

FINAL

**MINUTES OF THE MEETING  
of the  
HARRIS CHAIN OF LAKES RESTORATION COUNCIL**

**October 9, 2009**

The regular meeting of the Harris Chain of Lakes Restoration Council (Council) was held at 9:00 AM on October 9, 2009 at the Lake County Board of County Commissioners' (BOCC) Chambers, 315 West Main Street, Tavares, Florida.

**Members Present**

Hugh (Dave) Davis II, Chairman  
Skip Goerner, Vice Chairman  
Rick Powers, P.G., Secretary  
Keith Farner  
Robert Kaiser, P.E.  
Don Nicholson  
Richard Royal

**Members Absent**

Edward M. Schlein, M.D.  
Jon VanderLey

**1. CALL TO ORDER**

Chairman Dave Davis called the meeting to order at 9:00 AM.

**2. INVOCATION AND PLEDGE OF ALLEGIANCE**

An Invocation was given by Councilman Bob Kaiser, followed by the Pledge of Allegiance.

**3. ROLL CALL**

Chairman Davis called roll. Councilmen Ed Schlein and Jon VanderLey were absent. Councilman Don Nicholson arrived shortly after roll call.

**4. APPROVAL OF MINUTES**

Chairman Davis called for a discussion of the September 11, 2009 meeting minutes. No edits were suggested and the September minutes were approved by unanimous vote.

**5. PRESENTATIONS / ACTION ITEMS**

**Discussion of the Annual Report - Council**

Chairman Davis called for a discussion of the draft annual report of the Council.

Councilman Richard Royal said it was his understanding the annual report was going to be very brief and concise, consisting of only ten pages and includes the minutes and appendices on CD. He noted the most recent draft includes over 100 pages. Vice (V.) Chairman Skip Goerner explained the Executive Summary would be the only portion of the report that is printed, while the rest of the report will be included on CD and the Council website. He also said that by submitting a 10-page summary report, it will increase the likelihood of the report being read by legislators.

Councilman Royal also expressed his disagreement with the fact that funding requests have been included in the Executive Summary. V. Chairman Goerner said he believes that information is important and should be included because it is the Council's funding initiative.

The Council went on to discuss the various aspects of format and length of the printed report. It was determined the Executive Summary would include both the Table of Contents of the body of the report and a listing of all appendices that would be included on the CD accompanying the printed report and included on the Council website.

The Council then discussed the specific language used in the summary. Throughout the discussion the Council agreed to numerous edits to the draft language, some of which were approved by Council vote. Those edits will be reflected in the third draft of the Executive Summary and consequently in the main body of the annual report.

A discussion was held regarding the potential use and management of hydrilla as a restoration technique for Lake Apopka. Following the discussion Councilman Kaiser made a motion that the Council investigates the use of hydrilla as a restoration strategy in Lake Apopka. Councilman Keith Farnier seconded the motion, which was approved by unanimous vote.

The Council also discussed a research/demonstration project to dredge two (2) sump areas at the bottom of Lake Apopka, in which potentially fluid sediments in the lake would flow towards and collect in the sumps, making their removal by future dredging much less costly. Dr. Dan Canfield of the University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) and Chairman of the Technical Advisory Group (TAG) to the Council suggested that based on the results at Lake Trafford as discussed at the September Council meeting, the flocculent sediments migrated towards the center of the lake during a period when lowered water levels did not allow dredging to continue. He suggested that an initial funding of \$1 million would be sufficient to dredge two sumps in Lake Apopka, in order to demonstrate the concept.

Secretary Rick Powers said this concept has been discussed on other lakes, but to the best of his knowledge it has never been conducted on a large scale. In theory, if the sediments were to move towards the sump areas, then it would be cheaper to dredge them there than chasing them all around the lake. Dr. Canfield added that another part of this research / demonstration project is determine what volume of sediments could be removed by this method over time and whether the sediments could be used to raise the marshes at Lake Apopka.

John Benton, a Biologist with the Florida Fish and Wildlife Conservation Commission (FWCC) explained the concept of dredging a sump was discussed in connection with the Lake Beauclair dredging project and it was not well-received by the Florida Department of Environmental (FDEP). He said that it would be difficult to permit a project which alters the original or hard sediments of a lake. Secretary Powers agreed saying it may even take action by the Governor.

V. Chairman Goerner also suggested that a sump dredged near the mouth of the Apopka-Beauclair Canal may help prevent sediments being discharged from Lake Apopka down the canal during wind events. Secretary Powers agreed but said the permitting would be a challenge.

In a discussion of funding sources, the Council agreed to recommend the Legislature begin funding the Harris Chain of Lakes Restoration Program (Chapter 373.468 Florida Statutes) by redirecting trust fund monies to the FWCC for projects recommended by the Council. The programs shall be more effective and efficient use of tax dollars focused on the timely restoration of our surface water bodies to viable recreational and ecological resources.

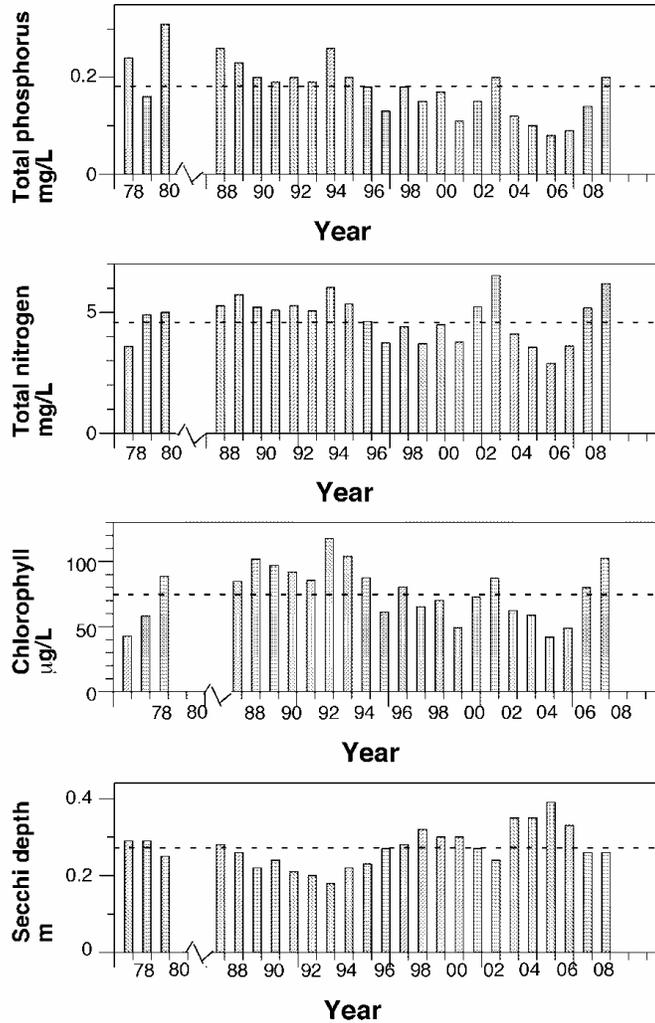
#### **Dave Fisk, Assistant Director SJRWMD – Items Requested by the Council for Discussion**

