)	<0.1%	<0.1% (<0.05)	<0.1% (0.1)	<0.1% (0.3)	<0.1% (0.4)	0.1% (0.8)	<0.1%
	Tampa Phosphate Warehouse % Contribution (normalized tons)	0.1%	<0.1% (<0.05)	0.1% (1.9)	<0.1% (<0.05)	0.1% (0.7)	<0.1% (0.2)	<0.1%
CSX	Set Allocation – Rockport Material Losses	5.6	8.9	8.4	7.8	5.8	4.3	7.1
	Set Allocation – Winston Yard	3.0	0.0	0.0	0.0	0.0	0.0	0.0
	Set Allocation – Rockport**	5.0**	0.0	0.0	0.0	0.0	0.0	0.0
Eastern Terminals	Set Allocation – Material Losses	5.6	15.9	15.8	15.8	15.8	15.8	15.8
	Eastern Terminals % Contribution (normalized tons)**	0.7%**	0.4% (4.9)	0.4% (5.2)	1.1% (8.9)	1.1% (13.1)	2.2% (16.1)	1.0%

Hillsborough Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Kinder Morgan	Set Allocation - Material Losses - Port Sutton	1.8	0.4	0.3	0.3	0.3	0.3	0.3
	Set Allocation - Material Losses - Tampaplex	3.4	0.0	0.0	0.0	0.0	0.0	0.0
	Set Allocation - Hartford Terminal**	75.0**	0.1	0.0	0.0	0.0	0.0	0.0
	Set Allocation - Ammonia Facility**		7.4	100.0	8.2	8.1	5.6	25.9
	Set Allocation - Port Sutton**		1.9	335.8	84.9	319.0	24.8	153.3
Kerry I&F Contracting	Set Allocation**	1.8**	0.0	0.0	0.0	0.1	0.1	0.0
Tampa Bay Water	Set Allocation	1.5	1.1	0.1	0.2	0.0	0.0	0.3
Pebble Creek Utilities	Set Allocation - Pebble Creek SW	0.3	0.4	0.5	0.3	0.0	0.2	0.3
	Set Allocation - Pebble Creek RE	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Mosaic	Set Allocation - Material Losses - Riverview	3.4	0.1	0.1	0.1	0.1	0.1	0.1
	Bartow % Contribution (normalized tons)	0.1%	0.1% (1.3)	<0.1% (0.4)	0.1% (0.8)	0.1% (0.8)	0.2% (1.0)	0.1%
	Ft. Lonesome % Contribution (normalized tons)	0.3%	0.3% (3.5)	0.2% (2.6)	0.5% (3.9)	0.1% (0.6)	<0.1% (0.3)	0.2%
	Green Bay % Contribution (normalized tons)	0.6%	0.7% (8.6)	0.2% (2.1)	0.2% (1.5)	0.5% (5.7)	1.7% (12.3)	0.6%
	Hookers Prairie % Contribution (normalized tons)	0.5%	1.2% (14.9)	0.1% (1.8)	0.1% (0.6)	0.1% (1.1)	0.2% (1.3)	0.3%
	Hopewell % Contribution (normalized tons)	0.3%	0.2% (1.9)	0.1% (1.2)	0.6% (5.0)	0.4% (4.3)	0.4% (3.2)	0.3%
	Kingsford % Contribution (normalized tons)	6.2%	3.5% (43.7)	4.0% (53.1)	11.5% (95.7)	9.4% (113.4)	9.3% (66.9)	7.5%
	Mulberry % Contribution (normalized tons)	0.5%	0.3% (3.3)	0.1% (1.3)	0.7% (5.6)	1.1% (13.1)	0.9% (6.8)	0.6%

Hillsborough Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Mosaic (cont'd.)	New Wales Stack Closure % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	0.00%
	Nichols Mine % Contribution (normalized tons)	0.3%	0.3% (3.5)	0.2% (2.4)	0.2% (1.7)	0.3% (3.9)	0.4% (2.6)	0.3%
	Riverview % Contribution (normalized tons)	0.8%	0.8% (10.2)	1.1% (14.5)	0.4% (3.3)	0.3% (3.2)	0.7% (5.3)	0.7%
	Riverview Stack Closure % Contribution (normalized tons)	0.5%	<0.1% (0)	1.1% (15.3)	0.3% (2.2)	<0.1% (0.3)	<0.1% (0)	0.3%
	South Pierce % Contribution (normalized tons)	0.2%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	2.3% (16.3)	0.5%
Agrifos	Nichols Prep Plant % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Brewster Phosphogypsum	Brewster Phosphogypsum % Contribution (normalized tons)	0.1%	0.1% (0.6)	<0.1% (0.4)	0.1% (0.9)	0.2% (2.2)	0.2% (1.3)	0.1%
Alpha/Owens Corning	Alpha/Owens Corning % Contribution (normalized tons)	0.1%	<0.1% (0.1)	0.1% (1.1)	0.2% (1.6)	0.2% (2.0)	0.3% (1.9)	0.1%
Coronet Industries	Coronet Industries % Contribution (normalized tons)	0.5%	0.4% (4.4)	0.6% (8.4)	0.3% (2.4)	0.3% (3.7)	0.1% (0.9)	0.3%
Estech Agricola	Estech Agricola % Contribution (normalized tons)	0.3%	0.1% (0.9)	<0.1% (0)	0.9% (7.0)	0.8% (9.9)	<0.1% (0)	0.3%
Exxon Mobil	Exxon Mobil % Contribution (normalized tons)	0.2%	<0.1% (0)	0.3% (4.3)	0.3% (2.4)	<0.1% (0)	<0.1% (0)	0.1%
TECO Bayside	TECO Bayside % Contribution (normalized tons)	0.1%	<0.1% (0)	0.1% (1.1)	0.1% (0.7)	0.2% (1.9)	0.1% (1.0)	0.1%
Trademark Nitrogen	Trademark Nitrogen % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0.1)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Yara North America	Yara North America % Contribution (normalized tons)	<0.1%	0.1% (1.0)	<0.1% (0.1)	<0.1% (<0.05)	<0.1% (0.1)	<0.1% (0.1)	<0.1%

Hillsborough Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Alafia Preserve	NPS % Contribution (normalized tons)	0.1%	0.1% (0.7)	0.1% (0.8)	0.1% (0.4)	0.1% (0.7)	0.1% (0.4)	0.1%
Bloomingdale	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Donaldson Knoll	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.1)	<0.1% (0.1)	<0.1% (0)	<0.1% (0.1)	<0.1% (0)	<0.1%
Eagle Ridge	NPS % Contribution (normalized tons)	0.1%	0.1% (0.8)	0.1% (0.9)	0.1% (0.5)	0.1% (0.8)	0.1% (0.4)	0.1%
Lake St. Charles	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.4)	<0.1% (0.4)	<0.1% (0.2)	<0.1% (0.5)	0.1% (0.5)	<0.1%
Live Oak I	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.4)	<0.1% (0.2)	<0.1% (0.2)	<0.1% (0)	<0.1% (0)	<0.1%
Live Oak II	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.2)	<0.1% (0.1)	<0.1% (0.1)	<0.1% (0)	<0.1% (0)	<0.1%
Magnolia Park	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0.1)	<0.1% (0)	<0.1% (0.1)	<0.1% (0.1)	<0.1%
MacDill Air Force Base	MS4 % Contribution (normalized tons)	0.1%	0.1% (0.7)	0.1% (0.8)	0.1% (0.4)	0.1% (0.9)	0.1% (0.8)	0.1%
Palm River	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Panther Trace	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.3)	<0.1% (0.3)	<0.1% (0.2)	<0.1% (0.4)	0.1% (0.4)	<0.1%
Panther Trace II	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.2)	<0.1% (0.2)	<0.1% (0.2)	<0.1% (0.2)	<0.1% (0.2)	<0.1%
Rivercrest	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.3)	<0.1% (0.3)	<0.1% (0.2)	<0.1% (0.4)	0.1% (0.4)	<0.1%
City of San Antonio	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.5)	<0.1% (0.3)	<0.1% (0.2)	<0.1% (0)	<0.1% (0)	<0.1%

Hillsborough Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Spring Lake	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.1)	<0.1% (0.2)	<0.1% (0.1)	<0.1% (0.2)	<0.1% (0.2)	<0.1%
City of St. Leo	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Stone Crest	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Stone Dairy Creek	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
Stonelake Ranch	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1% (0)	<0.1%
City of Temple Terrace	MS4 % Contribution (normalized tons)	0.2%	0.3% (3.9)	0.2% (2.0)	0.2% (1.6)	<0.1% (0.2)	<0.1% (0.1)	0.1%
Non-MS4/Non-Ag NPS	% Contribution (normalized tons)	0.5%	0.7% (8.6)	0.4% (5.2)	0.5% (3.8)	0.2% (2.1)	0.3% (1.8)	0.4%
Atmospheric Deposition	% Contribution (normalized tons)	6.0%	4.7% (59.6)	3.6% (48.2)	7.5% (62.0)	7.4% (89.1)	14.8% (106.6)	7.60%
Other (Groundwater, Springs, Conservation)	% Contribution (normalized tons)	13.5%	13.0% (163.1)	9.7% (130.3)	16.7% (138.4)	11.7% (141.4)	18.7% (134.0)	14.0%
FDACS (Agriculture)	% Contribution (normalized tons)	25.8%	28.9% (363.6)	23.3% (312.6)	23.1% (191.4)	15.8% (190.2)	17.5% (125.9)	21.7%

