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Expediting Lake Okeechobee Pollution Control

Lake Okeechobee, the largest freshwater lake in the Southeastern United States and liquid heart of the Greater Everglades, is critical habitat for Everglades birds and wildlife. It is on the receiving end of drainage from the Northern Everglades watershed and drains to the St. Lucie and Caloosahatchee estuaries on the east and west, and the Water Conservation Areas and Everglades National Park to the south. The Lake also hosts multi-million dollar fishing and tourism industries and is source for water supply and aquifer recharge in south Florida.

Large amounts of phosphorus and nitrogen from human sources, mostly from fertilizer, animal feed, stormwater, and wastewater have accumulated in the watershed and Lake over decades and altered the Lake's delicate ecosystem. Today, although the State of Florida has tried several plans to reduce the amount of phosphorus entering the Lake, phosphorus continues to enter the Lake in excessive amounts and degrades the ecosystem and wildlife habitats. **With the state's deadline to comply with water quality goals approaching in 2015, it is urgent to take bold steps to reduce the continuing flow of pollution into the Everglades' liquid heart.**

Background

In 2001, the Florida Department of Environmental Protection (DEP) adopted a rule establishing a Total Maximum Daily Load (TMDL) to reduce the amount of phosphorus flowing into Lake Okeechobee. DEP set this restoration target to support a healthy lake system, restore the designated uses of Lake Okeechobee and allow the lake to meet applicable water quality standards.¹ The TMDL proposes a five year rolling average load of 140 metric tons (mt) of phosphorus to Lake Okeechobee to achieve an in-lake target phosphorus concentration of 40 parts per billion in the pelagic (open water) zone of the Lake.

Recent phosphorus loads flowing into the Lake have been three to five times higher than the TMDL limit. Five year rolling averages of phosphorus load in the past 10 years range from 714 mt in 2007 after wet hurricane years to 387 mt in 2012 after five dry years. Human activity continues to add to this problem at the rate of more than 4,000 additional tons of phosphorus into the watershed per year.² Statistical analysis of phosphorus and nitrogen flows into Okeechobee in the three-year update of the Lake Okeechobee Protection Plan in 2011 show no significant improvement in concentrations since the Lake Okeechobee Protection Act (LOPA) was passed.³

¹ Total Maximum Daily Load for Total Phosphorus Lake Okeechobee, Florida, 2001, Florida Department of Environmental Protection, p. 1.

² Soil and Water Engineering Technology, Inc. 2010. Nutrient budget analysis for the Lake Okeechobee watershed. SFWMD, Task 4. West Palm Beach, FL.

³ FDEP, FDACS, SFWMD. 2011. Lake Okeechobee Protection Plan Update. (see section 3.2.2. Tributary nutrient loading trends)

The LOPA requires that state water goals are to be achieved no later than January 1, 2015,⁴ (subsumed into the Northern Everglades and Estuaries Protection Plan (NEEPP) in 2007. Fla. Statutes 373.4595. Permits issued under this act “shall be designed to achieve such compliance with state water quality standards no later than January 1, 2015”). Fla. Statutes 373.4595(7)(c)(3). ***The 2015 deadline is less than 24 months away and phosphorus flows in Lake Okeechobee are not on a trajectory toward meeting the goal.***

Moving Forward

There must be policy changes and dramatically increased action by the three agencies responsible for meeting the Lake’s TMDL - the DEP, Department of Agriculture and Consumer Services (FDACS), and South Florida Water Management District (SFWMD) - to achieve healthy phosphorus levels in Lake Okeechobee. This year the DEP will begin the development of a Lake Okeechobee Basin Management Action Plan (BMAP) to design a comprehensive set of strategies to implement pollutant reductions. The next NEEPP three year update will be written this year. The agencies must use these opportunities to chart a new course toward restoring Lake Okeechobee’s water quality.

The most direct and cost effective path toward meeting the Lake Okeechobee TMDL is by controlling the sources that contribute to these loads from agriculture and urban areas.⁵ Large scale public works infrastructure, such as the previously proposed “Reservoir Assisted Stormwater Treatment Areas” (RASTAs) has only limited potential due to logistical and funding constraints.⁶ In addition, large scale projects such as RASTAs cannot be built without detrimental impacts to valuable wildlife habitat in the Northern Everglades.

