

**LAKE SEMINOLE
2011 STATE OF THE LAKE REPORT
FOR THE LAKE SEMINOLE WATERSHED
REASONABLE ASSURANCE PLAN**



A - Monitoring Summary

Between 2008 and 2011, Pinellas County sampled at 4 locations in each lobe of Lake Seminole over 8 periods, totaling 32 samples yearly. Yearly site locations are shown in Figures 3, 4 and 5. Parameters sampled at each site locations are listed below in Table 1.

Water Quality Indicators	Explanatory Indicators
Aluminum	Bottom Type Classification
Ammonia	Cloud Cover
Chlorophyll-a, b, c, and Phaeophytin Concentration	Date
Color	Time
Conductivity	Water Depth
Dissolved Oxygen Concentration	Wave Height
Nitrite-Nitrate	Wind Direction and Speed
Orthophosphate	
PH	
Phytoplankton Taxonomy	
Secchi Disk Depth	
Total Kjeldahl Nitrogen	
Total Nitrogen	
Total Phosphorus	
Total Suspended Solids	
Transmissivity	
Turbidity	
Water Temperature	

Table 1- Indicators collected at each sampling site

Since 2008, Lake Seminole has demonstrated a clear decline in TSI (Figure 1). There is also been a significant decrease in mean annual Chlorophyll-a (Figure 2). Both trends are very apparent when looking at longer term data and are also supported by increasing secchi depths observed in 2010 compared to previous years.

