

Chiquita Lock RAI#2 - Supporting Document July 10, 2017. Response to DEP Phone Conversation June 30, 2017

On June 30, 2017 the City of Cape Coral participated in a phone conference with Department of Environmental Protection staff in its Fort Myers and Tallahassee offices to discuss several items regarding the City permit application for removal of the Chiquita boat lock.

The discussion began with a clarification of the modeling work that had been done previously on the North Spreader Canal system with the current modeling work on the South Spreader Canal system.

The primary interest of the DEP staff was justification for a decision regarding reasonable assurance of no significant impact of the proposed project on the Caloosahatchee River. Several points that support the recommendation that reasonable assurance has been provided can be made.

First, the normal operation of the boat lock currently allows for communication between the South Spreader Canal system and the Caloosahatchee River. From 6:00 AM through 10:00 PM the city operates the boat lock to both allow boat traffic to pass but also on incoming tides the lock is open to alleviate boating safety concerns. Using the wet year and dry year periods that were used for modeling the hydrodynamics of the South Spreader Canal system, the tidal records for the percentage of time with incoming tide at the Fort Myers gage can be estimated. Those tidal conditions were used for the boundary water elevation conditions in the model. The data show that during 2006 (a dry year) that an incoming tide occurred approximately 48% of the time. For 2013 (a wet year) the incoming tide occurred approximately 46% of the time.

The current lock operations likely contribute to the observed water quality within the canal system and the adjacent Caloosahatchee River. As presented previously, the City of Cape Coral conducts monthly monitoring throughout its waters. In the canal system above the Chiquita Lock two sites represent the water that would discharge through the Lock and Breach 20, Stations 590 and 550, respectively (Figure 1). Many organizations monitor the Caloosahatchee River, including various state agencies and the City of Fort Myers. A location monitored by Fort Myers was chosen to represent the river near the mouth of the canal system, station CES10SUR (Figure 1).

For each of the stations, time series of total nitrogen concentrations are shown in Figure 2. Mean TN values for the three sites are 0.67 mg/L, 0.69 mg/L, and 0.68 mg/L for stations 550, 590, and CES10SUR, respectively. Median TN values are 0.70 mg/L, 0.70 mg/L, and 0.63 mg/L, respectively. The concentrations at the two canal sites are very similar to those at the long term site in the Caloosahatchee River near the Lock. These results lead to the conclusion that the discharges from the South Spreader Canal in the "lock removed" condition would have little effect on the nitrogen concentrations in the river.

