

St. Johns River Water Management District Comments on the Harris Chain of Lakes Restoration Council's Draft 2009 Report to the Legislature

Draft Report, Page 2

“Throughout the year the TAG provided technical information, presentations, and regular updates to the Council in support of water quality and restorative issues being reviewed for the Harris Chain of Lakes.”

District Comment

This statement implies that the Technical Advisory Group (TAG) held frequent meetings, which is incorrect. While individual TAG members presented information to the Council, during the past year the TAG met only once. Since the TAG has not worked as a group to analyze the technical issues and develop scientific consensus, the Council has not had the benefit of sound science in its deliberations. As a result, many of the recommendations of the Council are not based on sound science and are not in the best interests of the Harris Chain of Lakes and Lake Apopka.

Draft Report, Page 4

“In the 2008 Report to the Florida Legislature, the Council, after reviewing decades of scientific reports, concluded that the restoration of the entire Harris Chain of Lakes shall be delayed unless alternative restoration strategies are implemented under Legislative direction.”

District Comment

The District previously provided comments on the Council's 2008 report. Several conclusions in that report were based on misinterpretation of the scientific information that the Council had reviewed. The Council has continued to ignore the science on this subject and, as a result, has made many recommendations that, if implemented, would be detrimental to the Harris Chain of Lakes and Lake Apopka.

Draft Report, Page 4

“The Council was especially concerned with the restoration approaches being followed by the St. Johns River Water Management District because the approaches focused on phosphorus control and the Council has concluded that the phosphorus criterion of 55 parts per billion established by the Legislature (Chapter 373.461 Florida Statutes) was unobtainable for the long term.”

District Comment

Water quality data and thorough analyses do not support the Council's conclusion. The data do indicate improvement in Lake Apopka water quality parameters since baseline conditions (1989-1994). The lake has experienced periods of greatly improved water quality since that time with some monthly total phosphorus levels approaching 55 parts per billion (ppb). The District's work on restoring the NSRA will greatly reduce the final external nutrient loading to Lake Apopka and will meet the Total Maximum Daily Load (TMDL) target. With approval from the U.S. Fish and Wildlife Service, the remaining NSRA phases could be reflooded by 2012. Continued improvement in Lake Apopka water quality is expected as more of the NSRA is restored. District analyses that were the basis for TMDL adoption by the Florida Department of Environmental Protection (FDEP) and U.S. Environmental Protection Agency (EPA) showed that meeting the target phosphorus loading would result in achieving the 55 ppb criterion.

Draft Report, Page 4

"After hearing presentations and receiving information from numerous scientific professionals, and holding numerous public meetings for the last eight years, the Council further concludes that the current overall existing restoration strategy for the Harris Chain of Lakes is not effective and that many individual restoration projects are not producing significant results. In some instances, incremental progress can be demonstrated but in the collective opinion of the Council, the timeframes that will be required to achieve "restoration" are unacceptably long and in the end will not represent a cost effective use of Florida tax dollars."

District Comment

Substantial progress has already been made on the restoration of lakes Griffin and Apopka. With the completion of the restoration of the NSRA and other projects already implemented by the District, restoration can be accelerated. Most of the expenditures to implement these restoration measures have already been made.

Draft Report, Page 4

"An evaluation of total phosphorus, total nitrogen, and chlorophyll concentrations at Lake Apopka as well as water clarity as measured by Secchi disc, demonstrated average annual nutrient and chlorophyll concentrations for the first six months of 2009 remained above the long-term averages established from 1978 to present, and that water clarity is below the long-term average."