Dave Fisk provided comments on the following issues as outlined below:

- St. Johns River Water Management District (SJRWMD) Comments on the Annual Legislative Report
  - The District had provided comments on the previously submitted draft report and based on the discussions held during the meeting, some of the comments have been addressed. Additional comments will be submitted based on the revised draft report.
  - The District disagrees with the Council's conclusion that restoration activities are not working.
    - The water quality graphs in the Executive Summary do not reflect there has been an overall 50% reduction of phosphorus and 50% improvement in water clarity as a result of the combined restoration efforts.
    - Other water quality parameters like nitrogen have seen a 30 – 40% reduction.
  - District will review funding sources for some of the projects recommended by the Council.

Chairman Davis asked if the SJRWMD agrees with the dates outlined in the graphs in question ranging from 1978 – 2008. Mr. Fisk said they do not dispute the data but prefer to analyze data based on benchmarks of restoration activities. Dave Walker, SJRWMD Basin Program Manager explained the restoration began with the Surface Water Improvement and Management (SWIM) Program in 1987 and then the farm buyouts occurred in 1996-1998. He said the District reviews the baseline conditions beginning in 1987 through 1998 and compares the conditions of the lake going forward to determine there has been a 50% reduction in phosphorus. Copies of the graphs discussed are provided below:

**Lake Apopka annual averages**



\*Data provided by the SJRWMD

Mr. Fisk went on to say they had been notified by the Florida House of Representatives that no funding requests will be accepted and there will be no new funding for any of their projects. He also noted that the Council was seeking funding through trust funds and explained that even after reducing the amount of money available in the 2008-2009 fiscal budgets; the Legislature effectively eliminated all of the money available in the trust funds. He also advised the Council that even the Florida Forever Trust Fund was not provided new funding. Mr. Fisk suggested the current budget cutbacks on funding will likely continue for the next two or three years.

V. Chairman Goerner asked the District’s opinion on the recommendations of the Council presented in the Executive Summary of the annual report. Mr. Fisk responded saying;

- They are opposed to allowing hydrilla to grow in Lake Apopka as a method of restoration.
- They believe there needs to be more review of dredging as a restoration technique.
- The SJRWMD agrees with the four objectives outlined in the Executive Summary of the Council's annual report Executive Summary, which include:
  1. Stabilization or removal of suspended sediments and solids that hinder water clarity,
  2. Reducing the external nutrient load discharged to the lake from the former farmlands of the north shore,
  3. Removal or reducing the internal nutrient load, and
  4. Creation of habitat in the form of aquatic vegetation and increased fish populations.
- Reconnecting the marshes to Lake Apopka is a very complex issue.

Mr. Fisk explained that the District has put a lot of effort into reviewing the management of pesticides at the north shore of Lake Apopka and the consequences of them reaching the lake and making their way through the food chain. A major concern is the risk of people eating fish that have been contaminated by the pesticides. Mr. Fisk also said the District is reviewing potential [pesticide] impacts to the public if water were withdrawn from the north shore under consumptive use. He reiterated that reconnecting the marshes to Lake Apopka is a complex issue.

- Priorities of the SJRWMD Draft Upper Ocklawaha River Basin State Funding Initiative
  - There has been an 11.5% reduction in ad valorem taxes, which is the source of the majority of the SJRWMD funding.
  - Earlier this year Florida reported negative population growth.
  - The District is making adjustments to the reduced revenue and anticipates that funding levels previously obtained may become a thing of the past.
- Recording Secretary Contract Scope of Services – Duties and Determination of Responsibilities
  - The District will support the statutory requirements of the Council,
  - The District will continue to support the TAG,
  - In review of the Scope of Services for the Recording Secretary the District recognizes;

- The importance of advertising the Council meeting in fulfillment of the Sunshine Laws, and
- The Council is the only advisory board the SJRWMD works with that is required to prepare an annual report.
- The District believes that Patrick Hunter is doing a good job as Recording Secretary in managing the minutes and annual report.
- The District will ensure the Council is able to meet its reporting requirements.

Mr. Fisk also updated the Council saying the agreement with the Natural Resources Conservation Service (NRCS) is complete and the land transfers have been made. He explained the easements at Lake Apopka have been released and conservation easements have been placed at the Orange Creek Conservation Area and Ocklawaha Prairie, as part of the agreement.

The Council was encouraged by this development and thanked Mr. Fisk for his input.

Dr. Canfield expressed his disagreement with comments previously made by the SJRWMD. Below is an outline of his position:

- He is not as concerned about phosphorus in the lakes as he is in chlorophyll. Phosphorus does not kill fish.
- Presented water quality graphs of Phosphorus versus Chlorophyll and Water Clarity in the Harris Chain of Lakes (HCOL). Copies of the graphs are presented as Attachment 1 of these minutes.
- Phosphorus concentrations in Lake Beauclair are averaging around 100 parts per billion (ppb) while chlorophyll levels average above 100 ppb. Water clarity has not improved.
- Even though phosphorus concentrations in Lake Dora East are about 50 ppb, the chlorophyll concentrations typically range between 100 – 150 ppb, which cause the lake to be green.
- In Lake Dora West the phosphorus concentrations are approximately 50 ppb while the chlorophyll levels are typically above 100 ppb. Even though there has been a reduction in phosphorus in the lake, the algae concentrations remain high.
- Phosphorus is not always the limiting nutrient in lakes.
- In Lake Eustis the phosphorus concentrations are below 50 ppb, but the chlorophyll is usually above 20 ppb and sometimes near 100 ppb. This is a much clearer lake with water clarity sometimes near four (4) feet.

- Lake Harris is a lake that will have problems meeting its Total Maximum Daily Load (TMDL) criteria. The phosphorus concentrations are typically below 40 ppb and the chlorophyll is usually around 20 ppb but sometimes goes above 50 ppb, which is when citizens call to complain about it being a green water lake.
- The phosphorus levels in Lake Griffin are typically below 100 ppb, while chlorophyll concentrations go above and below 100 ppb.

Dr. Canfield summarized this water quality discussion saying there are other processes taking place other than phosphorus. He said the strategy to reduce phosphorus inputs to the lake [Apopka] in an effort to reduce the phosphorus concentration to 55 ppb [TMDL criteria], will not make the water clearer and it will remain a green water lake. Dr. Canfield said that is why the TAG is suggesting other projects on that lake. He added, a holistic approach to lake restoration must be followed to get the desired results.