**** City of Tampa is expected to meet compliance through implementation of education programs (Action Plans 148, 174)***
*****See Section VII.A & VIII.E. for expectation to meet compliance.***

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Middle Tampa Bay Segment Demonstration 5-Year Reasonable Assurance Assessment

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Small Sources	Set Allocation	2.4						2.4
Harbor Bay	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.2)	<0.1% (0.2)	<0.1% (0.1)	<0.1% (0.1)	<0.1% (0.1)	<0.1%
Hillsborough County	Set Allocation - South County RE	0.5	0.9	0.3	0.3	0.5	0.4	0.5
	MS4 % Contribution (normalized tons)	9.9%	12.1% (91.0)	8.8% (54.2)	8.6% (44.7)	9.9% (51.9)	6.7% (33.7)	9.2%
MacDill Air Force Base	Set Allocation - WWTP RE	0.7	1.1	0.8	0.6	0.5	0.5	0.7
	MS4 % Contribution (normalized tons)	1.0%	0.9% (6.8)	1.3% (8.0)	0.6% (3.2)	0.9% (4.6)	1.0% (5.1)	0.9%
Manatee County	MS4 % Contribution (normalized tons)	3.0%	3.8% (28.8)	2.6% (16.1)	2.6% (13.7)	3.0% (15.7)	2.0% (9.9)	2.8%
Pinellas County	MS4 % Contribution (normalized tons)	0.5%	0.5% (3.4)	0.9% (5.5)	<0.1% (0.1)	0.1% (0.6)	0.4% (1.9)	0.4%
City of Pinellas Park	MS4 % Contribution (normalized tons)	0.7%	0.6% (4.8)	1.2% (7.4)	0.4% (1.8)	0.5% (2.6)	0.8% (4.2)	0.7%
City of St. Petersburg	Set Allocation - St. Pete Facilities RE	20.8	17.0	18.7	23.5	24.4	20.4	20.8
	MS4 % Contribution (normalized tons)	6.5%	5.9% (44.0)	11.1% (68.4)	2.7% (14.0)	3.5% (18.2)	6.6% (33.4)	6.0%
Mosaic	Four Corners % Contribution (normalized tons)	4.1%	2.3% (17.2)	6.6% (40.5)	8.0% (41.4)	2.3% (12.0)	1.7% (8.5)	4.1%
TECO Big Bend	Set Allocation SW*	56.5*	0.0	32.3	31.9	34.5	31.2	26.0*
	Set Allocation RE	2.1	0.0	0.0	0.0	0.0	10.3	2.1

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Middle Tampa Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Non-MS4/Non-Ag NPS	% Contribution (normalized tons)	0.5%	0.4% (3.3)	0.8% (4.9)	0.3% (1.7)	0.4% (2.2)	0.7% (3.3)	0.5%
Atmospheric Deposition	% Contribution (normalized tons)	35.2%	30.4% (228.7)	31.2% (191.8)	40.2% (209.3)	38.9% (203.6)	49.4% (249.5)	38.0%
Other (Groundwater, Springs, Conservation)	% Contribution (normalized tons)	5.1%	5.6% (42.4)	4.9% (30.2)	4.7% (24.6)	5.3% (27.7)	4.3% (21.6)	5.0%
FDACS (Agriculture)	% Contribution (normalized tons)	33.4%	37.4% (281.4)	30.5% (187.1)	31.9% (166.1)	35.2% (184.2)	26.5% (134.0)	32.3%

Includes a Set Allocation of 35.0 tons/year and an Interim Allocation through 2012 of an additional 21.5 tons/year to allow determination of new discharge loads.

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Lower Tampa Bay Segment Demonstration 5-Year Reasonable Assurance Assessment

ENTITY	SOURCE	5-Yr Average Allocation	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Small Sources	Set Allocation	0.3						0.3
Hillsborough County	MS4 % Contribution (normalized tons)	<0.1%	<0.1% (0.1)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1%
Lexington	NPS % Contribution (normalized tons)	<0.1%	0.1% (0.2)	<0.1% (0.1)	<0.1% (<0.05)	<0.1% (0.1)	<0.1% (<0.05)	<0.1%
Manatee County	Set Allocation - Manatee Co North RE	3.9	0.6	4.2	4.8	4.0	5.6	3.9
	MS4 % Contribution (normalized tons)	7.8%	9.7% (31.2)	7.6% (17.4)	4.3% (9.4)	6.6% (13.6)	4.3% (9.3)	6.5%
City of St. Petersburg	MS4 % Contribution (normalized tons)	<0.1%	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1%
Kinder Morgan	Set Allocation – Material Losses – Port Manatee	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Piney Point Facility	Set Allocation*	0.9*	47.2	18.7	15.1	12.7	0.9	18.9*
Non-MS4/Non-Ag NPS	% Contribution (normalized tons)	0.5%	0.5% (1.7)	0.5% (1.0)	0.3% (0.7)	0.5% (0.9)	0.4% (0.8)	0.4%
Atmospheric Deposition	% Contribution (normalized tons)	81.8%	69.8% (223.3)	76.4% (175.1)	81.4% (177.1)	77.5% (160.3)	87.5% (190.0)	78.5%
Other (Groundwater, Springs, Conservation)	% Contribution (normalized tons)	1.2%	1.4% (4.4)	1.2% (2.6)	0.9% (1.9)	1.2% (2.4)	0.9% (1.9)	1.1%
FDACS (Agriculture)	% Contribution (normalized tons)	8.6%	9.7% (31.1)	8.0% (18.4)	5.9% (12.7)	8.1% (16.8)	6.1% (13.3)	7.6%

Interim Allocation based on expected compliance load under the closure during the RA's implementation through 2012.

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Remainder of Lower Tampa Bay Demonstration 5-Year Reasonable Assurance Assessment

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
City of Bradenton	Set Allocation - Bradenton SW	18.6	23.8	19.2	21.2	16.7	12.1	18.6
	Set Allocation - Bradenton RE	0.6	0.6	0.5	0.7	0.8	0.6	0.6
	MS4 % Contribution (normalized tons)	1.8%	2.6% (15.1)	1.3% (6.4)	1.0% (4.7)	1.8% (9.1)	1.4% (6.2)	1.6%
City of Gulfport	MS4 % Contribution (normalized tons)	0.4%	0.3% (1.6)	0.6% (3.2)	0.2% (1.0)	0.3% (1.7)	0.7% (3.2)	0.4%
Greyhawk Landing	NPS % Contribution (normalized tons)	0.1%	0.2% (1.2)	0.1% (0.5)	0.1% (0.4)	0.1% (0.7)	0.1% (0.5)	0.1%
Harbourage at Braden River	NPS % Contribution (normalized tons)	<0.1%	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1%
Heritage Harbour	NPS % Contribution (normalized tons)	0.1%	0.2% (1.2)	0.1% (0.5)	0.1% (0.4)	0.1% (0.7)	0.1% (0.5)	0.1%
Heritage Harbour Marketplace	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.2)	<0.1% (0.1)	<0.1% (0.1)	<0.1% (0.1)	<0.1% (0.1)	<0.1%
Lakewood Ranch	MS4 % Contribution (normalized tons)	1.5%	1.4% (8.2)	1.4% (7.3)	1.5% (7.5)	2.1% (11.0)	0.6% (2.7)	1.4%
Lexington	NPS % Contribution (normalized tons)	<0.1%	<0.1% (0.2)	<0.1% (0.1)	<0.1% (<0.05)	<0.1% (0.1)	<0.1% (<0.05)	<0.1%
Manatee County	Set Allocation - Southeast RE	2.7	2.5	2.7	2.4	2.8	3.1	2.7
	MS4 % Contribution (normalized tons)	22.0%	26.2% (153.9)	19.2% (97.7)	17.6% (88.2)	23.1% (119.8)	13.6% (60.2)	19.9%
Pinellas County	MS4 % Contribution (normalized tons)	0.2%	0.2% (1.0)	0.3% (1.5)	0.1% (0.4)	0.1% (0.7)	0.3% (1.3)	0.2%
City of Palmetto	Set Allocation - Palmetto SW	2.2	4.1	2.6	2.3	1.1	0.8	2.2
	Set Allocation - Palmetto RE	1.0	0.9	0.9	0.8	1.0	1.1	1.0
	MS4 % Contribution (normalized tons)	0.8%	1.0% (6.1)	0.6% (3.0)	0.4% (2.0)	0.8% (4.0)	0.6% (2.8)	0.7%

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Remainder of Lower Tampa Bay (continued).

