RESPONSIVENESS SUMMARY

Total Maximum Daily Load (TMDL) Development For Sarasota Bay/Charlotte Harbor Basins (WBIDs 1982A, 1984, 1984A, 2009A, 1975, 1975A, 2030, 2039, 2042, 2049)
Florida

Nutrients, DO, and Coliforms

TMDL Commenters
TMDLs Proposed September 30, 2005

Commenters	
1	Theresa Connor (and associates), Sarasota County Water Resources, 1001 Sarasota Center Boulevard. Sarasota, FL 34240, November 29, 2005
2	Mark Alderson, Sarasota Bay Estuary Program. 111 South Orange Avenue Suite 200W. Sarasota, FL 34236, November 29, 2005.

COMMENTER #1

Comment #1.

The U.S. Environmental Protection Agency (EPA) recently published TMDLs recommending pollutant load reductions for nutrients, biochemical oxygen demanding substances, and coliform bacteria for 10 basins. The recommended load reductions were almost one-half of the total load (on average) and all load reductions were allocated to stormwater runoff. Load reductions were estimated using the Lemon Bay Watershed Model with targets based on natural conditions before anthropogenic influences impaired the water bodies. We have significant concerns about the proposed TMDLs:

- The assumption that the loads present during pre-developed conditions are equivalent to the assimilative capacity of a waterbody is a flawed premise. If impairment is defined by any load greater than natural without any corroborating evidence that a water quality or ecological problem exists the TMDL has no basis in fact and is merely a curious idea.

Response #1*: The Environmental Protection Agency (EPA) agrees with the Commenter that setting target loads (TMDL) to those that existed under pre-development conditions is conservative and likely to result in higher pollutant percent reductions needed to remove the impairment. This was acknowledged in the TMDL document on Page 33. EPA was compelled to set up target limits to some levels because Florida:*

1) Does not have numerical criteria for nutrients and BOD,

2) Is still in the process of developing reference watershed/stream targets for several pollutants including nutrients.

Furthermore, EPA was required to develop TMDLs for these waterbodies as required by the Consent Decree despite the paucity of monitoring data. As a result a paragraph was added in the TMDL document under Section 9, Conclusion and Recommendations, that specifies that accurate existing and target loads may be computed when monitoring data becomes available.

Comment #2:

Impairment is defined by a very small number of samples (maximum of 28) and many were not taken recently, instead dating from the early 1990s.

Response #2*: EPA acknowledges this and various stakeholders (including the Commenter) are in the process of collecting more samples so that Florida DEP can accurately verify the impairment.*

Comment #3:

The sub-basin boundaries, identified by Water Body Identification Numbers (WBIDs), are mapped inconsistently with established watershed boundaries. These mapping discrepancies will create significant errors in modeled loads. The sample stations should be re-examined to determine if they are assigned to the correct waterbody.

Response #3*: Page 1, last paragraph of the TMDL document states the following:*

"FDEP established five water management districts (WMD) responsible for managing ground and surface water supplies in the counties encompassing the districts. For the purpose … with similar characteristics. These planning units contain smaller, hydrological based units called drainage basins, which are further divided into "water segments". A water segment usually contains only one unique waterbody type (stream, lake, cannel, etc.)

and is about 5 square miles. Unique numbers or waterbody identification (WBIDs) numbers are assigned to each water segment."

Therefore, the impaired segment (WBID) does not necessarily coincide with a hydrologically-defined area (e.g., watershed, basin). Furthermore,

- "significant errors in modeled loads" are not expected when WBIDs are used in lieu of watershed boundaries because the loading function models such as the one used here are based on sources of loads (land use, soils, etc.) without a pollutant transport component.

- Locations of sample stations were examined by EPA, FDEP, and stakeholders during a field visit (March 2005) and confirmed that these stations were correctly assigned to the WBIDs. Moreover, EPA and FDEP use the most up-to-date WBID boundaries and corresponding water quality sampling stations and they are available at http://www.dep.state.fl.us/water/basin411/download.htm

Comment #4:

Dissolved oxygen is a troublesome parameter as a measure of impairment, unless the data is closely correlated with high BOD loads or other pollutant loads. Very low concentrations of DO have been measured in our healthiest waterbodies, including verdant seagrass beds, the Myakka River in the Myakka River State Park, and in Gottfried Creek. The DEP is currently conducting a comprehensive study of DO regimes to help resolve the difference between the existing DO standards and biological health of waterbodies.