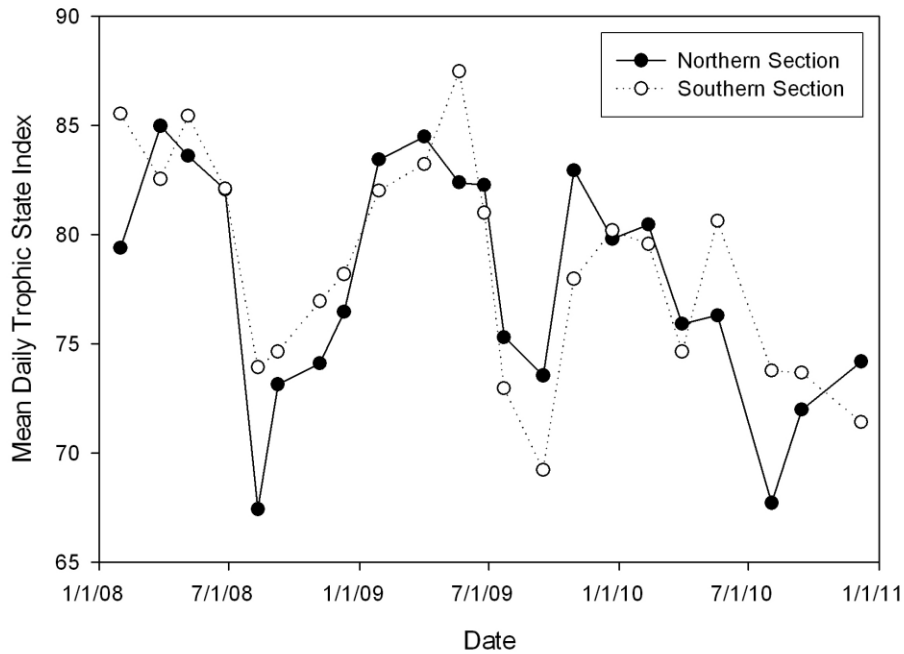


Figure 1 – Lake Seminole Mean Daily TSI