ENTITY	SOURCE	5-Yr Average Allocation Target	EXAMPLE OF DATA USED TO ASSESS 5-YR REASONABLE ASSURANCE					
			Year 1 (2003)	Year 2 (2004)	Year 3 (2005)	Year 4 (2006)	Year 5 (2007)	5-Yr Average (2003-2007)
Sarasota County	MS4 % Contribution (normalized tons)	1.4%	1.3% (7.7)	1.4% (6.9)	1.4% (7.0)	2.0% (10.3)	0.6% (2.6)	1.3%
City of St. Petersburg Beach	MS4 % Contribution (normalized tons)	0.2%	0.2% (0.9)	0.3% (1.7)	0.1% (0.6)	0.2% (0.9)	0.4% (1.7)	0.2%
City of St. Petersburg	Set Allocation - St. Pete Facilities RE	1.6	1.3	1.4	1.8	1.9	1.6	1.6
	MS4 % Contribution (normalized tons)	1.3%	1.0% (6.1)	2.3% (11.5)	0.5% (2.6)	1.0% (4.9)	2.1% (9.3)	1.4%
Tara	NPS % Contribution (normalized tons)	0.2%	0.2% (1.0)	0.2% (0.9)	0.2% (0.9)	0.3% (1.4)	0.1% (0.3)	0.2%
University Place	NPS % Contribution (normalized tons)	0.1%	0.1% (0.6)	0.1% (0.5)	0.1% (0.6)	0.2% (0.8)	0.1% (0.2)	0.1%
Waterlefe	NPS % Contribution (normalized tons)	0.1%	0.1% (0.8)	0.1% (0.3)	0.1% (0.3)	0.1% (0.5)	0.1% (0.3)	0.1%
Mosaic	Other NPS % Contribution (normalized tons)	1.0%	0.7% (4.3)	1.3% (6.6)	1.5% (7.7)	0.8% (4.4)	1.0% (4.4)	1.0%
Tropicana*	Set Allocation	9.1*	0.9	0.0	0.0	0.0	0.0	0.2
Non-MS4/Non-Ag NPS	% Contribution (normalized tons)	<0.1%	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1% (<0.05)	<0.1%
Atmospheric Deposition	% Contribution (normalized tons)	13.0%	10.6% (62.1)	12.9% (65.4)	13.0% (65.3)	12.6% (65.0)	27.4% (121.4)	15.3%
Other (Groundwater, Springs, Conservation)	% Contribution (normalized tons)	10.9%	8.0% (46.9)	13.8% (70.1)	16.1% (80.9)	9.1% (47.3)	10.8% (47.9)	11.6%
FDACS (Agriculture)	% Contribution (normalized tons)	46.0%	46.4% (272.1)	45.4% (231.3)	47.6% (238.4)	46.1% (239.1)	41.0% (181.7)	45.3%

Tropicana has agreed to this allocation as an interim allocation only applicable through the end of the current 2008 – 2012 reasonable assurance assessment period and reserves the right to seek a larger allocation for total nitrogen as additional information as to efficacy of existing federal TMDLs and the assimilative capacity of the Manatee River and lower Tampa Bay becomes available.

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APPENDIX D: 1992-1994 and 2003-2007 Raw Datasets Used to Develop Allocations (accompanying CD)

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Following is a list of files containing data used to estimate loadings from each source category, with a brief description of each file. All files are available electronically as Comma Separated Values (CSV) files. The files for each source category are in the respective source category directories.

Directory Atmospheric Deposition:

NWS_Site_Locations.csv – UTM coordinates for NWS rain sites.
Rainfall_NWS_Sites_0307.csv – Daily rainfall in inches for each NWS site.
Segment_Areas.csv – Areas of bay segment surfaces.
SegRain0307.csv – Monthly rainfall to bay segment surfaces, inches/month.
TBADS_AD_WetConc.csv – TBADS concentrations of TN and TP in rainfall, monthly volume weighted means, for 1/03 – 6/07
Verna_AD_WetConc.csv – Verna Wellfield concentrations of TN and TP in rainfall, monthly volume weighted means, for 7/06-12/07

Directory Domestic Point Source:

DPS_data_2003.csv – 2003 Monthly flows and concentrations by facility, with notes on how missing values were filled
DPS_data_2004-2007.csv – 2004-2007 Monthly flows and concentrations by facility, with notes on how missing values were filled.
DPS_Reuse_TNAttenuation.csv – Attenuation factor for TN loads from reuse discharge for each facility.

Directory Groundwater:

TB_GW_0307.csv – Wet and dry seasonal monthly flows for Floridan and Intermediate aquifers, monthly flows for surficial aquifer, with concentrations. Dry season is months 1-6, 11, and 12. Wet season is months 7-10.

Directory Industrial Point Source:

IPS_data_2003.csv – 2003 Monthly flows and concentrations by facility, with notes on how missing values were filled
IPS_data_2004-2007.csv – 2004-2007 Monthly flows and concentrations by facility, with notes on how missing values were filled.

Directory Material Loss (Fertilizer Handling Losses):

CF_Material_Loss_2003-2007.csv
CSX_Material_Loss_2003-2007.csv
Eastern_Material_Loss_2003-2007.csv
KM_PortManatee_Material_Loss_2003-2007.csv
KM_PortSutton_Material_Loss_2003-2007.csv
KM_TampaPlex_Material_Loss_2003-2007.csv
Mosaic_Big_Bend_Material_Loss_2003-2007.csv
Mosaic_Riverview_Material_Loss_2003-2007.csv

All files contain annual estimates of loadings either provided by companies or estimated from previous data, with source notes.

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Directory Nonpoint Source:

NPS_Jurisdictional_Annual_Loads_0307.csv – Annual jurisdictional loads from nonpoint sources by entity, including FDACS, Conservation Lands, and MSGPs

Directory Springs:

Spring_Conc_0307.csv – Monthly concentrations used to derive loadings

Spring_Flow_0307.csv – Monthly flows used to derive loadings

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APPENDIX E: NMC Response to FDEP Comments on Final 2009 RA Addendum

ED_002491_00001148-00420

The following questions and comments were provided by FDEP staff following their technical review of the 2009 Reasonable Assurance Addendum: Allocation and Assessment Report, approved by the Consortium participants on September 11, 2009. Response to FDEP comments were drafted by TBEP staff, for review and approval by Consortium participants.

The FDEP comments are primarily clarification requests, and do not affect the approved NMC process or recommended allocations. Finalized responses will be used by TBEP staff to revise the Addendum text as noted, and comments and responses will be included as an additional appendix in the Addendum.

1. "The consortium is planning to develop loading updates for 2008-2011, to be assessed in early 2012, to allow inclusion in the 2012 Group 1 assessment."

> **Correction:** The last two RAs have been based on 5-year periods (1998- 2002 and 2003-2007), with loadings developed for these 5-year periods. The current RA period is 2008-2012. Since our loading estimates for this current period will be through 2012, the next RA document cannot be developed until 2013. As stated on page 73-76, the Consortium intends to conduct the RA assessment in summer 2013. This time period is consistent with the combined Group 1 and Group 2 timing, as it has been in the past two rounds.

2. The report represents a tremendous effort by the Consortium, but it was difficult to follow the overall thought process, particularly Section VI: Process to Develop Allocations. Some text at the front of the document explaining how it is laid out, in effect a road map, and how the topics in each section are related to each other would be helpful to the reader.

> **Response:** Agree. A summary at the beginning of the document will be included.

3. There is not a good comprehensive map with WBIDs that relate to the target wasteload allocations from the TMDL and referenced in the RA update. There is no real way of knowing which WBIDs are included in the TMDL and RA, and from WAS perspective, which WBIDs are affected by the categorical 4b listing assessments. A better more informative presentation for WAS would be a table of WBIDs per major bay segment and TN allocations by WBID with TN totals for each major bay segment.

> **Response:** The RA is structured around the four major bay segments, plus the Manatee River, Terra Ceia Bay and Lower Boca Ciega Bay (collectively termed "Remainder Lower Tampa Bay" in the Addendum), and not individual WBIDs nested within them. The existing loading estimates, chl a thresholds, etc may not be appropriate at the WBID scale, since they have not been developed for this purpose. We will add a new appendix with a map and table showing the nesting of WBIDs within the RA bay segments, which should address many of the WBID-related questions (see information to be included in the new appendix below). The Upper Boca Ciega WBIDs are not included in the RA document.