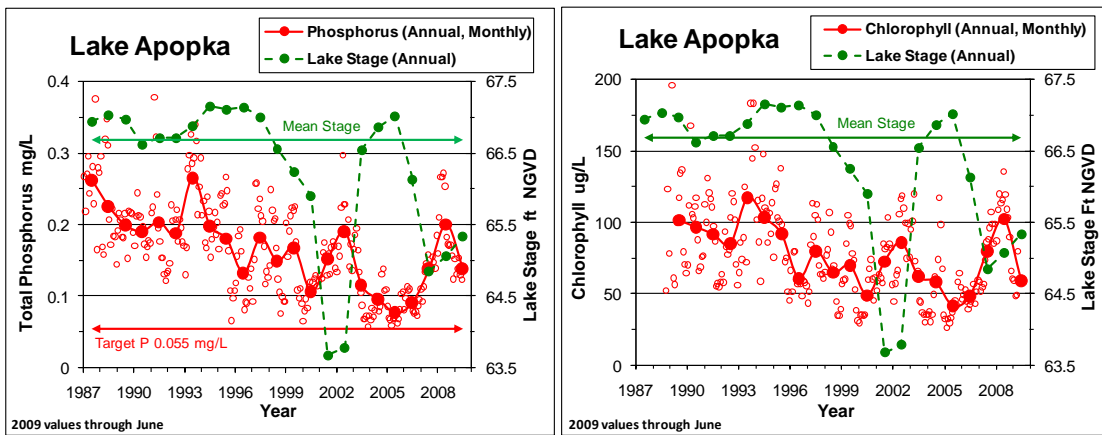
District Comment

This statement misrepresents the improving trends in Lake Apopka water quality. In early 2009, the lake had been experiencing low water levels because of an extended drought. Just as in previous drought conditions, there was an increase in phosphorus concentrations. However, the overall trend in Lake Apopka is improving water quality since the start of regulation of farm discharges by the District and purchase of the former farms in 1996-98. In the past three months, as water levels have increased closer to normal, the water quality in the lake has improved.

“The Council has long recognized that many Harris Chain of Lake Restoration strategies have been linked to water quality at Lake Apopka. The following graph of annual averages provides, in part, the basis for the Council’s decision to adopt new restoration strategies.”

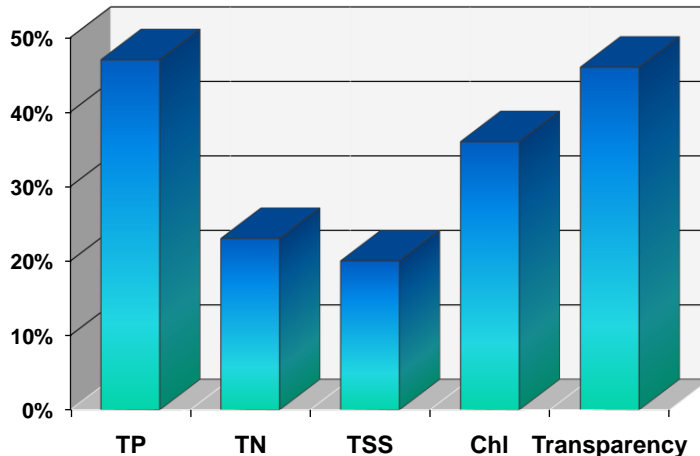
District Comment

Changes in water quality in lakes often have complex causes, and to show annual data with no analysis is to misrepresent the improvements that have occurred in Lake Apopka. In fact, the figure that the council presents shows a generally decreasing trend of annual total phosphorus and chlorophyll concentrations through time. However, the figure shows that in 2002-2003 and 2007-2008, there were temporary increases in concentrations. These increases occurred when lake levels were low due to extreme droughts. Looking at annual averages minimizes an important improving trend in water quality data. Despite temporary increases due to drought, total phosphorus and chlorophyll concentrations continued to decrease between 2004 and 2006, and continued to decrease in 2009 as the lake level rose to more normal levels.



Comparison of average values over several-year periods provides a more realistic long-term view of the data. Improvement is demonstrated by comparing the data from the farming period to the most recent five years of data.

Lake Apopka Percent Improvement in Water Quality Indicators (1987-95 vs 2003-08)