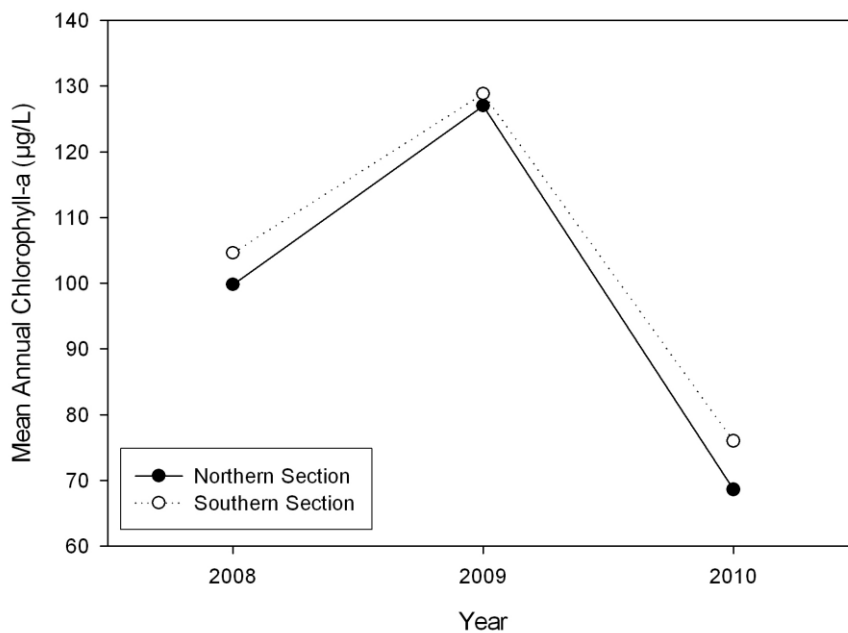
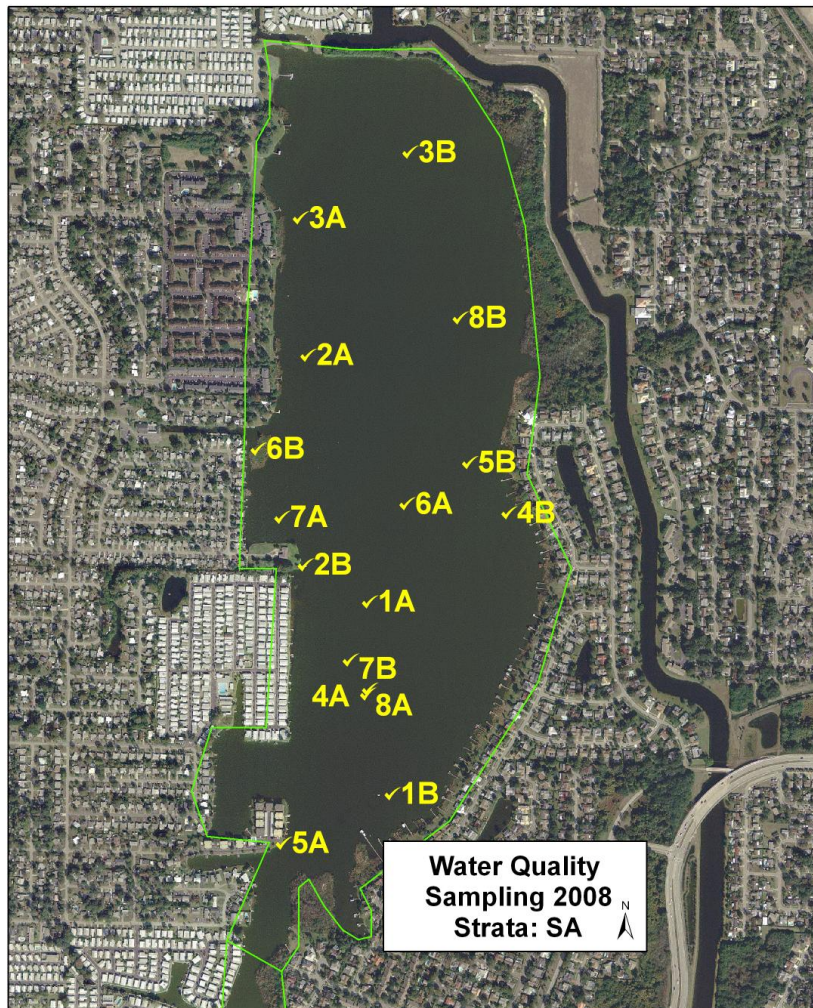
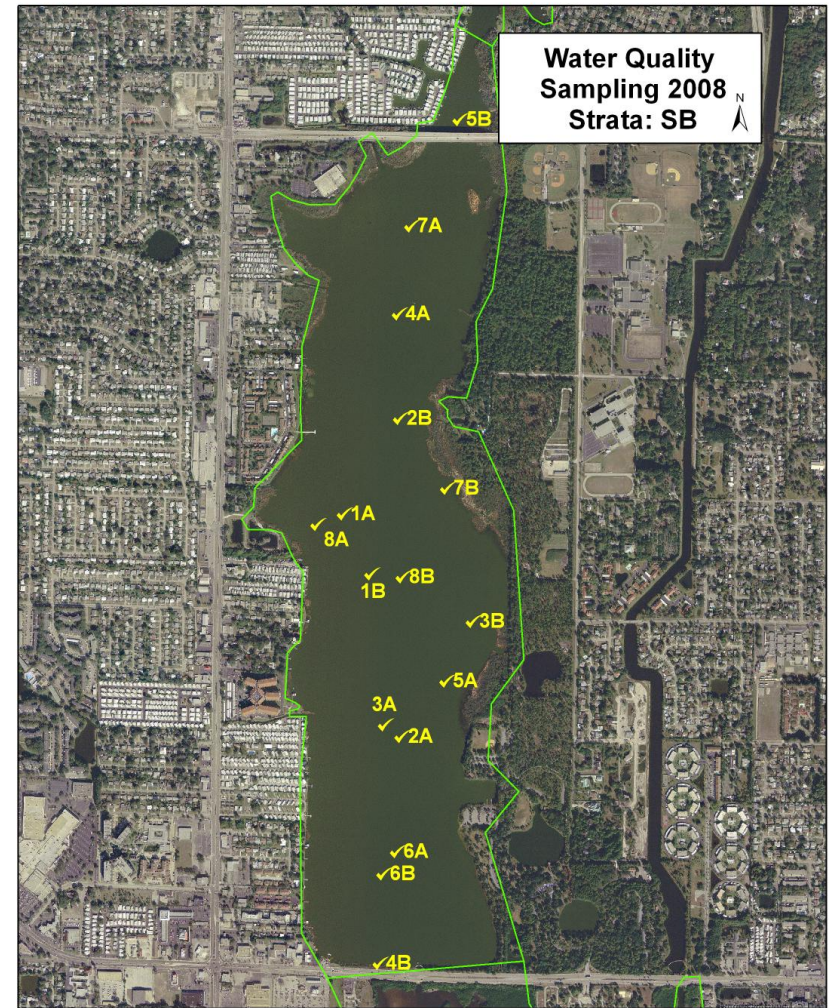


