

June 17, 2009

Ms. Rae Ann Wessel
Natural Resource Policy Director
Sanibel Captiva Conservation Foundation
(Via E-mail)

Re: FDEP's Responses to Public Comments

Dear Ms. Wessel,

We would like to thank you for your active participation in the development of the Total Maximum Daily Load for nutrients in the estuarine portion of the Caloosahatchee River. Your comments and suggestions were well founded and always appreciated. We have used the point raised in your letter of March 16th, 2009 to enhance the quality of the draft document that was presented at the public workshop on February 27th. We address your comments in the order in which they were made.

1) *Dissolved Oxygen*

The Department has characterized the dissolved oxygen (DO) problems in the river as a natural condition and has indicated that it will not establish limits for DO in this TMDL, citing that nutrient reductions will have a positive influence on DO. While we agree that in general nutrient reduction will positively affect DO we do not agree that the low DO condition in the Caloosahatchee is natural. Rather we believe that there was insufficient 24 hour data used to evaluate DO in the unique configuration of the river. SCCFs real time autonomous sensor monitoring network, RECON ([://recon.sccf.org/index.shtml](http://recon.sccf.org/index.shtml)), clearly shows that DO periods of anoxia are related to high flow events that cannot be characterized as natural and are actively being addressed in order to reduce high flows. In the same manner that the TMDL modeling assumed that the Lake Okeechobee discharges are meeting their TMDL the system should be modeled using optimum flows to reveal the impact of flows on anoxic conditions and distribution in the river.

We feel that the unique configuration of the river and periods of anoxia related to high flows as well as the presence of two endangered species the Manatee and Smalltooth Sawfish make this parameter of significant importance in the establishment of the TMDL for the Caloosahatchee estuary and, later this year, the TMDL for the Caloosahatchee tributaries.

Additionally, there are ongoing studies assessing the impact of sediment oxygen demand in the Caloosahatchee that could provide additional information that needs to be considered with flow and the modeling of the freshwater portion of the river. At a minimum we urge the DEP strike any language suggesting that low DO in the estuary is a natural condition and suggest that the TMDL recognize the need for addressing DO as additional data, including 24 hour DO monitoring and SOD results, become available in order to evaluate the need for a TMDL for dissolved oxygen.

The reviewer makes an excellent point that new continuous dissolved oxygen (DO) data are now available for incorporation into the Caloosahatchee estuary modeling efforts that were not available in time to be used when the modeling study was being designed and conducted. Although time did not permit the assembly of data from 2008 for a model simulation incorporating the recent continuous DO data, the recommendation to continue research into the natural DO concentration in the region is a good one, and recent intensifying of data collection in the tidal Caloosahatchee may help with this effort. In fact, additional data are being gathered (we now have continuous DO data gathered at Marker 52 for the period 5/13/08 through 5/2/09) and anticipate receiving additional sediment oxygen demand results in the near future. The FDEP plans to continue its monitoring, data analysis, and modeling efforts during the implementation of the Basin Management Action Plan (BMAP) for the Caloosahatchee Estuary and as part of future TMDL development and refinement activities in this basin.

To help address the concern about whether the DO levels in the estuary can naturally fall below the state's DO criterion, we examined other monitoring data collected at stations in southwest Florida to determine the natural ranges for DO in this area of Florida. Continuous DO measurements (recorded at 30 minute intervals) were obtained from three sites with low levels of anthropogenic activity. Data from these sites, maintained by the Rookery Bay National Estuarine Research Reserve System (NERRS) was retrieved and processed to obtain daily minimum and daily average concentrations. Stations included the Middle Blackwater River for the 2001 – 2006 period, Faka Union Bay for the 2002 – 2006 period, and Fakahatchee Bay for the 2002 – 2006 period. According to the continuous monitoring data reported at these three sites, DO concentrations were below the Class III daily minimum marine criterion of 4 mg/L 45 (Faka Union site) to 75 (Middle Blackwater River site) percent of the time. The Class III daily average marine criterion of 5 mg/L was not met between 40 (Fakahatchee Bay site) and 65 (Middle Blackwater River site) percent of the time. The DO data for geographically proximal estuaries with relatively little anthropogenic activity demonstrate that it is quite likely there are naturally low DO concentrations in the SW Florida region. Attached you will find a map of the reference sites used to make this assessment, as well as summaries of the land use types in each watershed. Further details about these regional DO levels and a complete summary of the Caloosahatchee DO assessment can be found in TMDL Appendix G, which is available on the DEP's TMDL web page at: <http://www.dep.state.fl.us/water/tmdl/docs/tmdls/draft/gp3/appendices-caloosa-6-16-09.pdf>, starting on page 99.