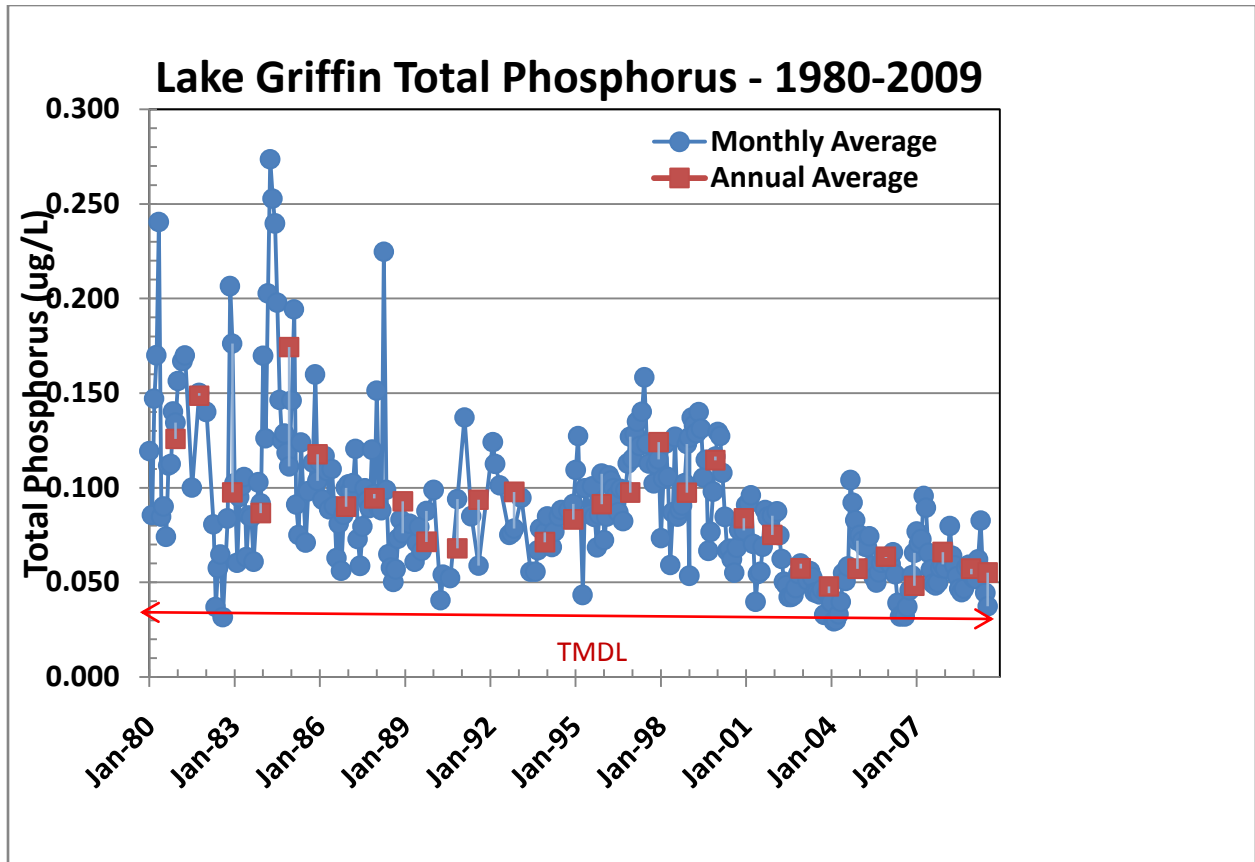


Draft Report, Page 6

“The Council presently supports the efforts of the Florida Department of Environmental Protection to improve water quality in the Harris Chain of Lakes by implementing the Total Maximum Daily Load (TMDL) program.”

District Comment

The foundation of the FDEP Basin Management Action Plan (BMAP) and TMDL program is the District’s Surface Water Improvement and Management (SWIM) plan efforts at Lake Apopka and in the Upper Ocklawaha River Basin, which the Council has opposed elsewhere in its report. In addition, the lakes downstream from Lake Apopka show sustained water quality improvement. In fact, Lake Griffin average total phosphorus concentrations declined substantially beginning in 1999 and most recent monthly values are approaching the TMDL target of 31 ppb. We are even closer to the targets in several lakes than the Council projects.



Draft Report, Page 7

“Restoration projects at Lake Apopka have been ongoing for over 20 years, beginning with the purchase of the farmland and while there has been some intermittent improvement in water clarity, recent data indicates that minimal if any improvements in water quality or sport fishing opportunities at Lake Apopka.”

District Comment

A proper analysis shows that water quality trends are improving for the lake if the temporary effects of severe droughts are considered. In addition, black crappie populations have increased recently and Clermont bass clubs have held bass tournaments on the lake in the past few years. The basin, even in the middle stage of restoration, now has a bird species list of 346 species. This is the largest bird list in Florida, even exceeding the 340 species found at Everglades National Park.