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BACKGROUND INFORMATION FOR INCLUSION IN APPENDIX D:

Both the 2002 and 2007 Reasonable Assurance submittals to FDEP have identified that the nitrogen management strategies developed through the Consortium were to address nutrient impairments for the major bay segments to Tampa Bay (i.e. Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, and Lower Tampa Bay). In addition, prior correspondences with FDEP [see letters dated June 19, 2006 (H. Greening to D. Joyner) and July 7, 2006 (D. Joyner to H. Greening response] have identified the FDEP-defined WBIDs used in the TBEP annual chlorophyll-*a* assessments to maintain Reasonable Assurance for the major bay segments in Tampa Bay.

As such, the entity allocations developed by the Consortium in the 2009 RA Addendum directly address the major bay segment allocations specified in the federally-recognized TMDL for Tampa Bay proper and the nitrogen management strategy for the major bay segments outlined in the 2002 and 2007 RA submittals. The EPA's TMDL website for Tampa Bay incorrectly identifies WBIDs 1603 and 1624 as being part of the federally-recognized TMDL for the major bay segments. Please find below a map showing the TBEP RA segment boundary in relation to FDEP-defined WBIDs for the major bay segments within Tampa Bay proper (Figure D-1). Table D-1 lists the FDEP-defined WBIDs contained within the major bay segments identified in the federally-recognized TMDL and the 2007 RA submittal is also provided.

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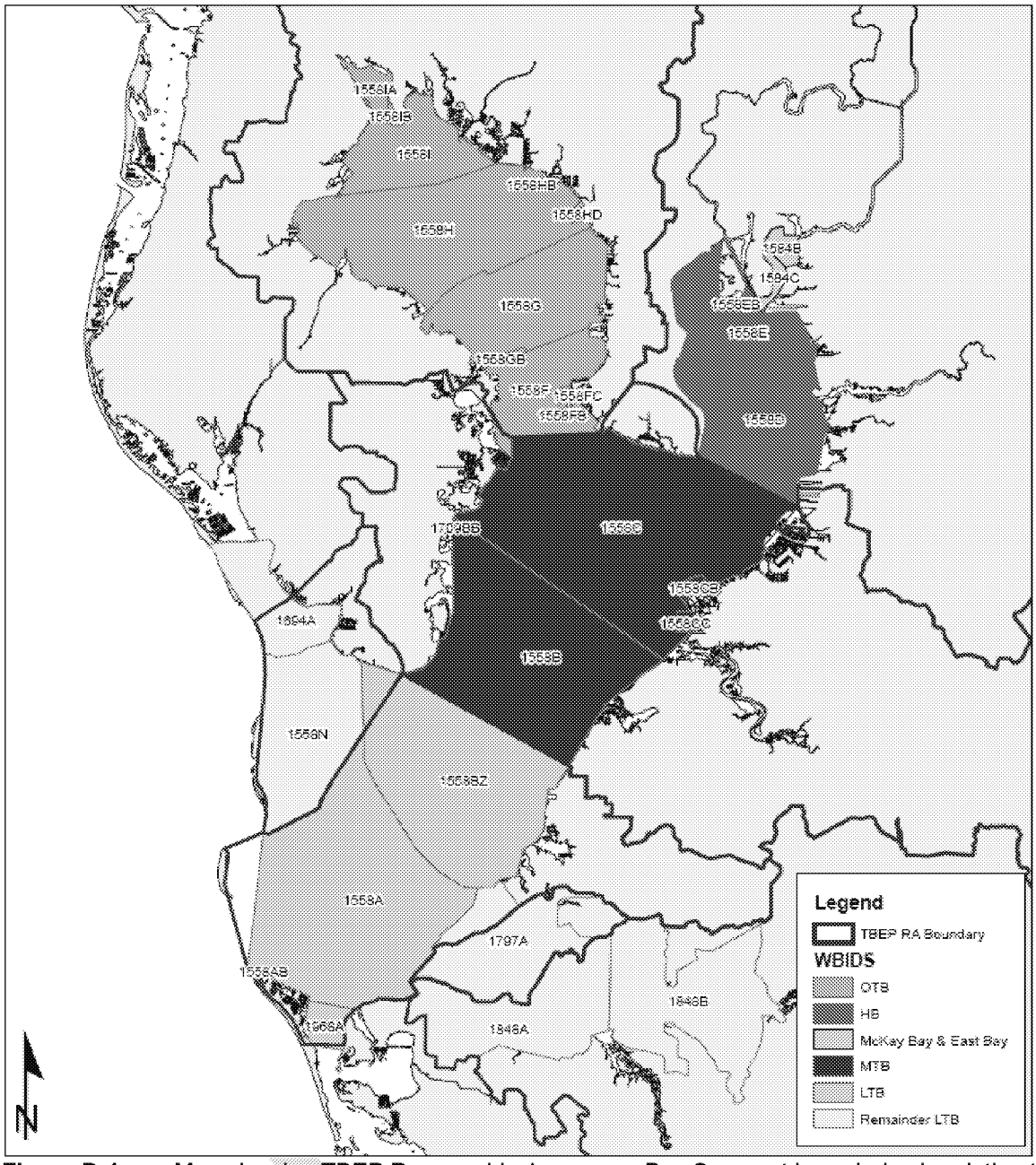

Figure D-1: Map showing TBEP Reasonable Assurance Bay Segment boundaries in relation to FDEP-defined WBIDs contained in the major bay segments proper.

Table D-1: FDEP-defined WBIDs contained within the major bay segments identified in the federally-recognized TMDL and the 2007 RA submittal.

TBEP RA Segment	WBID	HUC	DISTRICT	PLANUNIT	GROUP_NUM	GROUP_NAME	BASIN_NAME	BODY
OTB	1558F	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	OLD TAMPA BAY (LOWER SEGMENT)	ESTUAI
OTB	1558FC	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	PICNIC ISLAND (NORTH)	BEACH
OTB	1558GB	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	GANDY BOULEVARD	BEACH
OTB	1558HE	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	CYPRESS POINT PARK (SOUTH)	BEACH
OTB	1558HB	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	BEN T DAVIS (NORTH)	BEACH
OTB	1558H	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	OLD TAMPA BAY	ESTUAI
OTB	1558I	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	OLD TAMPA BAY	ESTUAI
OTB	1558IA	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	SAFETY HARBOR	ESTUAI
OTB	1558IB	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	SAFETY HARBOR	BEACH
OTB	1558G	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	OLD TAMPA BAY	ESTUAI
OTB	1558FB	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	PICNIC ISLAND (SOUTH)	BEACH
OTB	1558HD	03100206	SWD	Old Tampa Bay	Group 1	Tampa Bay	CYPRESS POINT PARK (NORTH)	BEACH
HB	1558EB	03100206	SWD	Hillsborough Bay	Group 1	Tampa Bay	DAVIS ISLAND BEACH	BEACH
HB	1558D	03100206	SWD	Hillsborough Bay	Group 1	Tampa Bay	HILLSBOROUGH BAY (LOWER)	ESTUAI
HB	1558E	03100206	SWD	Hillsborough Bay	Group 1	Tampa Bay	HILLSBOROUGH BAY (UPPER)	ESTUAI
McKay Bay	1584B	03100206	SWD	Coastal Hillsborough Bay Tributary	Group 1	Tampa Bay	MCKAY BAY	ESTUAI
East Bay	1584C	03100206	SWD	Coastal Hillsborough Bay Tributary	Group 1	Tampa Bay	EAST BAY	ESTUAI
MTB	1709BB	03100206	SWD	Coastal Middle Tampa Bay Tributary	Group 1	Tampa Bay	NORTH SHORE BEACH	BEACH
MTB	1558B	03100206	SWD	Middle Tampa Bay	Group 1	Tampa Bay	TAMPA BAY (MIDDLE SEGMENT)	ESTUAI
MTB	1558CC	03100206	SWD	Middle Tampa Bay	Group 1	Tampa Bay	BAHIA BEACH	BEACH
MTB	1558CB	03100206	SWD	Middle Tampa Bay	Group 1	Tampa Bay	SIMMONS PARK BEACH	BEACH
MTB	1558C	03100206	SWD	Middle Tampa Bay	Group 1	Tampa Bay	TAMPA BAY (UPPER SEGMENT)	ESTUAI
LTB	1558AC	03100206	SWD	Lower Tampa Bay	Group 1	Tampa Bay	BAYFRONT PARK (SOUTH)	BEACH
LTB	1558AB	03100206	SWD	Lower Tampa Bay	Group 1	Tampa Bay	BAYFRONT PARK (NORTH)	BEACH
LTB	1558BZ	03100206	SWD	Middle Tampa Bay	Group 1	Tampa Bay	TAMPA BAY (LOWER NORTH SEGMENT)	ESTUAI
LTB	1558A	03100206	SWD	Lower Tampa Bay	Group 1	Tampa Bay	TAMPA BAY (LOWER SEGMENT)	ESTUAI
LTB	1968A	03100201	SWD	Sarasota Bay	Group 3	Sarasota Bay - Peace - Myakka	ANNA MARIA SOUND	ESTUAI
Remainder LTB	1694A	03100207	SWD	Anclote River / Coastal Pinellas County	Group 5	Springs Coast	BOCA CIEGA BAY (CENTRAL)	ESTUAI
Remainder LTB	1558N	03100206	SWD	Lower Tampa Bay	Group 1	Tampa Bay	BOCA CIEGA BAY (SOUTH)	ESTUAI
Remainder LTB	1848B	03100202	SWD	Manatee River	Group 2	Tampa Bay Tributaries	MANATEE RIVER BELOW DAM	ESTUAI
Remainder LTB	1848A	03100202	SWD	Manatee River	Group 2	Tampa Bay Tributaries	MANATEE RIVER BELOW DAM	ESTUAI
Remainder LTB	1797A	03100206	SWD	Coastal Lower Tampa Bay Tributary	Group 1	Tampa Bay	TERRA CEIA BAY	ESTUAI