Figure 2 – Lake Seminole Mean Annual Chlorophyll-a



Lake Seminole North Lobe



Lake Seminole South Lobe

Figure 3. Lake Seminole 2008 Sampling Locations

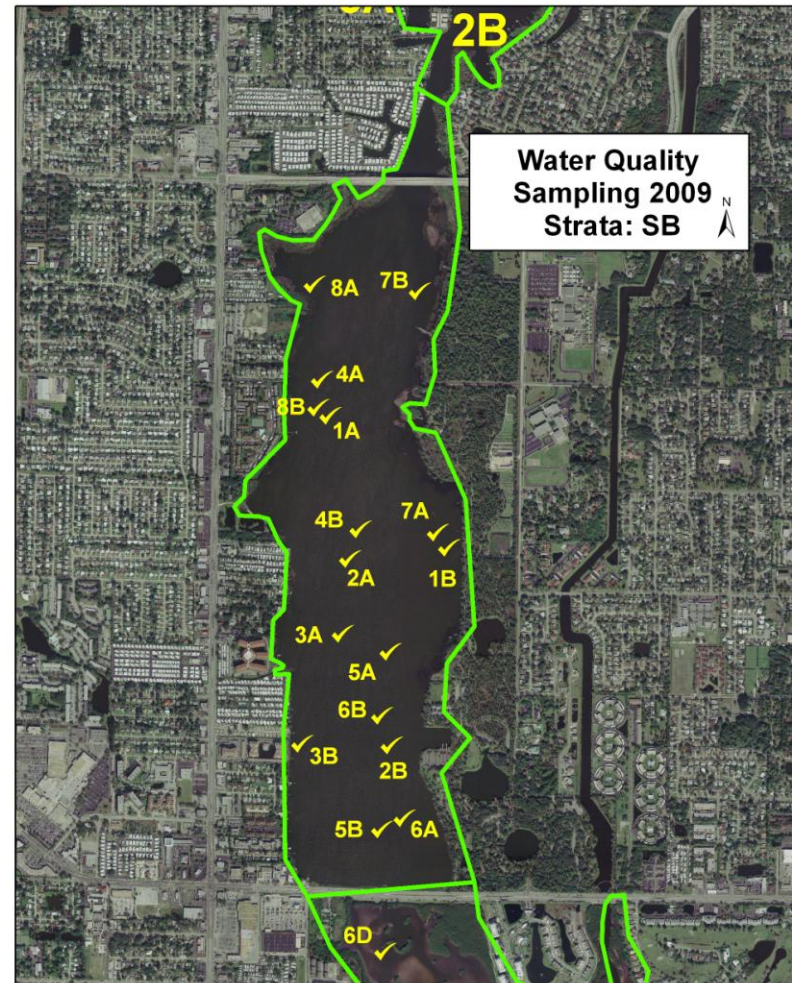
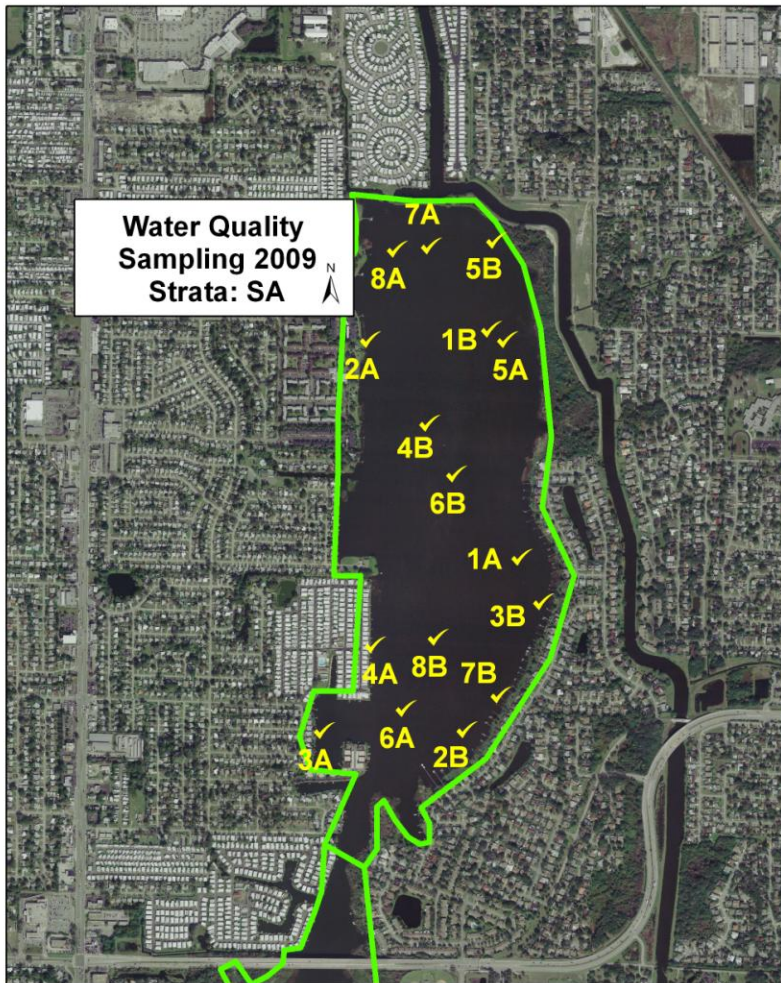