Draft Report, Page 7

“The primary objective behind purchasing the farms was to eliminate the discharge of water containing excess nutrients and sediments into the lake, both of which continue today.”

District Comment

The primary objective of purchasing the farms was to eliminate discharges to the lake, while restoring farmlands back to wetlands. Some discharges continue today only because the District had to develop innovative techniques to remediate pesticide contaminants in the farm soils. The Council fails to note the progress that the District has made in reducing the discharges of nutrients from the NSRA. Even in areas that have not yet been restored, the storm water is treated with alum to reduce the concentration of total phosphorus, and, as additional phases of the NSRA restoration project are reflooded, less water will need to be discharged to Lake Apopka. In addition, few sediments are discharged from the former farm fields.

Draft Report, Page 7

“The Council recommends the creation of a legislative appointed sub-committee which include members of the TAG to the Council and former landowners at Zellwood to develop a plan to create a reservoir on the north shore, which can be a resource for local municipalities and provide an alternative to the detrimental discharge of nutrient-rich waters into Lake Apopka. The Committee’s plan would be to improve water storage capacity, along with fish and wildlife habitat to potentially lower the management costs than currently being expended.”

District Comment

While the Council changed this text at the October 2009 meeting, it should be pointed out that the City of Apopka has already evaluated the feasibility of establishing a water storage area on the NSRA. It was determined to be cost prohibitive. It would not seem prudent to spend additional public funds to identify an answer when one has already been identified. More importantly, soil contamination issues and agreements with the federal government preclude restoring deep, open water areas for fish and wildlife habitat. The soils are not clean enough to support that goal at this time. Finally, the District’s progressive restoration of wetlands on the NSRA provides additional storage that is reducing discharges of storm water.

Draft Report, Page 7

“The restoration of Lake Apopka is paramount to the restoration of downstream lakes in the Harris Chain. The objectives that need to be met for Lake Apopka to again become an asset to the citizens whose taxes fund restoration include:

- *Stabilization or removal of suspended sediments and solids that hinder water clarity;*
- *Reducing the external nutrient load discharged to the lake from the former farmlands of the north shore;*
- *Removal or reducing the internal nutrient load, and;*
- *Creation of habitat in the form of aquatic vegetation and increased fish populations.”*

District Comment

The District's restoration efforts already include these major items. The Lake Apopka Marsh Flow-Way has treated more than 2.5 volumes of Lake Apopka water, removing 15 metric tons of total Phosphorus and 25,000 metric tons of suspended solids from the lake since November 2003. The District is on track to complete reflooding of the NSRA in 2012. This will greatly reduce the external nutrient load to the lake and will meet the TMDL target. In fact, that load is already being reduced as more phases are allowed to be reflooded by the U.S. Fish and Wildlife Service (USFWS). The District has been reducing the internal nutrient load in an extremely cost effective manner through the harvest of gizzard shad. Finally, improved aquatic habitat and sport fish populations will follow with improved water quality. It would not seem prudent to put significant public funds toward habitat measures that will not succeed until the water quality improves.

Draft Report, Page 8

"As discussed in the March 2009 Council meeting, the successful management strategy at Orange Lake provides a relevant local example of the benefits of accomplishing more by doing less. (see appendix for March 6) Allowing hydrilla to grow in every lake might not be a good policy, but in the case of Lake Apopka, it is a low management biological restoration tool that should be seriously considered."

District Comment

The Orange Lake test cannot yet be considered a success because the lake is being overrun by hydrilla. Hydrilla has expanded to cover over 4,500 acres of the lake and is now found in areas that have not had hydrilla coverage since 1983. Allowing hydrilla to grow in Lake Apopka will damage this lake and lead to hydrilla infestation of the other lakes in the Harris Chain. There is no means to limit hydrilla to only a portion of the lake. Treatment of the entire lake with fluridone would cost in excess of \$1 million. With increasing resistance to fluridone shown by hydrilla, treatment might not even be effective.