FINAL

Tampa Bay Estuary Program

June 19, 2006

Mr. Daryll Joyner
Florida Department of Environmental Protection
Bureau of Watershed Management
Total Maximum Daily Load Program, Mail Code 3555
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Consistent WBID boundaries in Tampa Bay and East Bay chl *a* criteria requests

Dear ~~Mr. Joyner~~ Daryll:

A key focus of the Tampa Bay Estuary Program has been to establish nitrogen loading targets for Tampa Bay to encourage seagrass recovery. In 1996, local government and agency partners in the TBEP approved a long-term goal to restore 95% of the seagrass coverage observed in 1950. In 1998, the Tampa Bay Nitrogen Management Consortium (NMC) was formed. The NMC includes local governments and agencies participating in the TBEP, and phosphate companies, electric utilities and agricultural interests in the Tampa Bay watershed. These entities have pledged to work cooperatively in a voluntary, non-regulatory framework to assist with the maintenance of nitrogen loads to support seagrass restoration in Tampa Bay. The Florida Department of Environmental Protection has concluded that the nitrogen management plan developed by the TBEP for Tampa Bay provides reasonable assurance that impairment of designated uses related to nutrients in Tampa Bay will be adequately addressed.

The NMC Action Plan and the approved Reasonable Assurance documentation use the TBEP bay segmentation scheme (see attached map) in our annual evaluation of mean chlorophyll *a* targets, and for reporting progress towards long-term seagrass recovery goals. In addition, the tracked nitrogen reduction targets are compiled on a bay-segment scale, as outlined and approved in the Reasonable Assurance documentation. The TBEP Nitrogen Management Consortium will continue to report projects and associated nitrogen reductions, and will continue to assess annual water quality (chl *a*) targets by major bay segment.

To provide consistency between reporting units (bay segments) of the Tampa Bay nitrogen management approach and the Department's TMDL reporting units, the Tampa Bay Estuary Program requests that the Department consider adopting the bay segmentation scheme for the four major bay segments in Tampa Bay as the WBID reporting units, specifically for nitrogen as indicated by chlorophyll *a*. Specifically, we request that water quality observations for the following WBIDs be combined for IWR nitrogen evaluation purposes.

T A M P A B A Y E S T U A R Y P R O G R A M
Mail Station 1-1 NIP · 400 8th Avenue SE · St. Petersburg, FL 33701 · (727) 893-2765 · FAX (727) 893-2767 · SUNCOM 293-2767

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For Hillsborough Bay, combine WBIDs:
1558E
1558EB
1584B
Split 1558D (slight sliver with MTB)

For Old Tampa Bay, combine WBIDs:
1558HC
1558HD
1558I
1558IA
1558G
1558H
1558HB
1558GB
1558FB
1558FC
1546B
Split 1558F (approximately in half with MTB)

For Middle Tampa Bay, combine WBIDs:
1558CC
1558CD
1558C
1709BB
Split 1558F (approximately half with OTB) Split 1558B (approximately half with LTB)
Split 1558D (slight sliver with HB)

For Lower Tampa Bay, combine WBIDs:
1968A
1558A
1558AB
1558AC
Split 1558B (approximately half with MTB)
Split 1558N with Boca Ciega Bay

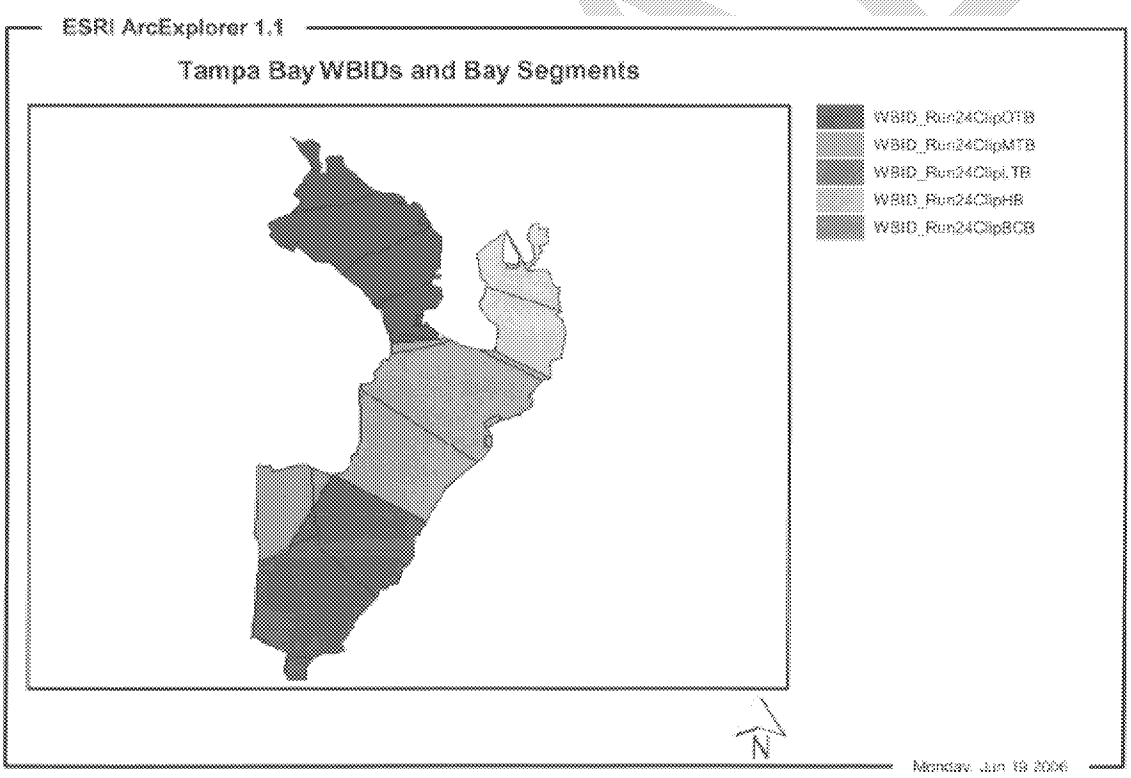
A GIS coverage showing the TBEP bay segments in color and the existing FDEP WBIDs is attached. Please note that East Bay and McKay Bay were included in the TBEP Hillsborough Bay segment as defined by TBEP in 1991 (and on the attached map), but that TBEP did not include water quality observations from these two areas in our target setting process. Therefore, as noted in previous requests, the East Bay and McKay Bay segments should not be included in the Hillsborough Bay combined WBID. However, to provide consistency with the Hillsborough Bay annual mean chl *a* target of 15 ug/l, we request that the newly designated East Bay WBID (upper boundary at the 22nd Street Causeway, and lower boundary at the East Bay/Hillsborough Bay intersection) be assigned an annual mean target chlorophyll *a* concentration of 15 ug/l.

Thank you for considering our request. Please contact me if you have further questions or comments. We appreciate you and your staff's continued support and involvement with the Tampa Bay community efforts in improving and protecting our water resources.

Sincerely,

Holly Greening
Senior Scientist
Tampa Bay Estuary Program

cc: Tampa Bay Nitrogen Management Consortium members



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

July 7, 2006

Ms. Holly Greening
Tampa Bay Estuary Program
Mail Station I-1/NEP
100 8th Avenue S.E.
St. Petersburg, FL 33701

Dear Ms. Greening:

This letter is in response to the Tampa Bay Estuary Program's (TBEP) June 19, 2006 letter requesting revisions to the Department's chlorophyll a target for East Bay and assessment segments, or waterbody identification numbers (WBIDs), for Tampa Bay.

Regarding your request for the Department to adopt the TBEP's bay segmentation scheme for the four major bay segments in Tampa Bay as the WBID reporting units for the nutrient assessment, the Department agrees to modify the WBID boundaries to conform with the TBEP's segmentation. The modifications include boundary changes to WBIDs 1558F, 1558D, 1558C, 1558A and 1558N, and the creation of a new WBID by splitting WBID 1558B approximately in half at the boundary between the Middle Tampa Bay and Lower Tampa Bay major bay segments.