Figure 4. Lake Seminole 2009 Sampling Locations

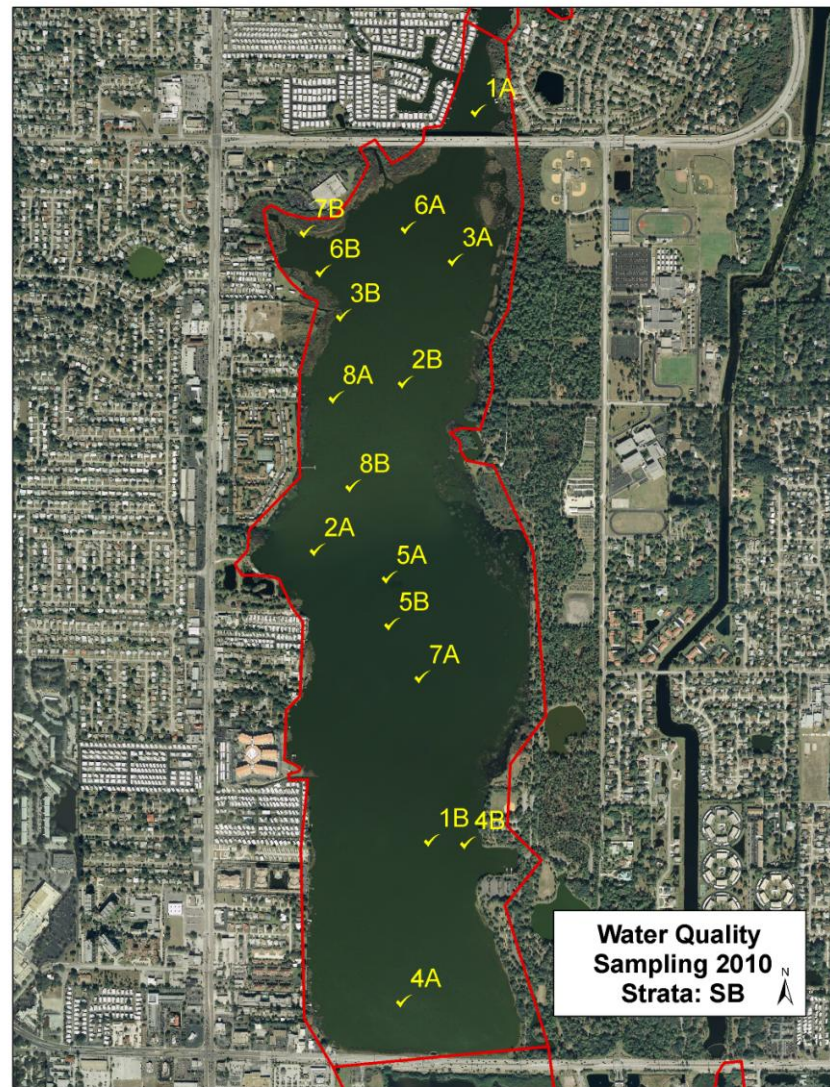
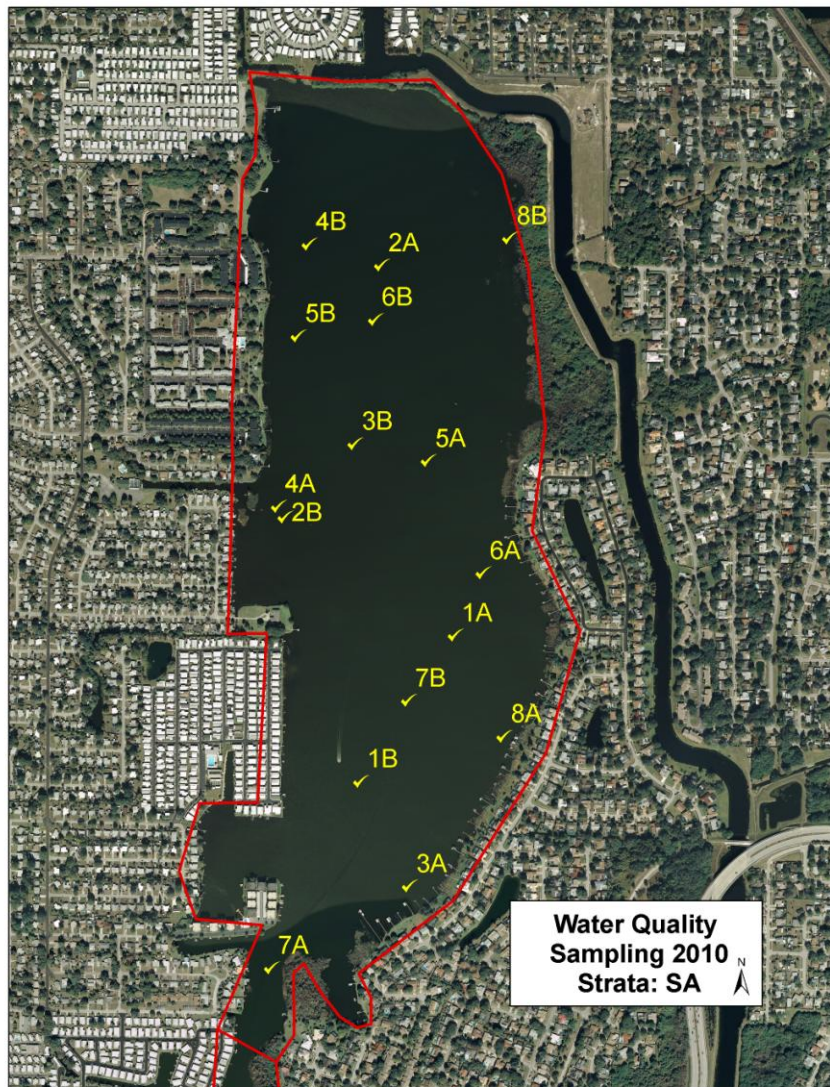