We certainly share your stated concern about the impacts of high freshwater flows that enter the system from Lake Okeechobee and other tributaries to the estuary, but as was discussed at several of the public workshops, this TMDL is not intended to address the impacts tied to the released of freshwater further up in the watershed. Those activities are driven by the schedules established by the Corps of Engineers and the SFWMD in support of protecting the public health and welfare and are beyond the scope of the TMDL.

- 2) Additionally, there are ongoing studies assessing the impact of sediment oxygen demand in the Caloosahatchee that could provide additional information that needs to be considered with flow and the modeling of the freshwater portion of the river. At a minimum we urge the DEP strike any language suggesting that low DO in the estuary is a natural condition and suggest that the TMDL recognize the need for addressing DO as additional data, including 24 hour DO monitoring and SOD results, become available in order to evaluate the need for a TMDL for dissolved oxygen.

To reiterate the response to Comment 1, FDEP believes the recommendation to continue the data analysis and modeling efforts during the Phase 4 implementation of the Basin Management Action Plan (BMAP) is an excellent one. But the FDEP has reviewed all existing SOD data obtained through recent SFWMD funded studies, and the observed flux values obtained from these studies are consistent with the SOD fluxes in the EFDC simulation model used for the tidal Caloosahatchee Nutrient TMDL. A more complete review of the comparison is provided in Appendix G.

3) *Model Assumptions*

In our previous comment letter we questioned the selection criteria and assumptions used relative to agricultural BMPs. As we noted at that time the modeling made assumptions about the application of bmps that are neither part of any permit nor monitored or reported. The presentations showed use of bmps in the S4 basin and west of the lake where some of the heaviest loading to the Caloosahatchee is known to originate. The model runs done subsequent to our letter did not address these bmp assumptions which we believe has caused the modeling to underestimate the loading from these basins. We would request that the model be run excluding any bmp that is not part of a permit condition that includes monitoring and compliance conditions.

Additionally, we must note for the record that the model assumes discharges from Lk O to the Caloosahatchee are meeting the lake TMDL of 40 ppb phosphorus or 140 metric tons/year despite the fact that these conditions are unlikely to be achieved decades from now. Lake O averages 500-600 metric tons annually and in 2005 received 900 metric tons. While making these assumptions helps to parse out the basin contribution it underestimates the conditions that the Caloosahatchee will be facing for decades to come.

At the October 2008 stakeholders meeting, a figure was presented illustrating the areas that were assigned BMPs in the HSPF model. The amount of agricultural land that was assigned BMPs in the HSPF model was only 9% of the total agricultural area. The reduction in total nitrogen loads attributed to agricultural BMPs is less than 1% of the watershed load (and this does not include the total nitrogen loads direct to the surface of the estuary or the load from Lake Okeechobee releases). Nevertheless, the FDEP agrees that there must be a greater level of verification of which agricultural BMPs are used, where they are being used, and the level of implementation and their effectiveness. These issues will be further addressed in the BMAP process.

4) *Nitrogen*

Based on work by Chamberlin & Doering, the Charlotte Harbor National Estuary Program (CHNEP), the Caloosahatchee River Watershed Protection Plan and Janicki (2003) we believe the nitrogen TMDL is a reasonable target not withstanding our concerns about some of the model assumptions noted above.

The FDEP appreciates your comments relative to the Tidal Caloosahatchee Total Nitrogen TMDL, and also seeks your continued assistance and involvement in the TMDL development process as we move into the phase of TMDL development for the upper Caloosahatchee, Caloosahatchee tributaries, and the Basin Management Action Plan and Implementation phases.