These boundary changes will allow the WBIDs to be fully nested within the TBEP major bay segments, which will facilitate comparisons between Department and TBEP assessments. However, we would like to note that the Department plans to perform nutrient assessments using both the WBIDs and the TBEP's major bay segments. We think it is important to continue the WBID assessments to provide continuity (to evaluate trends within WBIDs) and consistency (across different parameters) in the Department's evaluation of water quality for the state's 305(b) and 303(d) assessments. We also believe that using the existing WBID assessment units is important to allow identification of more localized areas that may have elevated chlorophyll a concentrations within the TBEP major bay segments.

The Department believes that the WBID assessment will also be useful for re-evaluating the nitrogen management strategy and plans to evaluate both the bay segment and WBID results as part of the determination of whether the Reasonable Assurance (RA) Plan has led to reasonable progress towards continued restoration and protection of Tampa Bay. While the major bay segment assessment results will continue to be the primary yardstick for progress, we also plan to evaluate progress within individual WBID areas. We would like to emphasize that a determination that an individual WBID was impaired by nutrients would not result in revocation of the RA determination or require RA revision. However, we would expect the TBEP to tailor the management plan if individual WBIDs consistently exceeded the bay segment targets because it is important to have reasonable progress throughout the bay.

"More Protection, Less Process"

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Ms. Holly Greening
Tampa Bay Estuary Program
July 7, 2008
Page Two

Regarding the TBEP's request to use the Hillsborough Bay chlorophyll a threshold of 15 ug/L for the newly designated East Bay WBID, we agree that this threshold is appropriate for East Bay. In fact, we also plan to change the chlorophyll a threshold to 15 ug/L for all tidal segments flowing into Hillsborough Bay, to provide for consistency in assessing nutrients in this area of Tampa Bay.

The Department would like to thank you for your continued input and continued outstanding work towards the protection and restoration of Tampa Bay. We look forward to working with the TBEP during the assessment of water quality in the Tampa Bay Basin in the next basin management cycle.

Sincerely,

Daryll Joyner
Program Administrator

ec: Jan Mandrup-Poulsen
Charles Kovach
Kevin Petrus
Tom Singleton

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4. In accordance with the DEP "Guidance for Development of Documentation to Provide Reasonable Assurance..." (Jan 23, 2003) (RA guide) the responsible party should provide a detailed description of the impaired water(s).

> **Response:** Please refer to the 2007 Reasonable Assurance document, which includes this information in detail. The 2009 Addendum did not repeat information provided in the 2007 RA document.

5. There are three (3) WBIDs that are currently assessed in the G1C2 master list as impaired (5) for nutrients. They are: 1558D-Hillsborough Bay Lower; 1603-Direct Runoff to Bay (to Old Tampa Bay) and 1624- Direct Runoff to Bay (Roosevelt Basin Marine). Hillsborough Bay Lower (1558D) is definitely within the scope of the RA plan and should be listed as 4b on the master list. We will need to update this WBID assessment at the next available opportunity. The other two WBIDs regarding the direct runoff to the bay are included in the table of the EPA established TMDL (1998) whose TN loadings may or not be included in the RA update. The RA update should address these "direct runoff to the bay" WBIDs.

> **Response:** These two WBIDs are included in the watershed of Old Tampa Bay, as shown on the map overlaying the RA bay segment boundaries and FDEP WBIDs, but are not included in the Old Tampa Bay RA and TMDL segment (see APPENDIX E Background Information above).

6. Although the RA update report is a significant project accomplishment, the major criticism we have of the report is the lack of support documentation with regards to data gathering methodology, and access to the raw data itself. The chl-a data is a key component to the RA update process. We have not found sections, appendices or links to such information such as water quality data sampling stations (with maps), the data itself, and the statistical determinations that specifically and directly support the end results on the charts above. We acknowledge that TBEP does have links to their databases on the web. However, we find that the data needs to be specifically linked to the RA guide in order for the reader to better understand the process.

> **Response:** Please refer to the 2007 Reasonable Assurance document, which includes this information in detail and is formatted to be consistent with the FDEP Guidance. The 2009 Addendum did not repeat information provided in the 2007 document. As noted in the Addendum, the full datasets are available on at www.tbeptech.org, and have been provided to the Department on a CD.

7. The charts and datasets provide the data for up to year 2007 only. Since this is the 2009 update, the TN data for year 2008 should have been provided.

> **Response:** The 2009 Addendum is intended to provide the rationale, technical basis, process and recommended allocations for all N sources within the watershed, and is not an update of the 2007 Reasonable Assurance document.

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Consistent with the 5-year time period of each Reasonable Assurance assessment, the next full assessment will be developed for 2008-2012, and will be delivered to FDEP in summer 2013 as noted in Response #1 above.

8. Appendix C of the 2009 update, which provides a reasonable assurance assessment by point and non-point source entities, would be enhanced if WBID information were included. This comment is relavent for any presentation of tables which include those entities where load reductions are proposed.

Response: As noted in Response #3 above, the RA is structured around the four major bay segments, plus the Manatee River, Terra Ceia Bay and Lower Boca Ciega Bay (collectively termed "Remainder Lower Tampa Bay" in the Addendum), and not individual WBIDs nested within them.

9. TBEP should provide an estimate of TN loadings for 1950, such that the base seagrass acreage and TN loadings may be compared.

Response: The RA principle intent is to demonstrate how FDEP-accepted water quality thresholds will be maintained. These water quality thresholds are consistent with meeting water clarity targets to support the expansion of seagrass, but the RA attainment correctly addresses only water quality. The water quality thresholds were based on meeting requirements for water clarity, not the loadings from 1950- therefore, loadings from the 1950s are not relevant to the assessment of attainment. In addition, estimates would not be consistent with more recent estimates and therefore not comparable, since most of the existing data sources used for estimating loads are not available from the 50s.

10. The Tampa Bay Nitrogen Management Consortium (TBNMC) has a large membership and is to be commended for the effort invested in bringing all those parties together. Consortium membership is voluntary. Who is missing as a participant? The interest is that are any large contributors of loading missing from the consortium and allocation. How would a new Consortium member be given an allocation?

Response: All large permitted sources are participating at this time. Entities with permitted discharges larger than 100,000 gal/day (as determined from FDEP permitting records) and non-permitted sources such as agriculture (represented by FDACs on the Consortium) were invited to participate in the Consortium. Therefore, there should not be any missing participants who are considered major permitted sources. The process for new sources or new participants is defined starting on page 78 of the Addendum. In summary, any new or expanded N source allocation must be offset. If a new entity desires an allocation, they must provide demonstration of the offset, either through transfer of credits from existing Consortium partners, or through the implementation of N reduction projects.

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11. Allocations were made to facilities that are in the upper reaches of the watershed and located in tributary basins. Was any attempt made to account for the distance of a facility away from a bay segment, such that the full loading from that facility may be partially attenuated in the watershed?

Response: Although not applied to each individual source, attenuation in the watershed is taken into account by the use of loading estimates calculated from measured TN concentration and daily flow for each drainage basin. Because the federally-recognized TMDL is based on the 1992-1994 loading estimates calculated in this manner, non-point source loads to Tampa Bay have been estimated using the same methodology to provide comparability across time periods.

12. Page 6, Objectives. Clarification is needed between what is stated as objectives and what was in the report. Is this document actually presenting an apportionment of loadings to sources or only dividing up the existing 2003-2007 loading to different permitted and non-permitted entities? Is the goal here to set permit limits to the average loading for the 2003-2007 time period? Growth was not addressed in the apportionment. Please explain.

Response: The Addendum presents recommended allocations to each N source in the watershed, which cumulatively meet the federally-recognized TMDL. The Consortium members understand that these recommended allocations will be used in discharge permit limits. FDEP-approved water quality thresholds (average annual chlorophyll-*a* concentrations) have been met in all bay segments over the 2003-2007 time period, with the exception of two years in Old Tampa Bay and one in Lower Tampa Bay. In these two cases, additional assessments would have needed to be conducted by the Consortium (as outlined in VIII, Section C – page 63) and chlorophyll-*a* thresholds have been met in the years since. Based on this empirical evidence, the 2003-2007 TN loads are consistent with meeting FDEP-approved chlorophyll-*a* thresholds.

Appendix C demonstrates a 'test case' of applying the recommended allocation to the TN loads from all sources over the 2003-2007 time period. A few entities exceeded the recommended allocation in this test case (as noted by yellow highlighting in the Appendix C tables). Actions taken by each of these entities to ensure compliance with the 2008-2012 RA assessment period are noted in Table VIII-8.

Any new or expanded N source allocation, due to growth or other factors, must be offset. If a new entity desires an allocation, they must provide the offset, either through transfer of credits from existing Consortium partners, or through the implementation of N reduction projects.