Figure 5. Lake Seminole 2010 Sampling Locations

Management Activities: Status

Structural Activities

Excavate organic peat sediments from shoreline areas

The Watershed Management Plan (WMP) called for the excavation of organic peat sediments from the County-owned shoreline areas of the lake as well as replanting with beneficial native plants. These activities were completed in two phases in 2004 and 2006. Replanting included Giant Bulrush and Maidencane, but additional beneficial plants naturally recruited into the restored areas as well as other areas around the lake as a result of the extended lake draw downs including Illinois Pondweed, Vallisneria, Pickerel Weed, Arrowhead, Swamp Hybiscus, and Fragrant Water Lily.



Restore priority wetland and upland habitats

Habitat restoration was completed at the Park Blvd site in 2006. The management of Brazilian Pepper has been ongoing since 2004 in the Lake Seminole Park property. In 2008, the removal of nuisance species and habitat restoration in the Northeast parcel as well as the installation of Live Oak trees and aquatic plants along the Park Blvd. shoreline were completed. Additional aquatic plantings events occurred in restored areas along the Lake Seminole Park shoreline at the south end of the lake, and at the County-owned Barnett Track on the western shoreline.



Install stage and flow measurement instrumentation on the Lake Seminole Outfall Control Structure

The stage and flow measurement instrumentation was installed in 2006. All data is available from the USGS website (www.usgs.gov). The station ID is USGS 02308889.

Construct enhanced regional stormwater treatment facilities in priority sub-basins

The enhanced stormwater treatment facilities will be implemented in two Phases. In Phase I, the stormwater treatment projects in Sub-basins 1, 3, 6 will be addressed. Extensive benthic and water quality monitoring will be performed to evaluate the treatment facility at sub-basin 1 prior to the initiation of Phase 2. Pinellas County has received the appropriate permits required to initiate and complete Phase I.