Chairman Davis made a call for a discussion of the proposed 2010 Council Meeting Schedule. No comments were made and the schedule was approved by unanimous vote. A copy of the 2010 Council Meeting Schedule is provided as Attachment 2.

### **Council and Public Questions & Answers**

Chairman Davis made a call for public or Council questions or comments. No public or Council member questions or comments were made at this time.

### **Agency Updates**

Chairman Davis made a call for Agency Updates.

Mike Perry, Executive Director of the Lake County Water Authority (LCWA) provided the following updates to the Council:

- Current lake water levels, noting the area has received low rainfall amounts this summer;

	<u>Current</u>	<u>Regulatory Schedule</u>	<u>Minimum Desirable</u>
Lake Apopka	66.5 feet	67.2 feet	66.5 feet
Harris, Eustis and Dora ("Superpond")	63.0 feet	63.1 feet	62.0 feet
Lake Griffin	58.6 feet	59.05 feet	58.0 feet

- Lake Beauclair Nutrient Reduction Facility (NuRF)
  - o Grand opening will be October 14<sup>th</sup> @ 10 AM
  - o 3.2 million gallons of Lake Apopka water has been treated, which is equal to approximately one volume of water in Lake Beauclair.

- The water from the canal enters at greater than 100 ppb phosphorus average and is discharged back to the canal at 35 ppb phosphorus on the average.
- Due to the low flow conditions in the [Apopka-Beauclair] canal, 100% of the flow has been treated.
- Currently phosphorus concentrations in Lake Beauclair are below 50 ppb and have approached 40 ppb.
- The total phosphorus reductions are substantial and include reductions in soluble phosphorus.
- Approximately \$400,000 has been spent on alum and polymer for the NuRF.
- Described other operational adjustments.

V. Chairman Goerner asked what the operational costs have been. Mr. Perry explained they have budgeted \$1.5 million per year for maintenance and alum, plus \$450,000 has been set aside for additional maintenance, as necessary.

Dr. Canfield discussed a handout he provided to the Council on the Restoration of Fish Habitat in the Harris Chain of Lakes. A copy of the handout is provided in Attachment 3.

- A Research/ Demonstration Project
  - Two year project costs of \$185,000 total, utilizing the balance of the Council's legislative appropriations.
  - Includes the artificial reefs along with the planting and establishment of *Nuphar lutea* or Spatterdock
  - The project will be completed in stages and the first stage will be at Hickory Point, near the pier where many disabled veterans go to fish.
  - The projects will be installed at all the lakes in the Harris Chain.
  - Where the muck is too thick, woody debris would be placed instead of gravel.
  - After completion of the near shore fishing habitat, the plan is to place larger "reefs" in the center portions of lakes with any remaining funds to create wind / wave barriers to aid in the establishment of aquatic plants, including *nuphar*.

Secretary Powers asked how many attractors would be constructed through this project. Dr. Canfield said initially there would be five near the fishing piers and a total of 50 in the two years program. He also said the mechanical harvester will be used to collect and relocate the *nuphar*. Councilman Kaiser made a motion to approve the expenditure of Council funds for habitat projects described by Dr. Canfield. The motion was seconded by V. Chairman Goerner and passed by unanimous vote.

Based on the earlier discussion, Councilman Don Nicholson asked what the best approach is to reducing chlorophyll in the areas lakes. Dr. Canfield said the best way to removed chlorophyll is through the establishment of macrophytes (submerged aquatic plants). He said if aquatic plants covering 20-30% of a lake can be established, the chlorophyll would be substantially reduced.

John Benton, a Biologist with the FWCC provided the following updates to the Council:

- Long term monitoring has been approved for Lake Dora, in addition to lakes Apopka, Harris, and Griffin.
  - o Long term monitoring includes Community Sampling where electrofishing is conducted for 10 minutes at a time, to determine species and quantities.
  - o Sampling will also be conducted on those lakes for largemouth bass.
- The FWCC is collaborating with Florida LAKEWATCH to tag largemouth bass state-wide.
  - o Tags have values that range from \$5 to \$200
  - o They have a tag return on a 10-pound bass caught in Lake Apopka
  - o Tagged fish are also being caught in other lakes in the chain
  - o The program is designed to determine exploitation of bass state-wide
- Illinois pondweed or Peppergrass (*Potamogeton illinoensis*) is doing well in lakes Yale, Eustis, and Griffin
  - o These are the largest abundance the FWCC has seen on those lakes in over a decade
  - o The macrophytes would be a big step towards improving fish habitat

Dave Walker (SJRWMD) provided the following updates to the Council:

- Permits for additional Emeralda Marsh reconnection
  - o K-cell will be connected to Haines Creek via the Serpentine Swamp, created in 2000
    - A bridge will be installed at the south end of the K-cell for better wildlife management
    - The reconnection includes approximately 1,000 acres of marsh
    - The marsh will be managed at lake level
  - o A large box culvert is being installed at Areas 6 and 7 on the north side of the Yale-Griffin Canal
    - They plan to breach the levee near south end of that area
    - The District is working on stabilizing water quality parameters in the marsh so they don't impact Lake Griffin water quality when reconnected.
  - o Major expansion of *nuphar* is occurring in Area 2, a 450-acre marsh
  - o 2,000 acres out of the total 7,000 acres of Emeralda Marsh will not be reconnected
- Shad harvesting began on Lake Apopka on October 1<sup>st</sup>
  - o Approximately 100,000 pounds of shad have been harvested
  - o The shad being caught are much smaller than in previous years
  - o 3.5-inch gill nets are being utilized

Barbara Bess, Ex-officio member of the TAG said she had no updates for the Council.

## **6. PUBLIC COMMENTS**

No public comments were made.

**7. COUNCIL MEMBER COMMENTS**

Chairman Davis made a call for Council member comments.

Recording Secretary Hunter requested when comments would be provided by the Council for the main portion of the annual report. Chairman Davis suggested that comments on the annual report should be submitted by October 20<sup>th</sup>. The Council agreed

Nancy Christman, Intergovernmental Coordinator with the SJRWMD discussed the following agenda items for the November Council meeting:

Discussion of November 6, 2009 Meeting

- Review and Approval of the Annual Report – Council Discussion

**8. ADJOURNMENT**

The meeting was adjourned at 12:30 PM.

Respectfully submitted by:

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Chairman Dave Davis

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Secretary Rick Powers, P.G.