13. Page 8, Figure II-2. Are there light attenuation benchmarks?

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Response: TBEP has developed light attenuation targets for seagrass recovery, and assesses them on an annual basis (Sherwood, 2009). The RA principle intent is to demonstrate how FDEP-accepted water quality thresholds (average annual chlorophyll-*a* concentrations) will be maintained. These water quality thresholds are consistent with meeting water clarity goals to support the expansion of seagrass, but the RA attainment correctly addresses only water quality.

14. Page 8, Figure II-1. The chlorophyll-*a* water quality targets listed on page 10 would be a helpful reference if displayed on the maps.

Response: In an attempt to keep the graphics uncluttered, the thresholds have been listed in the text and with the compliance timeline shown in Figure II-5. However, they will be included on the map also.

15. Page 21, Surface water withdrawals. It is noted that water withdrawals reduce loading. The returns are then accounted for as wastewater or industrial discharges. Are all the return flows accounted for?

Response: Water withdrawals occur above stream gages, and are therefore accounted for in the measured flows used to estimate loads from gaged basins. Similarly, loads from wastewater and industrial sources are calculated from measured flows and concentrations, which would include return flows.

16. How do allocations accommodate emergency releases or unforeseen releases? Is there an unallocated reserve that provides something akin to a margin of safety for the allocation?

Response: The NMC chose to fully allocate all available TN loads to existing sources without an allocation for emergency releases. In discussions with FDEP (see APPENDIX A.5 regarding NMC Action #5 and FDEP/EPA concurrence dated Oct. 29 & 30, 2008, respectively), emergency releases are handled through a separate regulatory process, and will not require a separate allocation.

The 1998 federally-recognized TMDL includes an implicit margin of safety, through incorporation of the following assumptions (source: EPA- approved Tampa Bay TMDL, dated June 18, 1998):

- A conservative estimate of the average light required by seagrass meadows was assumed.
- A conservative estimate of the median light level at the edge of seagrass meadows was used in the model.
- An additional source of 8 to 9 percent nitrogen per year in Old Tampa Bay and Hillsborough Bay was incorporated into the model and assumed to continue in the future.

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- No future nitrogen losses to bay sediments were incorporated into the model.
- The likely future recovery of recently protected seagrass meadows currently damaged by anthropogenic activities were not accounted for.

17. Is there a simpler manner in which to explain the methodology for creating the allocations? Such as a flow chart? Or it may be appropriate to provide a summary narrative at the beginning of the section that explains the purpose of preparing an allocation, the steps taken to create one, and how it will be used in the 2008-2012 RA. Many of the detailed steps could then be moved into appendices.

Response: Agree that a simplified summary would be helpful. A summary of the allocation process will be provided in the Executive Summary, and a flow chart or simplified step-by-step process will be included.

18. How does the apportionment of 2003-2007 loadings relate to the proposed allowable transferable nitrogen allocations for 2008-2012 presented in Tables IX-1 to IX-5? It appears that Tables IX-1 through IX-5 actually present the allowable loadings for each entity identified as a source. We could not determine where the Consortium is with regard to individual loading reductions and how much further they need each source to reduce. Adding the" 2003-2007 average" and "potential offsets needed for 2008-2012" columns displayed in Table VIII-8 to the material presented in Tables IX-1 through IX-5 would provide this information.

Response: As noted in Response #12, Appendix C demonstrates a 'test case' of applying the recommended allocation to the TN loads from all sources over the 2003-2007 time period. A few entities exceeded the recommended allocation in this test case (as noted by yellow highlighting in the Appendix C tables). Actions taken by each of these entities to ensure compliance with the 2008-2012 RA assessment period are noted in Table VIII-8.

In summary, the transferable allocations are equal to the set allocations for those sources with allocations expressed in tons (actual calculated, annual average load for 2003-2007). The proposed transferable loads (in tons) for entities whose allocations are expressed as a percentage are equal to their allocated percentage of the remaining TN baseline load tonnage from 1992-1994, after accounting for the set allocation sources. These proposed transferable loads are defined according to the hydrologic conditions of the 1992-1994 baseline period, and are not proposed as an entities' allowable annual loading for sources which are subject to varying annual hydrologic conditions. At this time, reductions are not anticipated because the five year assessment period (2008-2012) is pending and FDEP-approved chlorophyll-*a* targets have largely been achieved in all the bay segments since 1999.

19. At least for point sources, from the manner in which allocations are presented in Table VII-1 and subsequent allocation tables, and the description of methodology used to generate the allocations, it appears that the baseline period has been changed to

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2003-2007 and not the period of 1992-1994. Point source allocations are set to the loadings for 2003-2007. This should be clarified.

Response: The table legends and allocation methodologies do not allude to this assertion. Decision Memo 10 addresses reallocating the bottom-line federally-recognized TMDL limits across all sources, which we demonstrate in Tables IX-1 through IX-5. See also the response to Question #12.

20. Page 63, first paragraph. It is stated that the Consortium developed allocations as a percentage of the hydrologically-normalized bay segment load. Page 40, step 5 states that the final allocation approach does not utilize hydrologically adjusted loads. Which is correct?

Response: This will be clarified. Thank you for catching the discrepancy.

21. Section IX part B recommends that the consortium plan to revisit the federally adopted TMDLwith the expected intent of requesting a future increase in TN loadings. Although it may be understood or implied, DEP/EPA should not consider any increase in TN loadings until at least all subject WBIDs for the entire Tampa Bay major segments are assessed at "2 – not impaired," and the 1950s seagrass acreage goal is attained.

Response: As noted above and in the 2007 RA and 2009 RA Addendum, the RA is structured around the four major bay segments, not individual WBIDs nested within them. The existing loading estimates and chlorophyll-*a* thresholds may not be appropriate at the WBID scale, since they have not been developed for this purpose. The success or failure of a bay segment in meeting FDEP-adopted chlorophyll-*a* thresholds is the defining metric for which the models, monitoring and assessment is conducted, and should be the only scale which is used to determine impairment for nitrogen.

In addition, the suggestion that Tampa Bay should not be delisted until the seagrass goal is met is not consistent with FDEP's water quality focus. The delisting process should correctly focus on whether water quality thresholds are being achieved.

22. We find that the RA update for 2009 could be an improved document if additional information is added. The reason for the additions is to provide DEP, EPA and the public with an additional administrative record of compliance with the Clean Water Act's TMDL program requirements for support justification to assess all of the WBIDs in the study area as not impaired. The suggested additions are:

1. Maps of individual project WBIDs with monitoring stations and locations;
2. Water quality data set and assessment status by individual project WBID;
3. A presentation of the chlorophyll-*a* data and TN data by WBID showing the water quality improvement by years
4. Responses to comments and questions as outlined in this memorandum.

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Response: As noted above, and in the 2007 RA and 2009 Addendum, the RA is structured around the four major bay segments, not individual WBIDs nested within them. The existing loading estimates and chlorophyll-*a* thresholds may not be appropriate at the WBID scale, since they have not been developed for this purpose.

Also as noted above, an APPENDIX E Background Information map and table are included depicting the RA bay segment boundaries and the WBIDs nested within them.

23. For the 2008-2012 RA period, no reductions are required for MS4s. This is the result of hydrologic normalization used to formulate the load allocations. Although no reductions are required for MS4s during this implementation period, the Department does have the ability to re-open Phase I MS4 permits to address impacts on receiving waters caused or contributed by discharges from MS4s. The same reopener clause also applies to wastewater facilities under 62-620.325, F.A.C. To address this possible scenario, for Phase I MS4s and wastewater facilities, FDEP would recommend the following edits (shown underlined below) to Section VII B. "*Suggested Allocation Tables.*"

With the exception of interim allocations, the suggested allocations listed in Tables VII-1 through VII-5 are proposed as being fixed. Any major changes to these suggested allocations in the future would be to address the following conditions:

- Chlorophyll-*a* conditions deteriorate in the bay as a result of changes in nitrogen loads;
- Federally-recognized TMDL is revised to account for the assimilative capacity of the bay; ~~or~~
- FDEP-approved transfers occur among permitted entities on a case-by-case basis, as indicated in resulting permit modifications; or
- Allocations within FDEP permits are revised for good cause in accordance with Rule 62-620.325, F.A.C., on a case-by-case basis, as indicated in resulting permit modifications and will ultimately adhere – cumulatively in combination with all other bay segment specific allocations – with the federally-recognized TMDL for the bay segments or other WBIDs that have established TMDLs.

Response: The suggested language will be included.

24. The RA Plan generally meets conditions for a Basin Management Action Plan (BMAP) and will be able to serve as basis for future TMDL implementation thru a BMAP in the Tampa Bay Area. Adjusting load(s) for non normal hydrologic conditions makes sense. However, conditions for allowing & documenting this practice do not appear to be adequately defined.

