2022 TAMPA BAY REASONABLE ASSURANCE COMPLIANCE ASSESSMENT REPORT

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THE TAMPA BAY NITROGEN MANAGEMENT CONSORTIUM PARTNERSHIP FOR PROGRESS

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	Daniel Blackman, US EPA Region 4
FROM:	Ed Sherwood, TBEP Executive Director (NMC Facilitator)
DATE:	2023-03-01
SUBJECT:	2022 Tampa Bay Nutrient Management Compliance Assessment Results
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	Ed Sherwood, Maya Burke, Marcus Beck (TBEP)

Source content: here

On behalf of the Tampa Bay Nitrogen Management Consortium, please find attached the 2022 update on water quality and seagrass resources in the Tampa Bay estuary. This update

has been developed in accordance with the compliance assessment adopted through FDEP's Tampa Bay Reasonable Assurance determination on December 22, 2010, FDEP's subsequent approval of the 2022 RA Update, and the federally-recognized TMDL for Tampa Bay. The formal annual compliance assessment utilized by the Consortium is detailed in Section VIII.B of the Final 2009 Reasonable Assurance Addendum: Allocation and Assessment Report.

Chlorophyll-a concentrations for all four major bay segments were below FDEP-approved numeric nutrient criteria thresholds in 2022. The approved chlorophyll-a thresholds were adopted as part of FDEP's 2002 Reasonable Assurance determination for Tampa Bay, and, at that time, it was determined that Tampa Bay's seagrass restoration goals could be achieved if annual, uncorrected chlorophyll-a concentrations remained below these thresholds. If a bay segment's chlorophyll-a concentration remains above thresholds for 2 concurrent years, additional compliance assessment steps are required by the Consortium. This nutrient management strategy has been consistently used by the TBEP and Consortium in their Annual Decision Matrix and Assessment reports (M.W. Beck, M.C. Burke, E.T. Sherwood 2023).

Seagrass coverage in Tampa Bay decreased between 2020 and 2022, prior to the reported chlorophyll-a conditions detailed above. The Southwest Florida Water Management District's (SWFWMD) 2022 baywide seagrass coverage estimate is 30,137 acres, remaining below the baywide target of 40,000 acres (Figure @ref(fig:seagrass)). The 2022 estimate marks the third consecutive reporting period with a reduction of seagrass coverage in Tampa Bay. Losses were primarily observed in upper bay segments and additional research, assimilative capacity assessments, and restoration initiatives are being conducted in response to these trends. Notwithstanding these setbacks, the Consortium's approved nutrient management strategy is still required to adaptively manage and address nutrient loading to the Tampa Bay estuary. For the other Tampa Bay segments, water quality remained supportive of seagrass resources, though baywide seagrass losses continue to be examined.

Thank you again for your continued participation in the Consortium's process. Please contact Ed Sherwood (esherwood@tbep.org) with any questions about the Consortium's Annual Compliance Assessment.

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2022 Tampa Bay Estuary Nutrient Management Compliance Assessment

On December 22, 2010, then FDEP Secretary Drew signed a Final Order accepting and approving the 2009 Reasonable Assurance Addendum for the Tampa Bay estuary. The final order found that the Nitrogen Management Consortium (NMC) provided FDEP reasonable assurance that: 1) completed and proposed management actions in the 2009 RA Addendum will result in the continued attainment of the estuarine nutrient criteria within Tampa Bay, and 2) compliance with the allocations in the 2009 RA Addendum ensures reasonable progress towards continued attainment of the estuarine nutrient criteria and associated Class III designated uses. Furthermore, the FDEP finalized a WQBEL for the Tampa Bay estuary in accordance with the allocations developed under the 2009 RA Addendum in November 2010. The Consortium completed subsequent RA Updates in 2012, 2017, and 2022 maintaining allocations and expanding upon projects originally defined in the 2002 RA Submittal, 2007 RA Update, 2009 RA Addendum, 2012 RA Update, 2017 RA Update and 2022 RA Update.

As part of the compliance assessment stipulated under the 2009 RA Addendum, the NMC committed to annually assess the water quality and seagrass conditions within Tampa Bay and annually report these to FDEP and EPA. The Consortium's assessment responsibilities are shown in green in Figure 2.1. 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 stressor-response rationale for the determination of nitrogen load allocation reasonable assurance in the estuary.

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 2.1, Table @ref(tab:steps)).