**Attachment 1**

**Water Quality Graphs**

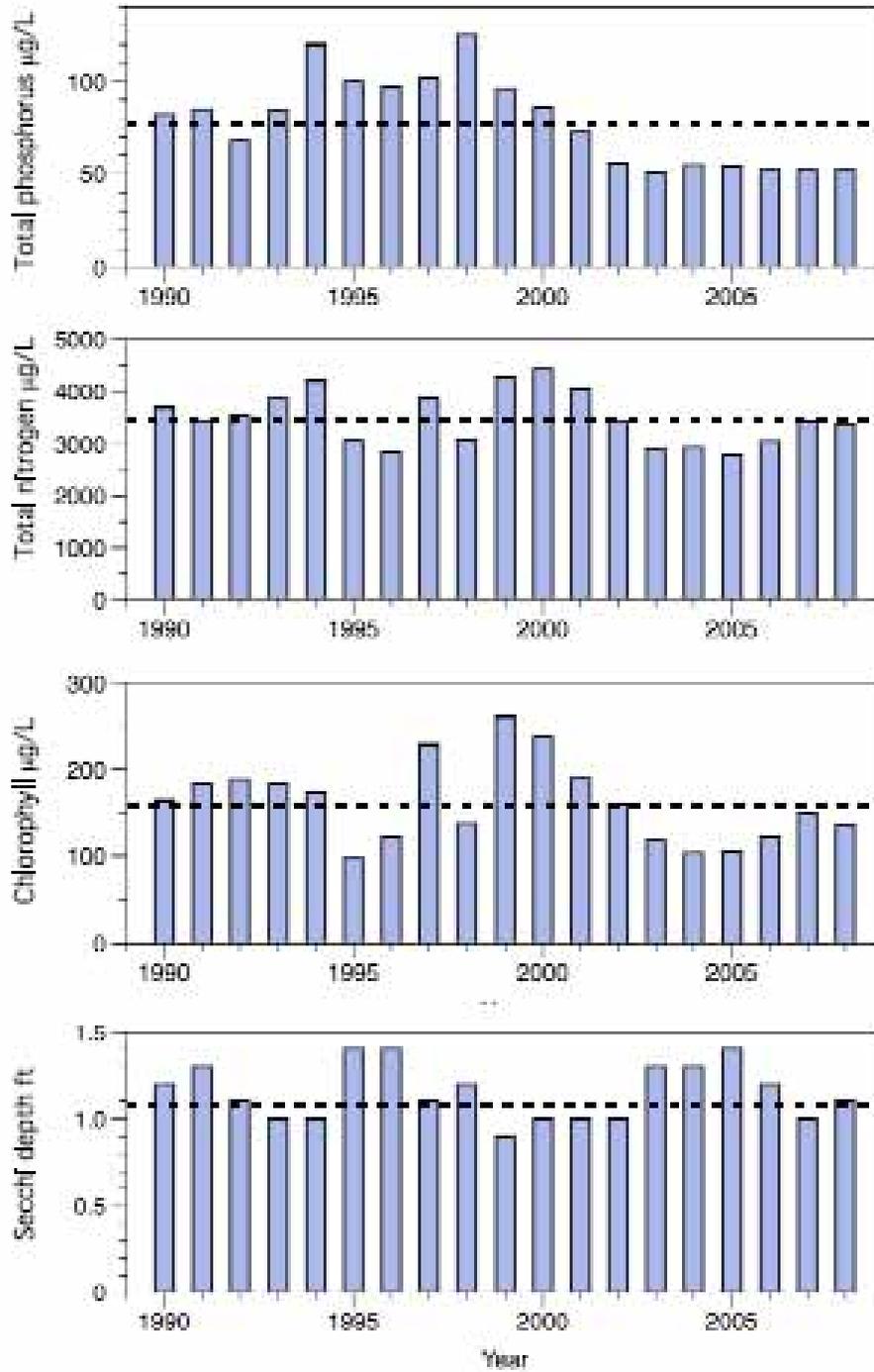
**Phosphorus versus Chlorophyll and Water Clarity  
for the Harris Chain of Lakes**

**Presented by**

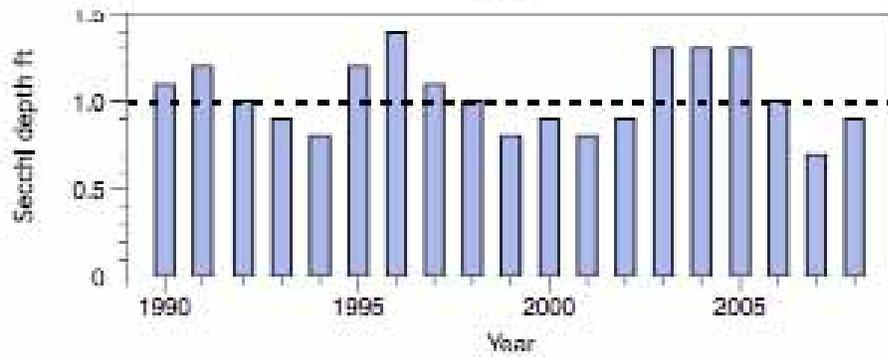
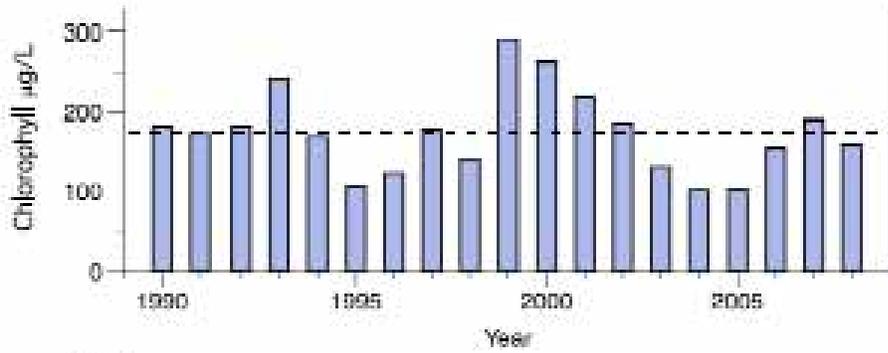
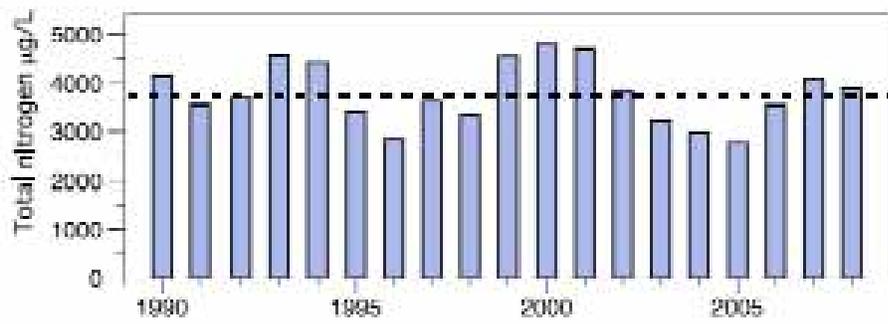
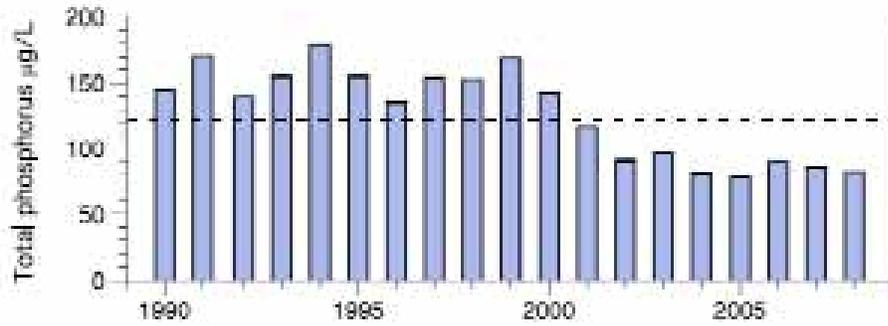
**Dr. Daniel Canfield – UF/IFAS**