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The proposal to develop a credit trading scheme appears to be unallowable in the current context of a BMAP. If allowed, parties need to be aware of the potential for future additional allocation limits as BMAP(s) are developed for the area. The process for monitoring & verifying the % reductions for nonpoint sources (e.g. agriculture) is not well defined. These nonpoint sources will also need to be aware of the potential for future additional load reductions as BMAP(s) are developed.

Response: The Tampa Bay Nitrogen Consortium understands that future TMDLs and BMAPs within the Tampa Bay watershed will be structured in a different manner than the Tampa Bay RA document. When BMAPs are developed for impaired waters within the watershed, entities within the affected drainage areas may be required to meet nutrient management targets which may not be the same as those developed to meet thresholds in the major bay segments. At the time of BMAP development for waterbodies within the Tampa Bay watershed, FDEP will approve the level of detail for defining loads, credit trading (if allowable) and monitoring reductions from sources.

A description of the development and application of the hydrologic adjustment is provided in the RA document in Section IV, and applied to the 2003-2007 "test case" in Section VIII-C. As noted, annual bay-segment loads will be hydrologically adjusted to normalize observed TN loads to the hydrologic load that was observed in the 1992-1994 TMDL period. For each year, the normalized bay segment TN load is calculated as follows:

Normalized TN load =
[Observed TN load x (1992-1994 hydrologic load]/observed hydrologic load

The normalized TN load is used to calculate allocations for rainfall-driven sources, based on their percent contribution as shown in the tables in Section VII-B, using the methodology defined in Section VI-C.

The process for determining the percent reductions for agriculture nonpoint sources is expected to be developed in coordination with FDACS, through their implementation of the statewide BMP Program.

25. Page 23, Section D. Please include a paragraph noting that the FDEP submitted the target TN loads for each bay segment to EPA as a TMDL.

Response: A paragraph will be inserted after the listing of the 1994-1994 TN loads as follows: "In January 1998, in accordance with the Clean Water Act Section 303(d)(2), the State of Florida submitted for EPA approval a proposed TMDL for Tampa Bay, including the 1992-1994 bay-segment TN loads listed above. EPA approved the Tampa Bay TMDL as submitted by FDEP on June 18, 1998."

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26. Page 32, first paragraph. Include a sentence noting that the Hillsborough Bay Nitrogen Delivery Ratio was exceeded in two year between 2003-2007 (as shown on Figure IV-8), but that chlorophyll-*a* thresholds were not exceeded.

Response: Agree. This paragraph will be revised accordingly.

27. Page 36, Section V. Please replace the first three paragraphs with the following, to clarify the TMDL submittal process:

In 1998, the FDEP submitted the TBEP target loads to EPA as a TMDL for nitrogen for Tampa Bay, and EPA approved the submitted TMDL on June 18, 1998. The EPA, through establishment of the TMDL, now considers the assimilative capacity of each bay segment to be the total TMDL load to that segment, as submitted by FDEP in 1998 (e.g., 486 tons/year for Old Tampa Bay, etc.; see Appendix A.10). As noted in Section IV, the NMC target nitrogen loadings were never developed as an assimilative capacity for nitrogen loads to the Tampa Bay segments.

Subsequent state legislation (1999 Florida Watershed Restoration Act) required DEP to develop a new methodology for identifying impaired waters and to adopt the methodology by rule (the Impaired Waters Rule), and to adopt TMDLs by rule. The statute and IWR required DEP to assess whether existing or proposed pollution control programs will attain water quality standards in the future (the RA process) before listing waters as impaired. While the bay was assessed as impaired under the IWR, in November 2002, the FDEP concluded that the Tampa Bay Nitrogen Management Strategy (TBEP 2006) provided reasonable assurance that the state water quality standards for nutrients had been met and would continue to be met. As a result, the bay was not listed as impaired, and DEP did not seek to adopt the previously EPA-approved TMDL as a rule. However, the EPA continues to recognize the 1998 submittal by FDEP that proposed a total maximum load of nitrogen that could be discharged to the bay annually and still meet state standard water quality standards. Both FDEP's reasonable assurance determination and the total maximum nitrogen loading recognized by EPA are based on statistical modeling and data analyses performed by the TBEP and its partners.

In October 2007, EPA and FDEP permit reviewers determined that the existing maximum <u>permitted</u> discharges for domestic point sources (Figure V-1) within the Tampa Bay watershed (i.e., maximum allowable discharges at the maximum allowable concentration) cumulatively exceeded the point source wasteload allocations identified in the 1998 federally-recognized EPA TMDL. The regulated community maintained that the likelihood of all permitted discharges reaching maximum discharge volume and concentration simultaneously was improbable, if not statistically impossible. Regardless, EPA and FDEP maintain that until such time that it is demonstrated that the nitrogen loads from permitted nitrogen discharge loads within the major bay segment watersheds are within the limits established by the 1998 federally-recognized EPA TMDL, new or renewal permits can not be issued by FDEP or EPA. For this reason, the 2007 Update to Tampa Bay Reasonable Assurance to FDEP by the Tampa Bay Nitrogen

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Management Consortium requires specific allocations for all permitted sources within the Tampa Bay watershed. These allocations were to be developed within the constraints and context of the 1998 federally-recognized EPA TMDL, although it has been acknowledged by FDEP and EPA that these limits may be revised in the future to reflect the true assimilative capacity of Tampa Bay
(Appendix A.23).

Response: These paragraphs will be replaced with the above as requested.

28. Page 40, second paragraph in #5, first sentence. Please clarify how "mean annual 2003-2007 TN load" is defined.

Response: This sentence will be revised as follows: "To derive the allocations for those sources with set allocations, the mean of the five annual TN loads from 2003-2007 is the allocation."

29. Page 41, Step 1, first paragraph. Please describe how the adjustments to the nonpoint source load estimates were made in the ungaged areas of the watershed in more detail.

Response: We will include more detail in the revised document, with documentation.

30. Page 41, Step 1, third paragraph, first sentence: Please clarify that the previous methodology used to estimate loads to the bay included both direct measurements at gaged tributaries and estimates for ungaged areas. This will help clarify why the nonpoint TN loads for the ungaged areas were adjusted. Please also include a citation for the 35% estimate of atmospheric deposition contribution to nonpoint source loads.

Response: Both of these clarifications will be added. In the white paper in Appendix A.8, we provide literature references for a range of values of 10% to 65%+. We selected 35% as a representative value. Additional work may be required to address this estimate prior to the next RA submittal.

31. Page 43. Please add a clarification that, if reductions are needed in the future, they will not be required from Conservation Lands, but that these reductions would be addressed by the Consortium.

Response: The following paragraph will be added at the end of this section: "In the future, if chlorophyll *a* thresholds are exceeded in the Bay, it is not expected that reductions would be required from Conservation Lands. Reductions, if needed, will be addressed by the Consortium. However, actions to reduce loads may take place on Conservation Lands within watersheds where reductions may be needed."

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32. Page 48, Suggested Allocation Tables section. Please note that a demonstration of allocation attainment is shown in Appendix C, and add a link to the document to this Appendix. Please also note that reductions in this demonstration were required for several facilities, as addressed in Section VIII-E.

Response: The first paragraph on page 48 will be revised as requested.

33. Page 50, why are two percentages shown in green italics?

Response: Green italics will be removed.

34. Page 60 and 61. Please include a month in which annual reports will be provided to EPA and FDEP.

Response: Reports will be provided by June of the following year for the bay segment chl *a* threshold attainment report. If required according to application of the Assessment Framework (i.e., if one or more bay segments exceed chl *a* thresholds for more than two consecutive years), a full loading report will be delivered to FDEP and EPA by September in the following year. These dates will be inserted in the revised document.

35. Page 61. Please include the following statement at the end of the second to last paragraph: "It is noted that FDEP will independently assess individual entities for compliance with their allocations."

Response: This statement will be included in the revised document.

36. Page 71, Section VIII-E., second paragraph. Include a brief explanation of what the Tables in Appendix C are depicting. After the first sentence, include a sentence explaining that, based on the analysis depicted in Appendix C, the 5-year allocations were exceeded only in a few instances. How these exceedences were addressed is summarized in Table VIII-8.

Response: This paragraph will be revised as requested.

37. Page 72, Table VIII-8. Please reconfigure this Table so that the final column is incorporated into the entity line, rather than as notes. Include additional clarification in the final right hand column.

Response: This table will be reconfigured and additional clarification added as requested.

38. Page 78, #3. Please clarify that, while entities can rely on previously implemented management activities that generate credits, entities cannot "bank" credits (offsets) (unused credits do not accumulate over years).

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Response: A sentence and example will be added to clarify that credits will not be additive over years. As an example, an entity constructs a stormwater system in 2010 that removes an additional 2 tons TN per year. A 2 ton/year TN credit is available for that entity's use or transfer in 2010 or future years. However, if the entity does not transfer any credits until the future, they would still only be able to transfer or offset 2 tons/year in the future.

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