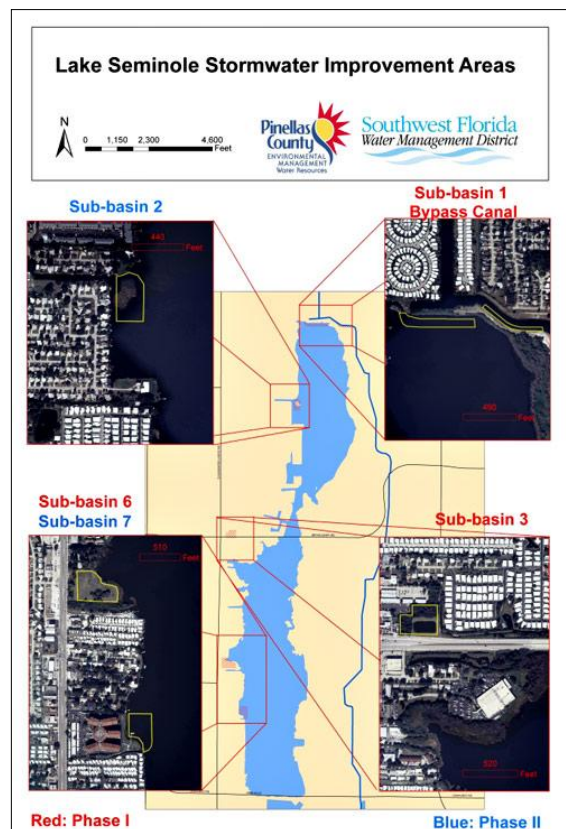
The six Lake Seminole Regional Alum Facilities are currently in various stages of design and construction. Construction of the facilities has been broken up into two phases:

- Phase One consists of sub-basin 1, the by-pass canal, sub-basin 3, and sub-basin 6
- Phase Two consists of sub-basin 2 and sub-basin 7.

The first two facilities of Phase One to be constructed; sub-basin 1 and the by-pass canal, which are located at the north end of the lake, are scheduled to go fully operational in the fall of 2011. The cost of these facilities to date is \$4,891,200.00. Sub-basin 3 is the next facility scheduled to be constructed and is currently out for bidding. This facility is located on the western side of the lake just south of the “Narrows” and construction is scheduled to start in early fall of 2011 and finish in spring of 2012. The anticipated cost of this project is \$1,400,000.00.

The last of the Phase One facilities to go on line will be at sub-basin 6 which is located in the southern lobe of the lake on the western shoreline. This facility is currently in final design review and scheduled to start construction in Fall of 2011 and be finished by summer of 2012. This facility has an anticipated cost of \$1,600,000.00.

The two Phase Two facilities, sub-basin 2 and sub-basin 7, are currently in the design phase and are scheduled to start construction in the spring of 2013 and be finished by the fall of 2013. Sub-basin 2 is located in the northern lobe on the western shoreline and sub-basin 7 is located in the southern lobe on the western shoreline. The anticipated combined cost for these two facilities is \$1,800,000.00.



Project	Phase	Project Status	Estimated Project Expenditures To Date	Expected Completion Date
Lake Seminole Sub-Basin 1 and By-Pass Canal	Construction	95% Complete	\$4,891,200.00	Fall 2011
Lake Seminole Sub-Basin 3	Construction	Bidding Construction	\$80,000.00	Summer 2012
Lake Seminole Sub-Basin 6	Design	90% Design	\$50,000.00	Summer 2012
Lake Seminole Sub-Basin 2	Design	60% Design	\$30,000.00	Fall 2013
Lake Seminole Sub-Basin 7	Design	60% Design	\$30,000.00	Fall 2013

Removal of Organic Sediments

AMEC-BCI was awarded the dredging design contract in January 2011 for approximately \$1.24 million. The estimated starting date for the dredging operations is January 2013.

Management:

Mechanically harvest nuisance aquatic vegetations

The majority of the aquatic plant harvesting was completed in the 1990's. Now the County's Vegetation Management staff maintain the harvested and restored areas to prevent cattail infestation. In 2006 after the draw down and shoreline restoration work, Pinellas County contracted an aquatic weed-harvester to remove nuisance aquatic vegetation (primrose willow and cattails) from 45 acres of the lake.. Additional nuisance vegetation removal and maintenance was performed in 2008 during the construction process for the regional stormwater treatment facilities at the north end of the lake.

Improve treatment efficiency of existing stormwater facilities

Several systems within the priority sub basins were evaluated during the alum system design. PCDEM completed a system evaluation of the sub basin 6 creation in 2005 and will continue BMP monitoring post construction of the regional stormwater facilities.

Biomanipulate sport fish populations

The remaining grass carp in the lake should have no impact on the current vegetation in the lake due to their age and low density (personal communication, Tom Champeau).