**October 2009**

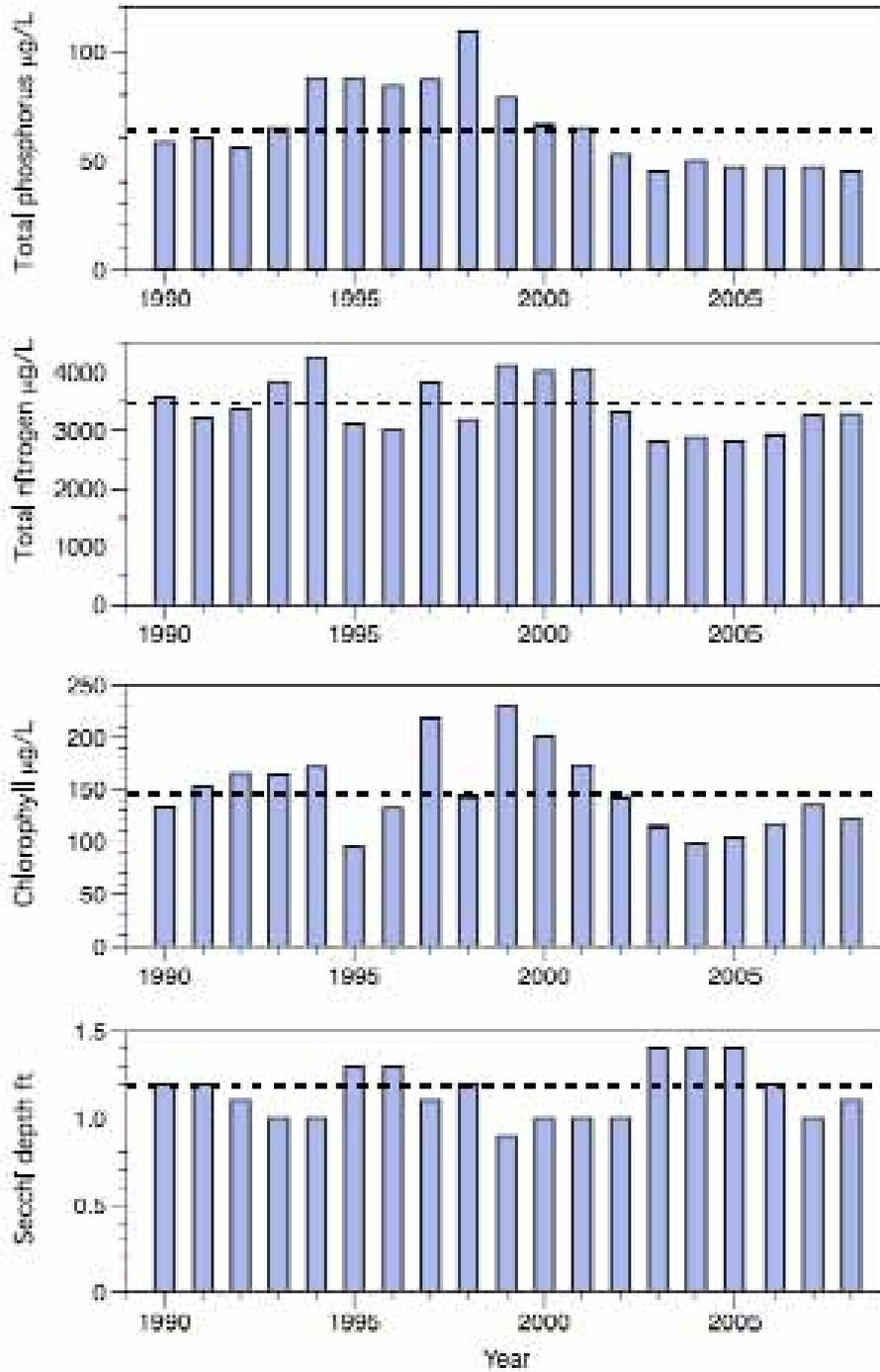
# Lake Dora East



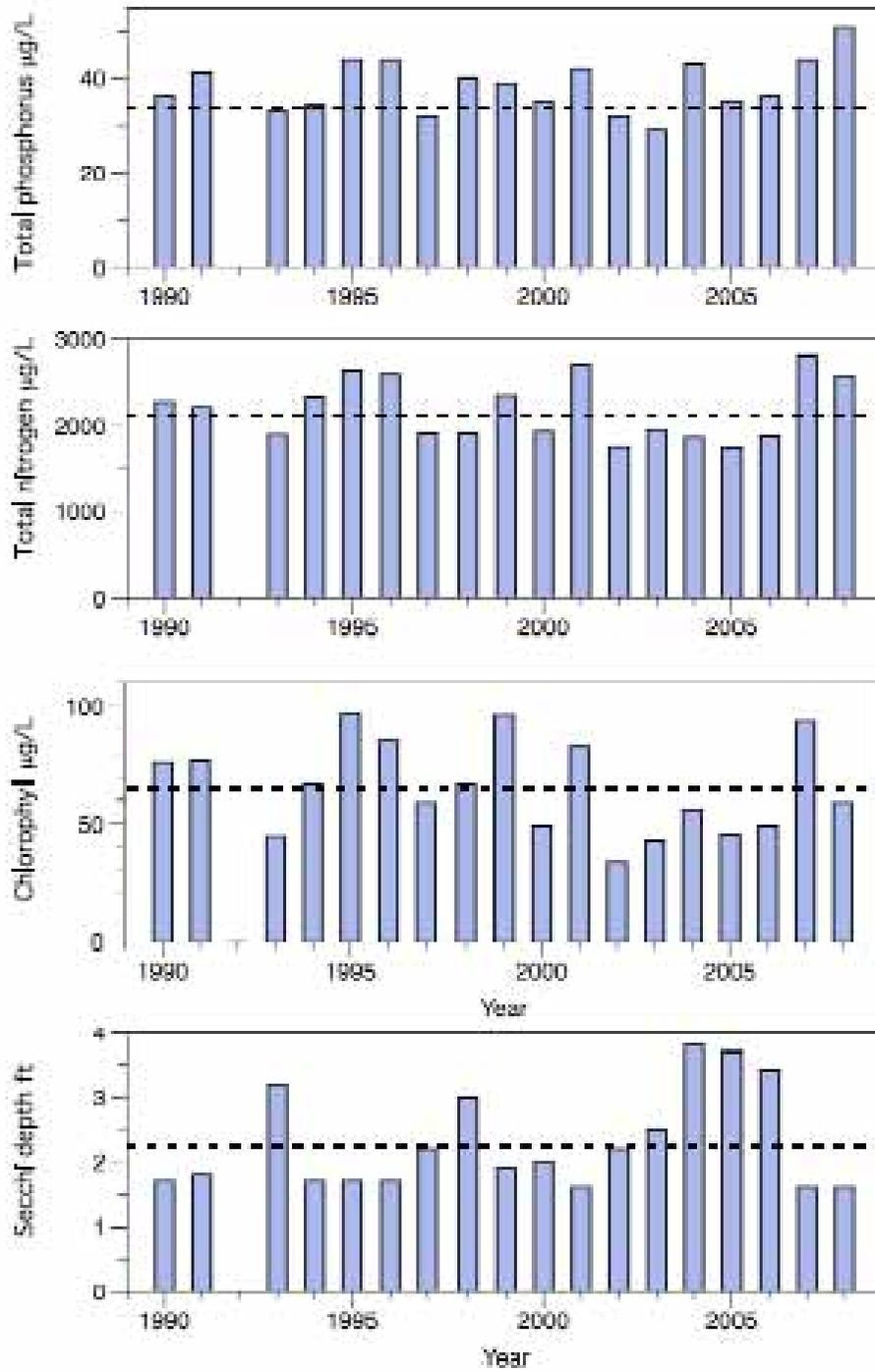
# Lake Beauclaire



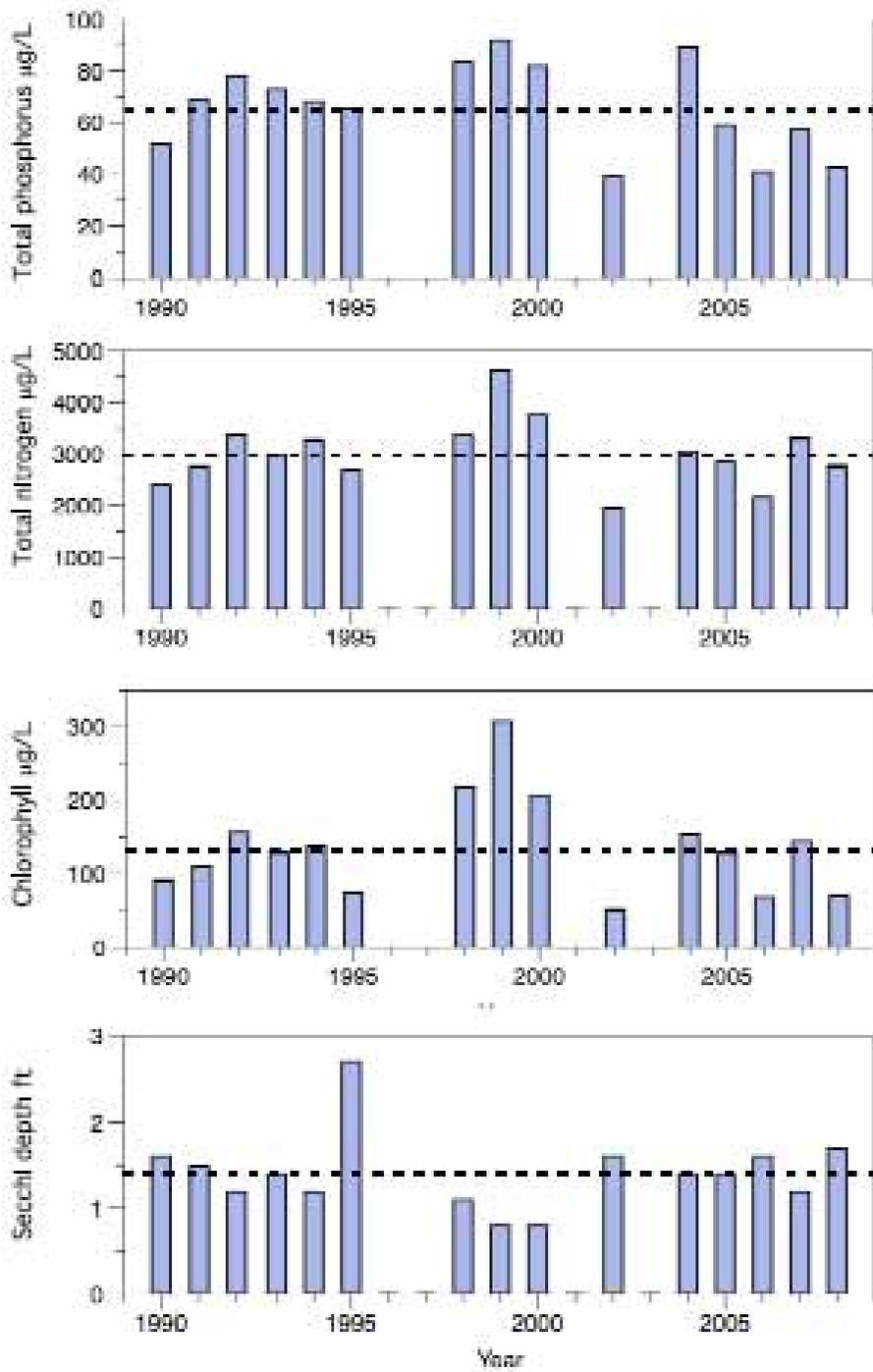