***Response #4**:*

EPA agrees with the Commenter. However, due to the fact that FDEP designated these waterbodies as impaired in the absence of sufficient water quality data, EPA assumed that nutrient and/or BOD were the cause of impairment. Therefore, EPA concluded that the reduction in these parameters will result in the increase in DO in these waterbodies. Until FDEP develop site-specific DO criteria, it will always be impossible to determine whether or not the low DO is the result of naturally-occurring conditions or anthropogenic sources.

Comment #5:

Sarasota County has contracted with Mote Marine Laboratory to create a tidal creek index that will correlate biological health with water quality conditions, habitat values, and watershed qualities. Gottfried Creek has been found to be the most biologically healthy tidal creek in Sarasota County. County staff recently measured DO values in Gottfried Creek at less than 1 mg/l during midday in a sunny location at slack tide. DO does not appear to be a good indicator of impairment and more study is needed. It is unlikely that Gottfried Creek is impaired.

***Response #5**:*

Comment noted. EPA support stakeholder efforts in monitoring water quality to verify the impairment. The development of TMDLs for these waterbodies was not based on actual monitoring samples. Because of the lack of water quality data, EPA used a loading function model, The Lemon Bay Watershed Model (LBWM), to estimate existing and target loads in these waterbodies. When sufficient data becomes available, these TMDLs may be revisited to determine whether or not the waterbody was impaired in the first place. This information was included in Section 9, "Conclusion and Recommendations" of the TMDL document.

As reported in various e-mail messages between various stakeholders, EPA will provide advice and technical expertise to stakeholders if needed.

Comment #6:

Coliform bacteria are poor indicators of anthropogenic pollution. EPA should look closely at this part of the proposed TMDL because without the application of more sophisticated techniques the TMDL lacks the evidence needed to pursue remedial actions. Both EPA and DEP have conducted bacterial source tracking in the Myakka River Basin and other areas to determine if coliform bacteria are indicators of anthropogenic pollution, something the existing standard and proposed TMDL are unable to do. For WBIDs listed as impaired for coliforms, conducting bacterial source tracking studies would be a sensible course of action.

***Response #6**:*

EPA agrees with the Commenter that "coliform bacteria are poor indicator of anthropogenic pollution." Florida DEP is working on developing a more accurate laboratory protocol and analysis for bacteria. Until, this protocol is available, the criterion that is based on total and fecal coliform will be used.

FDEP and EPA are developing microbial source tracking (MST) techniques that will hopefully help in identifying the source of bacteria in watersheds with certainty. The EPA study, will was conducted in Myakka River Basin waterbodies, is almost complete. Results will be shared with FDEP and local stakeholders.

Comment #7:

Sarasota County would like to take this opportunity to set up a joint meeting with representatives from your office, the DEP, the Estuary Programs, and other interested parties either in person or via teleconference to discuss our concerns. We would like to discuss the use of an adaptive management methodology as part of a possible BMAP, under which the stakeholders intend to gather the supplemental data necessary to more accurately judge the alleged impairment and to identify appropriate loading goals. This adaptive management approach would seek a net environmental benefit that would otherwise be unobtainable under the current proposed TMDL. This cooperative approach will facilitate the accomplishment of our shared goal of protecting our precious waterbodies from deleterious pollutants.

***Response #7**:*

EPA staff organized a meeting on December 15, 2005 in which FDEP, Sarasota County, Sarasota Bay National Estuary Program, and Charlotte Harbor National Estuary Program attended in person or participated via teleconference call regarding the subjects highlighted in the Comment. Several e-mail messages were exchanged between the parties since then. Further response to this comment is reflected in Response to Comment #5.

Comment #8:

Sarasota County has accurately mapped all the watersheds involved in the TMDLs. Below are ten aerial views with watershed boundaries outlined and the WBID presented in color. Please note that none of the WBID boundaries are accurate. The most troubling is WBID 1975, which is incorrectly named Elligraw Bayou. The DEP has correct this error on their maps. Since the TMDLs are developed from pollutant load models it is fundamental that the accurate watershed

boundaries and land use are put into the model. There is an error in this TMDL related to inaccurate mapping.