An unsuccessful attempt to stock the lake with largemouth bass was completed in the mid- 1990's. In November 2006, over 12,000 largemouth bass and on May 28, 2008, an additional 18,000 juvenile large mouth bass were released into restored



habitats around Lake Seminole. The FWCC will continue to monitor the largemouth bass population every 6 months to document fish population.

Implement an enhanced lake level fluctuation schedule

The lake level fluctuation schedule will be implemented after sediment removal.

Inactivate phosphorus through whole lake alum applications (if warranted by monitoring results)

The whole lake alum application or other means of sediment inactivation will only be utilized if significant water quality improvements are not measured in result of the combination of all other restoration projects.

Legal :

Adopt a resolution designating the Lake Seminole Watershed as a “Nutrient Sensitive Watershed”

Lake Seminole has been identified as a “Nutrient Sensitive” Waterbody. Pinellas County has installed signs throughout the watershed informing the public of the water quality concerns. The County has organized several meetings and presentations designed to inform the local stakeholders of approved methods to improve water quality. Recent changes to the Pinellas County Comprehensive Plan list Nitrogen and Phosphorus as primary pollutants of concern (PC Comp Plan, Surface Water Element, Chapter 2) Furthermore, Pinellas County implemented a stringent fertilizer use ordinance to eliminate the use of Nitrogen and Phosphorous based fertilizers during the rainy season. Additionally, the ordinance requires the sale and use of lawn and landscape fertilizers that meet a minimum of 50% slow release nitrogen.

Strengthen and standardize local ordinances for regulating stormwater treatment for redevelopment in the Lake Seminole Watershed

The Pinellas County Land Development Codes are going through a major rewrite and will include updated stormwater treatment requirements. Specifically, Low Impact Development (LID) and redevelopment opportunities which are identified in Chapter 3 of the Pinellas County Comprehensive Plan, Surface Water Element : Development of codes to maximize the use of LID measures in new developments as well as redevelopment will be addressed the near future.

Policy :

Establish a Lake Seminole Watershed Management Area (WMA) through amendments to the Pinellas County, and cities of Largo and Seminole Comprehensive Plans

Recent changes to the Pinellas County Comprehensive Plan recommend the establishment of a Lake Seminole Watershed Management Area, in conjunction with the cities of Largo and Seminole. With this designation, the watershed would become a formal planning and management area, with better coordination and a consolidation of decision-making within the area. Specific policies could be crafted to guide land use decisions and other activities that take place within the watershed. With such a plan, the water quality of the watershed and the lake could continue to improve with more

stringent environmental protections designed specifically for this watershed (PC Comp Plan, Surface Water Element, Chapter 2).



Compliance and Enforcement:

Expand and enforce restricted speed zones on Lake Seminole

Pinellas County completed the expansion of the restricted speed zones and has a speed zone ordinance.

Public Education:

Develop and implement a comprehensive public involvement program for the Lake Seminole Watershed

Pinellas County has established an extensive network for public outreach to all stakeholders of Lake Seminole. The County updates the project website on a regular basis including the status of the Lake, update past projects and inform of future projects. The website also includes a discussion on the history of the lake and the management plan. Water quality data and other information on the lake can also be accessed through the Pinellas County Water Atlas.

A User group of individuals surrounding the lake are updated by email providing relevant information on the Lake status. Additionally, bilingual signs have



been installed on 197 storm drains throughout the watershed stating “Dump No Waste-Drains to Lake”. A fine of up to \$10,000 can be implemented if violated.

Listed below are the public events held since 2005 to inform local stakeholders in the Lake Seminole watershed:

- Community Meetings
- Four Seasons Mobile Home Park
- Point West Mobile Home Park
- Willow Point Condominiums Homeowners Association
- Town Homes of Lake Seminole Homeowners Association
- Lake Shore Homeowners Association
- Lake Park Homeowners Association
- Lake Seminole Square

Orange Lake Village Homeowners Association

Public Meeting May 25, 2005 over 400 in attendance

Lake Clean up Event February 2006 over 460 volunteers

Aquatic and upland shoreline plantings by volunteer groups took place on February 10, 2007, April 14, 2008 and April 28, 2008



Lake Seminole Eagles 2010