# Lake Dora West



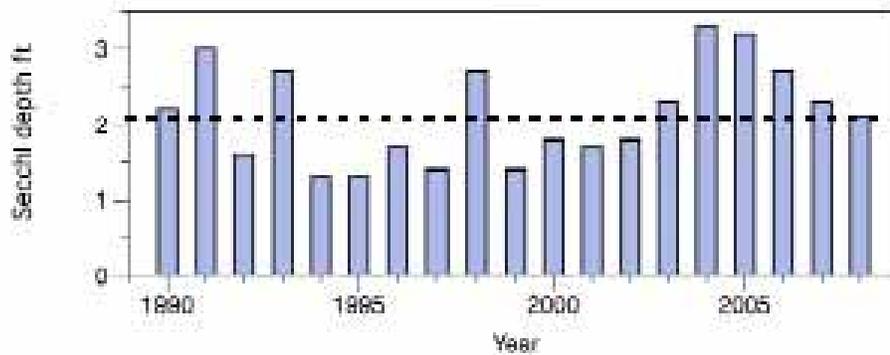
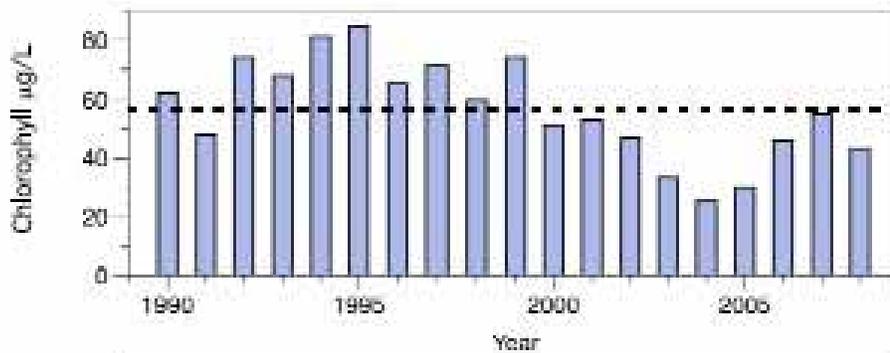
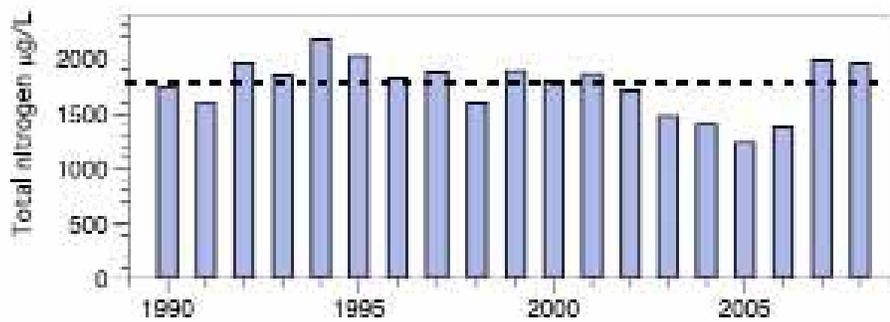
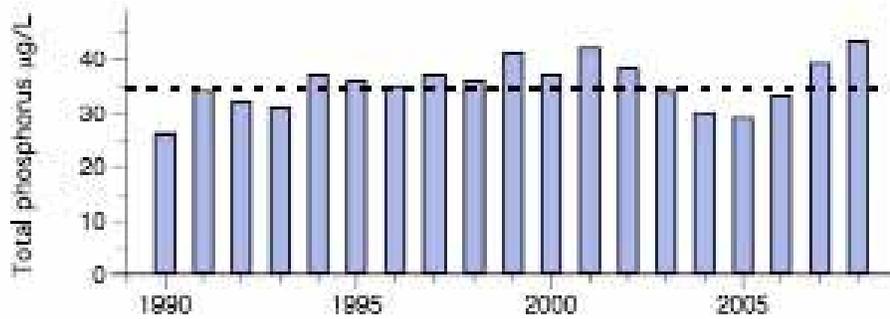
# Lake Eustis