***Response #8**: See Response to Comment #2.*

Comment #9:

The TMDL fails to establish the assimilative capacity of the waterbodies and instead "assumes target loads to be those that existed under natural conditions prior to anthropogenic influences." This assumption presumes that any receiving water body naturally exists at the very threshold of impairment, and that any additional load thrusts the waterbody into water quality driven ecological failure. The assimilative capacity concept presumes that any waterbody can assimilate some amount of the pollutant until the load exceeds the tolerance of the natural system. This TMDL is in conflict with the concept of assimilative capacity. In addition, suggesting that a developed community must achieve stormwater loads equal to pre-development conditions is unrealistic without substantial documentation of the problem, which is absent.

***Response #9**: See Response to Comment # 1.*

Comment #10:

There is considerable doubt about whether the 10 WBIDs are impaired. The TMDL report acknowledges "insufficient monitoring data" and "lack of long-term record of bacteria samples." The maximum number of samples used to define impairment of a WBID for one parameter is 28; not enough for statistical significance. The DEP has established a rule for the minimum amount of samples that must be taken for impairment to be verified. Waterbodies with less than a statistically significant number of samples should be investigated further before a TMDL is implemented. Using a very small sample set is inconsistent with standard scientific practices. The estimate of septic systems is an overestimate because "the data does not reflect septic tanks removed from service."

***Response #10**: See Response to Comment # 2.*

Comment #11:

(From Jones Edmunds). As part of the modeling that we did for the NPDES permit renewal, we had a number of questions about the Lemon Bay Model (baseflow, septics, dryfall/wetfall, BMP handling, calibration, etc.). In many of these cases, the work they did on the Lemon Bay Model may be fine, but the documentation does not always allow the reader to make that determination. EPA relied heavily on the Lemon Bay Model to determine some of the TMDLs (Page V), so a comfort level with the Lemon Bay Model needs to go along with the acceptance of the TMDLs.

The South Creek nutrient TMDL discussed on Page 16 seems questionable: Chlorophyll values are low, but it is listed for nutrient anyway. In essence they seem to be requiring a nutrient reduction to address a perceived DO problem.

The determination of target loads is, as the report states, very conservative. Setting the target load to pre-development conditions (which is not correct to begin with because it appears to only consider direct runoff as the source) is an unachievable goal.

***Response #11**: See Response to Comment # 1.*

COMMENTER #2 (Includes comments on FDEP and EPA-developed TMDLs)

Comment #1.
Almost all the comments provided by Mark Alderson (Executive Director, SBNEP) deal with inaccurate WBID boundaries (as opposed to watershed boundaries) and allocation of WQ sampling stations in the impaired WBIDs. The Commenter proceeds by requiring EPA to distinguish between estuarine and fresh water before determining impairment.

Response #1: *See Response to Comment #3, Commenter #1. EPA used the appropriate and most recent revised WBIDs and FDEP (Tom Singleton) concurred in his e-mail message of December 14, 2005 (see enclosed). After extensive discussion primarily through e-mail correspondence, Sarasota County (the main stakeholder) decided they will proceed with the BMAP process and at the same time resolve the boundary issue after the monitoring phase. The last e-mail of Jack Merriam (County Representative) specifically states, "For the present time the FDEP boundaries appear adequate with the caveat that the boundaries will be reviewed as part of the BMAP process." EPA has agreed to stay close to the issue so we can provide advice and technical expertise, if needed. EPA stipulated also that these TMDLs may be revised in the future after the issue is resolved.*

Comment #2.
Clowers Creek (1975A, EPA recommends delisting for coliform bacteria.

Response #2: *The statement is not correct. Actually the TMDL calls for 85% and 76% reductions in total and fecal coliform, respectively (See Page 41 of the TMDL document).*

Comment #3.
South Creek has been assessed by the SBEP and FDEP and determined not to be impaired for nutrients (in the predominately freshwater portions) as described in the IWR.

Response #3: See response to Comment #1

Comment #4.
Similar to South Creek, the North Creek (1984A) watershed was determined by the SBEP and FDEP not to be impaired for nutrients. There was not enough data to evaluate impairment on Catfish Creek (1984). Under the consent decree, Catfish Creek requires a TMDL for nutrients.

Response #4: See response to Comment #1

Comment #5.
A decision needs to be made on combining the tidal basin complex for analysis or incorporating the basin into the Little Sarasota Bay WBID. The SBEP recommends an independent WBID.

Response #5: See response to Comment #1