Corrections

We also note corrections in the description of the Caloosahatchee on page two of the Draft TMDL Report. The river is approximately **75** miles long; 15.5 miles from Moore Haven to Ortona, 27.9 miles from Ortona to Franklin and 33.2 miles from Franklin to San Carlos Bay. The WP Franklin Lock and Dam was completed in 1965.

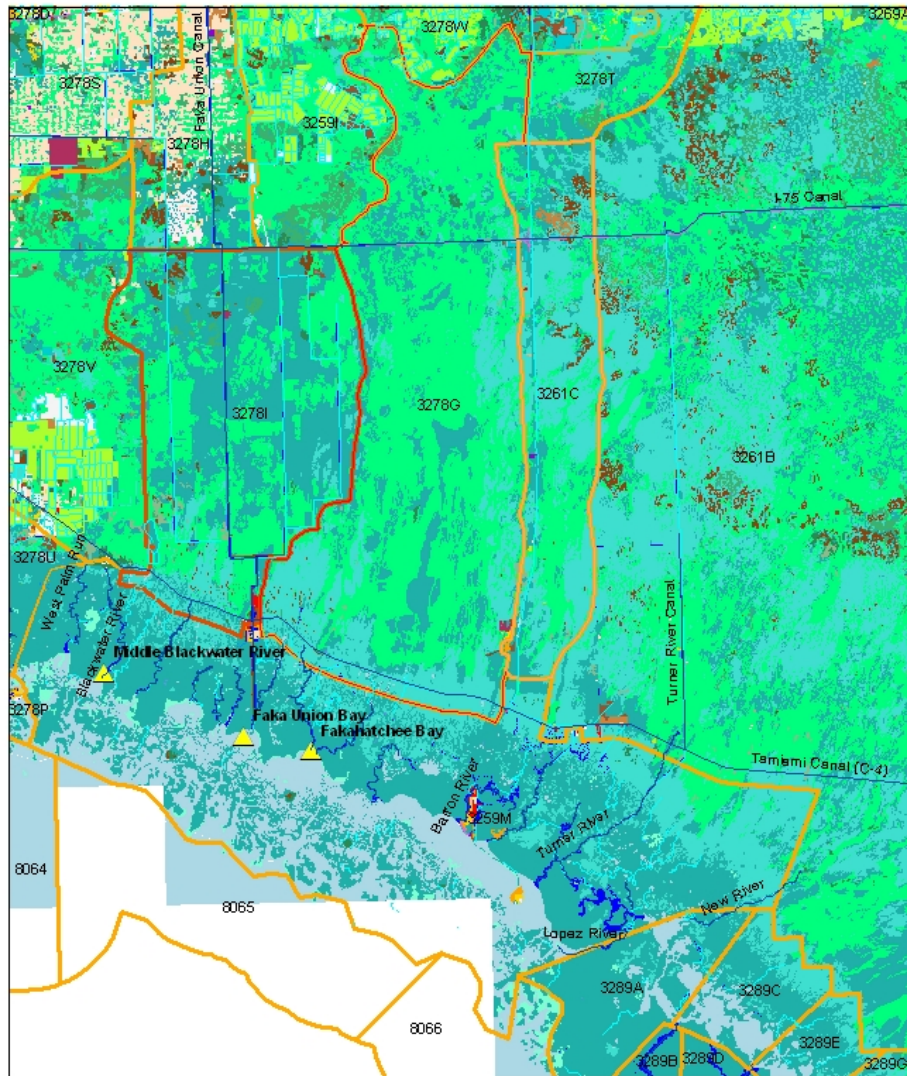
The above listed corrections have been made to the Draft TMDL document.

In conclusion, your participation in the nearly two-year long TMDL development process has been invaluable to the Department. We look forward to continuing to work with you in the near future.

Sincerely,

Jan Mandrup-Poulsen, Administrator
Watershed Evaluation and TMDL Section
Florida Department of Environmental Protection

Contributing Watersheds



Land use summary:


wbid 3278i
landusestat.xls


wbid 3278g
landusestat.xls


wbid 3261C
landusestat.xls


fakahatchee wbid
level2 landusestat.xls