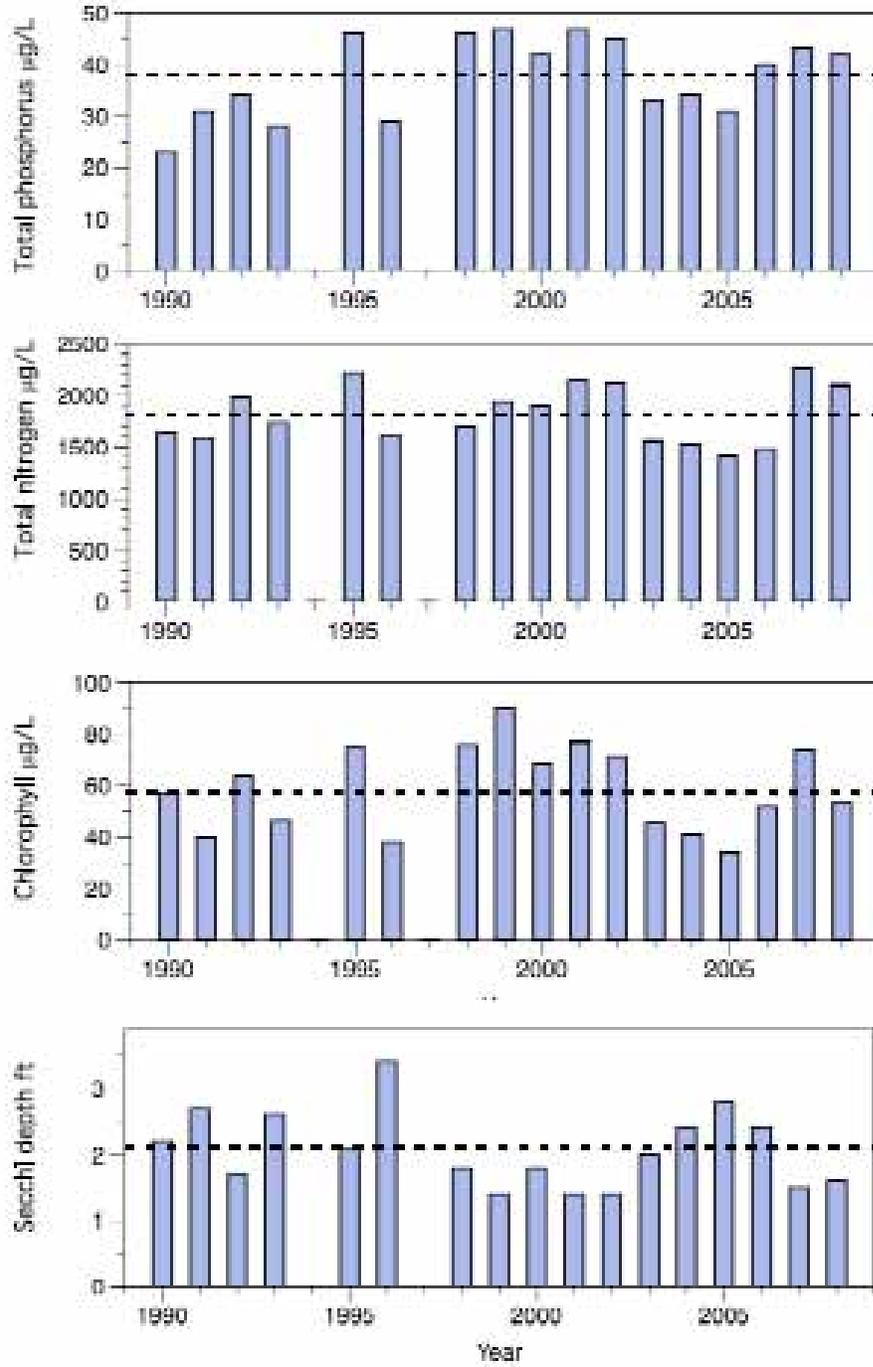
# Lake Griffin



# Lake Harris



# Little Lake Harris



**Attachment 2**

**2010 Meeting Schedule**

**Harris Chain of Lakes Restoration Council**

# HARRIS CHAIN of LAKES RESTORATION COUNCIL

## 2010 MEETING SCHEDULE

The scheduled dates for the calendar year 2010 are as follows:

- January 8<sup>th</sup>.
- February 5<sup>th</sup>
- March 5<sup>th</sup>
- April 2<sup>nd</sup>
- May 7<sup>th</sup>
- June 4<sup>th</sup>
- July 9<sup>th</sup>
- August 6<sup>th</sup>
- September 10<sup>th</sup>
- October 1<sup>st</sup>
- November 5<sup>th</sup>
- December 3<sup>rd</sup>

Dates in **RED**, indicate schedule changes due to national holiday weekends.

All meetings are scheduled for 9 AM on the first Friday of each month in the BCC Meeting Room at the Lake County Administration Building in Tavares, but may be modified as to time and place throughout the year.

Due to the time and effort necessary to prepare and review the Council's Legislative Report, as well as the need for issues of special attention, additional meetings and/or workshops may be held throughout the year. They will be scheduled as necessary.

**Attachment 3**

**Restoration of Fish Habit**

**in the Harris Chain of Lakes**

**Use of Artificial Reefs and the Planting of *Nuphar sp.***

**for the Re-establishment of the Floating-Leaf Plant Community**

**Submitted by**

**Dr. Daniel Canfield – UF/IFAS**

**October 2009**

**Restoration of Fish Habitat in the Harris Chain of Lakes**

**Use of Artificial Reefs and the Planting of *Nuphar sp.* for the Re-  
establishment of the Floating-Leafed Plant Community**

**A Research/Demonstration Project**

Submitted to:

Harris Chain of Lakes Restoration Council  
Tavares, Florida 32778

Submitted by:

Daniel E. Canfield Jr.  
Fisheries and Aquatic Sciences  
School of Forest Resources and Conservation  
Institute of Food and Agricultural Sciences  
University of Florida  
Gainesville, Florida 32653

**October 2009**

## Introduction

The presence of aquatic macrophytes increases the structural complexity of lake ecosystems (see Hoyer and Canfield 1996). This complexity is important for young-of-the-year largemouth bass. Without significant amounts of aquatic vegetation in large lakes like the Harris Chain of Lakes, fisheries biologists believe based on studies of 60 plus Florida lakes that there is an ecological bottleneck that adversely influences the survival of young bass to adult size (Hoyer and Canfield 1996).

Aquatic vegetation dominated Lake Griffin and Lake Apopka prior to 1940. By the 1920s, the Harris Chain of Lakes, especially Lake Apopka, had garnered national attention for recreational fishing. Communities in the region, such as Leesburg and Apopka, sponsored largemouth bass tournaments and fish rodeos to market the lakes as a major attraction (Shofner 1982).

For over 20 years, the focus of lake managers at the Harris Chain of Lakes has been on the reduction of nutrient inputs to the lakes (Canfield et al. 2000). In 2000, a management alternative to nutrient control using artificial reefs and the planting of aquatic plants was advanced to create critical fish habitat. Artificial reefs were needed not only for the young-of-the-year fish, but the prevent wind from uprooting newly planted fish Canfield et al. 2000).