Audubon Florida recommends the following actions on an expedited basis to meet the TMDL:

1. Improving and Funding Agricultural Best Management Practices in the Northern Everglades

It is time to reevaluate and modify the current agricultural best management practices (BMPs) administered by FDACS and SFWMD. Florida law requires the reevaluation and modification of BMPs “...Where water quality problems are demonstrated, despite the appropriate implementation, operation, and maintenance of best management practices...” Fla. Statutes 403.067(7)(c)4. The following steps could improve the effectiveness of the Northern Everglades BMP program:

- **Update FDACS agricultural BMPs to reflect the phosphorus reduction necessary to meet the TMDL.** BMPs for agricultural discharges “shall reflect a balance between water quality improvements and agricultural productivity.” Fla. Stat. 373.4595(2)(a). Currently,

⁴ SFWMD South Florida Ecosystem Report, 2012, Chapter 8, Lake Okeechobee Protection Plan, pg. 1.

⁵ Soil and Water Engineering Technology, Inc. 2008. Task 3 Report: Technical assistance in review and analysis of existing data for evaluation of legacy phosphorus in the Lake Okeechobee watershed. SFWMD, West Palm Beach.

⁶ The original plan toward meeting the TMDL included the construction of large “Reservoir Assisted Stormwater Treatment Areas” (RASTAs) in the Comprehensive Everglades Restoration Program’s (CERP) Lake Okeechobee Watershed Project. Due to unresolved concerns regarding cost-share CERP funding, the development of RASTAs has been substantially delayed and completion is not on the horizon.

Northern Everglades BMPs only reflect the agronomic needs for crops and have not produced significant progress toward load reduction and water quality improvement⁷.

- **Retool 5M-3 and other applicable rules and BMP handbooks to prioritize BMPs that sharply reduce the amount of phosphorus entering the watershed from fertilizer and animal feed.**⁸ This should be a primary BMP strategy. Consider the point system from the 2010 C-139 Basin BMP rule of SFWMD as a possible model, which gives extra points for substantial phosphorus reductions.⁹ These changes should apply to the different types of farming practices, including citrus, dairy, row crops, and cattle farming.
- **Retool BMP rules and manuals to require farmers who are implementing Northern Everglades BMP programs to include specific and measurable water management requirements to further reduce nutrient rich surface waters flowing from farms.** These programs should maximize opportunities to hold water on lands in detention ponds, facilitate water re-use on lands, and promote other water management measures.
- **Increase funding to expand the SFWMD dispersed water management program to increase storage and treatment capacity throughout the watershed.** These projects store water to prevent or slow phosphorus movement through the Okeechobee watershed or remove phosphorus from water flowing to the Lake. For example, the “Lykes West Waterhole” project reduced phosphorus concentrations from 400 ppb to 30 ppb.
- **Significantly increase state funding for FDACS cost-share BMP programs.** Earlier this year FDACS asked the Governor and Legislature for funds to implement cost-share BMPs. FDACS has indicated that past funding has been inadequate. FDACS’ 2013 legislative request for additional funding is commendable, and should be substantially expanded in future years to reflect a much more aggressive attempt to meet the TMDL. Funding should be used for implementation, increasing staff resources, and monitoring.

2. Reduce additions of phosphorus from urban sources into the Okeechobee watershed

Phosphorus and nitrogen from stormwater, wastewater, and the application of biosolids are other sources that continue to contaminate the Okeechobee watershed. We offer the following suggestions:

- **Restart efforts to develop a Northern Everglades Watershed Stormwater Rule.** Nutrient loads from post development areas should not exceed loads from natural undeveloped areas. A few years ago the SFWMD was in the process of developing this rule but when the DEP began the process of developing a Statewide Stormwater rule, the SFWMD suspended its rulemaking.
- **Prohibit Biosolids in all forms in the Okeechobee basin.** State law prohibits the land application of Class B biosolids in the Okeechobee watershed unless in nutrient

⁷ South Florida Water Management District, Florida Department of Agriculture and Consumer Services, and Florida Department of Environmental Protection. 2011. Lake Okeechobee Protection Plan Update.

⁸ 40E-63.435(2).

⁹ 40E-63.435(2), See also

http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/c_139_app_guidebook112010.pdf

balance, but spreading Class AA biosolids, which is simply the same material that once dried and limed, becomes certified as “fertilizer, and is then allowed. 373.4595(3)(b)(6)(a). Remove the loophole that allows the application of Class AA biosolids in the watershed.