Draft Report, Page 8

"The Council strongly supports the reconnection of the former north shore farmlands to Lake Apopka, as originally proposed by the St. Johns River Water Management District, to act as a "kidney" to naturally filter the waters and provide improved fish and wildlife habitat. Reconnection requires increasing the elevation of the former farmlands, so they are not permanently flooded when the existing dikes are removed. The most readily available soils for elevating the marshes are the bottom sediments of Lake Apopka."

District Comment

Reconnection of the north shore farmlands to Lake Apopka is not feasible at this time. The Council has previously been informed that the pesticide contamination of soils in the NSRA is such that deep flooding of the area is not safe for fish and wildlife. The soil remediation has reduced pesticide levels by an average of 65%. Even a 65% reduction is not sufficient to reduce the risk of pesticide contamination in an open water food web. Pesticide levels need to be reduced further, up to four to five times more, if the area is restored to open water.

Sufficient sediments do not exist in Lake Apopka to cost-effectively raise marsh elevations enough to avoid an open water system. Reconnection of the north shore farms to the lake would result in fish contaminated with pesticides not only being available to wildlife, but also to human consumption, posing a significant threat to public safety.

Draft Report, Page 8

“The Council recognizes the role bottom sediments play in influencing water quality and fish/plant habitat in Lake Apopka. The Council, therefore, recommends that the Florida Fish and Wildlife Conservation Commission be funded to conduct a research/demonstration project using dredging techniques that can determine how much and what type of sediment can be removed from a single site in Lake Apopka, and how land elevations in the former farmlands could be elevated with the construction of wetland islands, similar to those the Commission has constructed at other lakes.”

District Comment

The District has already evaluated the feasibility and cost associated with dredging Lake Apopka. At an estimated \$1.5 billion, it was deemed cost prohibitive. Instead, the District has implemented the most cost-effective projects feasible to improve the quality of Lake Apopka and restore the adjacent marsh lands. Given the exorbitant cost of dredging, it would be an inappropriate use of public funds to conduct a “pilot” project.

Draft Report, Page 10

“After multiple years of evaluation, studies have concluded that the current level of gizzard shad harvest is not sufficient to impact phosphorus concentrations in Lake Dora or the other lakes in the Harris Chain.”

District Comment

This statement is an incorrect reference to the findings of the University of Florida (UF) study. UF concluded that a two-year gizzard shad harvest in Lake Dora did not reduce phosphorus concentrations. However, two years was too short a time to expect phosphorus levels to change because of long hydraulic residence time. The Council is incorrect to extend the limited conclusions of the UF group to other lakes or other harvest conditions. Furthermore, the Council seemingly ignored extensive studies by Virginia Wesleyan College in the same project that concluded that nutrients released by gizzard shad can have a substantial impact on lake systems via nutrient excretion and bioturbation effects. The primary objectives of the project were clearly stated in the Statement of Work “to assess gizzard shad population dynamics before and after an experimental removal of shad using commercial gill nets and compare to a reference lake where no gizzard shad removal takes place, and to assess feeding strategies of various size groups of gizzard shad in two lakes using stable isotope analysis.” The UF group was not tasked with determining a shad reduction strategy for the lakes.

Draft Report, Page 10

“Additionally, the Florida Fish and Wildlife Commission has estimated the gizzard shad harvesting program in Lake Apopka will remove approximately 10,000 of the sunshine bass stocked in the lake as a natural predator to the shad.”

District Comment

The FWC was aware that shad harvesting was an ongoing proposition in Lake Apopka when they stocked some 400,000 sunshine bass in Lake Apopka. In fact, the FWC continues to authorize shad harvesting at Lake Apopka and has also permitted harvesting at Newnans Lake in the Orange Creek Basin.

Draft Report, Page 10

“The Council stands firmly behind its recommendations in the 2009 Report to the Legislature and continues to conclude that commercial harvest of gizzard shad will not significantly improve water quality unless netting is conducted at a level that would be extremely detrimental to sport fish populations, which is not acceptable.”

District Comment

This conclusion is incorrect. The District monitors the catch and stops harvest on a lake if by-catch reaches unacceptable levels. Water quality improvements have been documented at catch rates that are not detrimental to sport fish populations, in part because the District’s gizzard shad harvest operates over multiple years. District data clearly show a substantial depletion of shad stocks occurred in lakes Apopka and Griffin without significant impact to recreational fisheries resources.