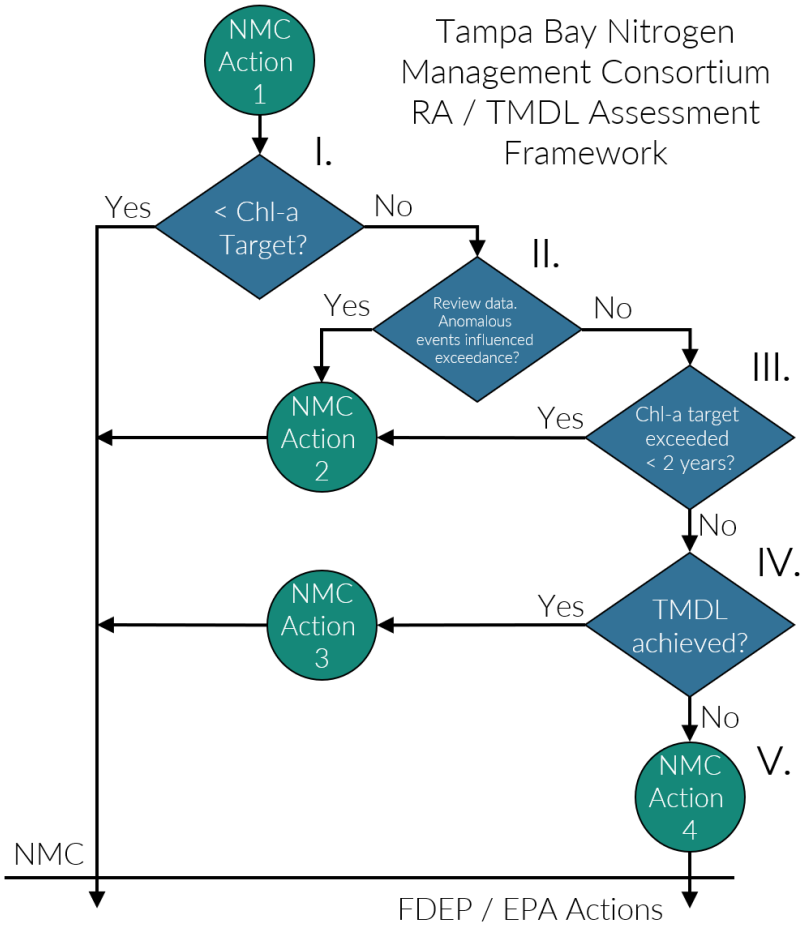

Figure 2.1: Nitrogen Management Consortium decision framework to assess future reasonable assurance of adopted allocations. Actions and steps to be conducted by the NMC are shown in the circles and diamonds. Steps, decision points, and actions are outlined in Table @ref(tab:steps) (below) according to the Roman numerals listed in the figure.

Table 2.1: Here is a caption

Bay Segment Reasonable Assurance Assessment Steps	DATA USED TO ASSESS ANNUAL REASONABLE ASSURANCE					OUTCOME
	Year 1 (2022)	Year 2 (2023)	Year 3 (2024)	Year 4 (2025)	Year 5 (2026)	
NMC Action 1: Determine if observed chlorophyll-a exceeds FDEP threshold of 9.3 ug/L						All years below threshold so far, not necessary for NMC Actions 2-5
NMC Action 2: Determine if any observed chlorophyll-a exceedences occurred for 2 consecutive years						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 486 tons/year						Not necessary due to observed water quality and seagrass conditions in the bay segment
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

Here's a cross-reference to Table 2.1.

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 (A. Janicki, D.Wade, J.R. Pribble 2000) and will deliver this to FDEP and EPA (Figure 2.1; 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 2.1; 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 con-

sidered 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 2.1; NMC Action 3 in the Framework). This was the case for the Old Tampa Bay segment during the 2019-2021 period. 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' 5-yr annual average allocation by September of the following year. 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 2.1; NMC Action 4 in the Framework). It is noted that FDEP will independently assess individual entities for compliance with their allocations.

: Assessment steps linked to the Nitrogen Management Consortium's decision framework, as depicted in Figure 2.1. {#tbl-steps}

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 (A. Janicki, D.Wade, J.R. Pribble 2000).

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 2.1 and Table @ref(tab:steps) performed during RA Implementation Period (2022-2026) 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 (A. Janicki, D.Wade, J.R. Pribble 2000) will be delivered to FDEP and EPA (this report).

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 (this report).

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.

References

A. Janicki, D.Wade, J.R. Pribble. 2000. "Developing and Establishing a Process to Track the Status of Chlorophyll-a Concentrations and Light Attenuation to Support Seagrass Restoration Goals in Tampa Bay." 04-00. St. Petersburg, Florida: Tampa Bay Estuary Program. https://drive.google.com/file/d/1XMULU8w4syWcSv_ciOUOhnC_G4xt6GIF/view?usp=drivesdk.

M.W. Beck, M.C. Burke, E.T. Sherwood. 2023. "2022 Tampa Bay Water Quality Assessment." 03-23. St. Petersburg, Florida: Tampa Bay Estuary Program. https://drive.google.com/file/d/1RsRYmaF9ykxhw3L15YqOI9AE--sog6ib/view?usp=sharing.