## The Project

Florida LAKEWATCH in partnership with the Florida Fish and Wildlife Conservation Commission will install artificial reefs in Lake Harris, Lake Dora, Lake Eustis and Lake Griffin over the next two years to function as fish attractors and critical fish habitat as described by Canfield et al. (2000). The project will also involve the experimental planting of the floating-leaved plant called spatterdock (*Nuphar luteum*) at each reef/fish attractor site.

**First Year** – During the first year, the focus shall be near established docks or shorelines where shoreline fishing can take place. The first demonstration project shall be at the Lake County Water Authority's Hickory Point Park. Agreement has already been reached with the park ranger to establish reefs made of either limestone or clean concrete around their pier to enhance shoreline fishing. Sites have also been identified for the experimental planting of the spatterdock.

There is an additional public shoreline fishing area at Lake Harris where the bottom mud is too deep for rock or concrete riprap. Here, the traditional fish attractor made of large oak trees shall be installed and experimental planting of spatterdock shall be done. Once Lake Harris is completed the anticipated schedule will be establishing artificial reefs at Lake Dora, then Lake Eustis, and finally Lake Griffin. Each site shall be surveyed to determine sediment depths for the purpose of determining the type of material to use for

reef construction. The schedule is subject to modification depending on necessary approvals.

**Second Year** – The second year’s efforts shall focus on establishing multiple limerock or clean concrete reefs to provide critical fish habitat and wind refuges for re-establishing aquatic plants through out Lake Griffin and Lake Dora. Because Lake Griffin and Lake Dora are stocked with wild adult largemouth bass, LAKEWATCH and FWCC will convene a meeting of professional bass anglers to get their opinion on reef placement and configuration to enhance the restoration of the bass and plant communities as well as angling experience.

The number of reefs established will be limited by personnel time and material costs.

### **Estimated Project Budget**

#### Personnel

Senior Fisheries Biologist (2YR@1/2 TIME)	\$ 90,000
Two Graduate Students @ \$18,000/ year	\$ 36,000

#### Expenses

Materials, Equipment Rentals, Travel, Repairs, etc	\$ 50,190
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UF Indirect Cost (5%)	\$ 8,810
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<b>Total Estimated Cost</b>	<b>\$185,000</b>
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### **References**

Canfield, D. E. Jr., R. W. Bachmann, and M.V. Hoyer. 2000. A management alternative for Lake Apopka. Lake and Reservoir Management 16(3):205-221.

Hoyer, M. V. and D. E. Canfield Jr. 1996. Largemouth bass abundance and aquatic vegetation in Florida lakes: An empirical analysis, Journal Aquatic Plant Management 34:23-32.

Shofner, J. H. 1982. History of Apopka and northwest Orange County, Florida. Historical Society. Rose Printing Co., Tallahassee 357 p.