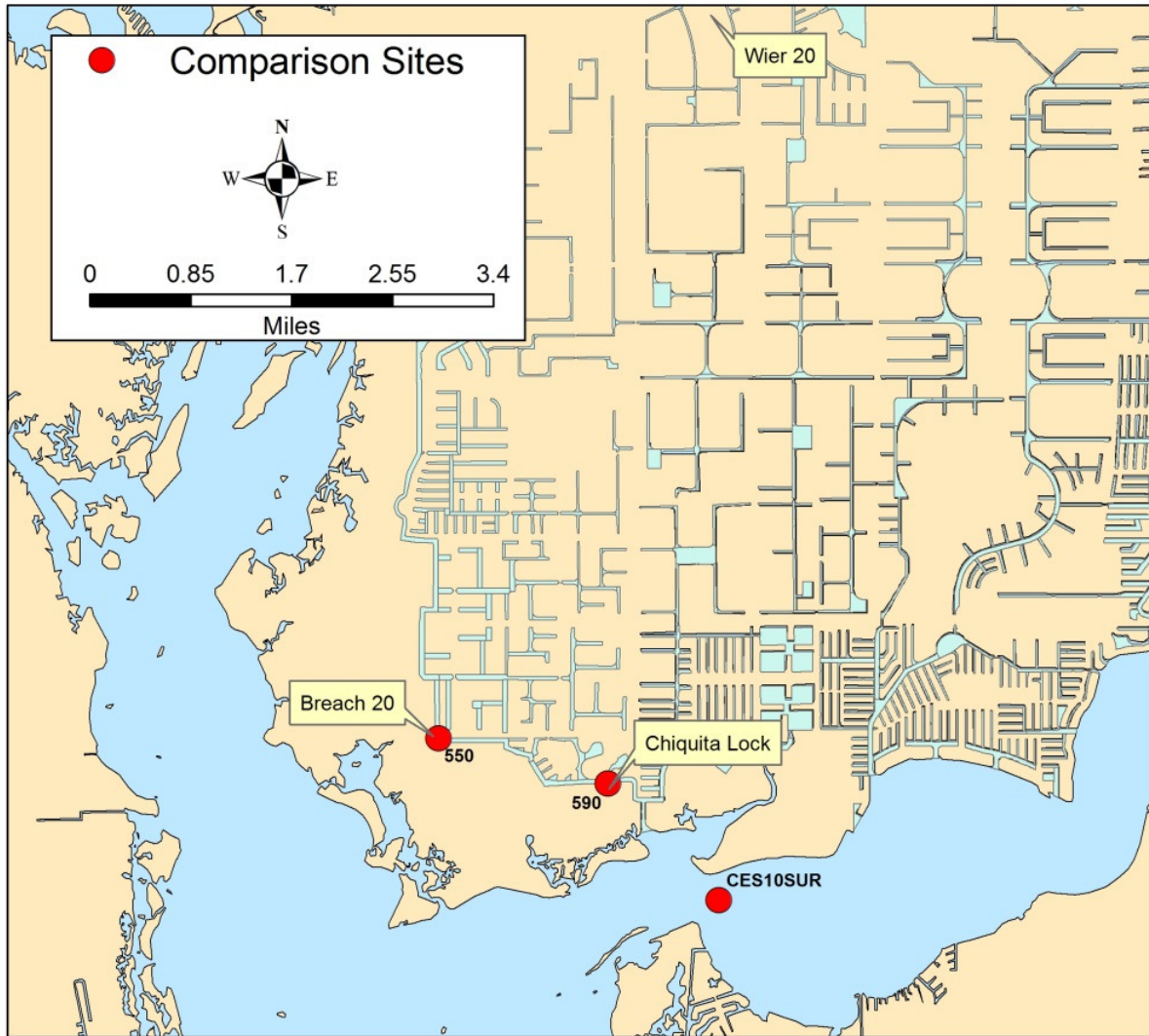


Figure 1. Locations of sites used for water quality comparison.

Secondly, the City contends that any potential incremental loading from the South Spreader Canal system will be de minimus based on two supporting points. First, the existing TMDL recognizes that 85% of the TN load to the Caloosahatchee River originates from above the S-79 Franklin Lock. Despite this, each of the downstream stakeholders, primarily MS4 NPDES permit holders along with agriculture, are assigned an allocation to reduce nitrogen loading. Approximately 57.4 miles² of Cape Coral fall within the 1,375 miles² that comprise the BMAP modeling domain. Of that, about 21.7 miles² drains through the Chiquita Lock, equivalent to 39,096 lbs. of nitrogen of the existing allocation. Since the current modeling effort do not account for the lock structure, its removal will not result in an increase load above that already estimated. The potential load from this portion (4.1%) of the Caloosahatchee watershed is clearly small.

The Department and its contractors have developed a watershed model to estimate loadings to the Caloosahatchee River. This HSPF model is in its final stages of review and has been made available to the City and others. As suggested during the June 30 discussion, further evidence of the relatively

small loadings from the South Spreader Canal system can be achieved by implementing the HSPF model. These loadings can be compared to those generated by the watersheds of tributaries to the lower Caloosahatchee River (i.e., below S-79). If requested, this effort can be completed.

The City also contends that any potential incremental loading from the South Spreader Canal system will be completely ameliorated by the series of projects that have been identified to meet the City’s current BMAP requirements.

The following table summarizes conservative estimates of load reductions that were presented in the response to RAI #2.

	Proposed Nitrogen Load Credits Assuming a 50% Credit for Freshwater Canal Irrigation
Target Load Reduction	103,414
Education	15,429
Street Sweeping	491
Catch Basin Cleanouts	590
Freshwater Canal Detention	42,551
Freshwater Canal Irrigation	44,258
Septic-to-Sewer Projects	28,542
Total Load Reduction	131,861
Increment Above Target	28,447

These results provide a range of potential credits that are proposed for consideration by the Department to support the premise of reasonable assurance with regard to the application for the boat lock removal. The City also recognizes that these results may vary as the BMAP process continues and the City continues to refine these numbers.

The most conservative credit estimate, 131,861 lbs/year, clearly leads to an incremental load reduction of nearly 30,000 lbs/year.