

AQUATIC PLANT MANAGEMENT PLAN  
FOR  
U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT  
WATER RESOURCES PROJECTS  
SOUTH CAROLINA AND GEORGIA

Appendix A

CY 2013 Update

Annual Aquatic Plant Treatment Plan

and

Summary of Previous Year's  
Management Program

## **Aquatic Plant Treatment Plan CY 2013**

### **New Savannah Bluff Lock and Dam**

Periodic observations will be conducted to determine plant species, abundance, and distribution during the summer of 2013. Aquatic plants may be treated in the vicinity of the New Savannah Bluff Lock and Dam (NSBLD) using an appropriate plant specific herbicide whenever plant abundance has the potential to impact the operations of this facility. The Savannah District does not have the authority to perform aquatic plant management treatments beyond the boundaries of the NSBLD. Herbicide applications immediately upstream of the NSBLD will not reduce the water hyacinths' continued impacts to the boat ramp, courtesy dock, and buoy line since the source of the infestation extends well upstream of the area. As an alternative to herbicide applications, personnel from the J. Strom Thurmond Power Plant may alter flow rates over the spillway gates to remove the accumulation of water hyacinth or the upstream buoy line may be modified or temporarily removed to prevent the accumulation of water hyacinth on the buoy line.

### **J. Strom Thurmond Lake**

The persistent drought from 2006 through September 2009 and again from summer of 2011 through 2012 has greatly reduced the abundance of hydrilla. The lake level remained eight to thirteen feet below normal pool level for much of the 2012 growing season. Plant growth varied greatly from area to area. In many areas with adequate water depth, the hydrilla seldom exceeded three feet in height and was not problematic during the peak of the recreation season. Due to the unpredictable plant growth during the last eight growing seasons and uncertainty as to the lake level next year, a list of proposed treatment areas has not been developed. The J. Strom Thurmond Project staff will monitor hydrilla growth beginning in May. By mid to late July, treatment needs will be identified with the intent of completing treatments prior to Labor Day. The treatment plans will be coordinated with the GADNR, SCDNR, local agencies, and affected outgrantees prior to implementation.

Treatment priorities will be established in accordance with the Aquatic Plant Management plan for U.S. Army Corps of Engineers, Savannah District Water Resources Project, South Carolina and Georgia (APMP). The APMP is available on the Thurmond Project website: <http://www.sas.usace.army.mil/Portals/61/docs/lakes/thurmond/AquaticPlan.pdf> . Either Reward with K-TEA or Komeen with Reward will be applied dependant upon site location, desired level of control, and cost per acre. It is anticipated that only one herbicide application per area will be made in CY 13.

Approximately 200 water hyacinth plants were found in the Clarks Hill Park area of J. Strom Thurmond Lake during September 2008. The plants were removed by hand from the reservoir. No water hyacinth plants have been found since 2008. The lower portion of J. Strom Thurmond Lake from Little River, GA to the dam will be monitored for water hyacinth throughout the 2013 growing season. Plants will be removed and disposed of or treated with appropriate aquatic plant herbicides depending upon the extent of infestation. Treatment(s), if

necessary, will be coordinated with the GADNR, SCDNR, local agencies, and affected outgrantees prior to implementation.

In 2010, approximately 32 acres of water primrose (*Ludwigia spp.*) and 10 acres of alligatorweed (*Alternanthera philoxeroides*) were discovered growing in the Little River, SC and Dry Fork Creek portions of the lake. Plant growth will be monitored in 2013. No herbicide applications are anticipated unless these plants impact public recreation areas. Adjoining property owners may apply for a permit to treat these plants if their abundance impacts the use of private boat docks.

A large population (approximately 600-acres) of slender pondweed (*Potamogeton pusillus*) was present in the Savannah River headwaters of J. Strom Thurmond Lake (RBR tailwater) in 2008 and again in 2012. The abundance of this plant appears to be in direct response to drought conditions and falling water levels in J. Strom Thurmond Lake. The plant proved to be problematic for pumped storage operations at Richard B. Russell Dam in 2012. In response, 251 acres of slender pondweed were treated in July and August with Reward and Komeen. Surveys will be conducted during the 2013 growing season and herbicide applications may be made if appropriate. Selection of appropriate chemicals, acreage treated, and the timing of treatments will be determined by assessing the distribution and abundance of the plants.

Adjoining property owners and other agencies may treat additional aquatic plant infestations in accordance with the APMP.

### **Richard B. Russell Lake**

Hydrilla was first discovered in Richard B. Russell Lake in the McCalla peninsula area during summer 2002 but has not reoccurred at this location since this time. Approximately one-acre of hydrilla was discovered in Bond Creek, a tributary of the Savannah River arm of Richard B. Russell Lake, in January, 2007 and was again found in 2009. This area has been surveyed annually since 2007, but the hydrilla has not increased in distribution or abundance. No hydrilla was detected in RBR Lake in 2010, 2011 or 2012. Brazilian elodea has consistently been detected in the same areas of Richard B. Russell Lake for the past 5-years and the abundance and distribution of this plant appears to be very stable. Approximately 5-10 acres of Brazilian elodea is still present in the Savannah River within 1 to 5 miles downstream of Hartwell Dam. Boat surveys will be conducted periodically throughout the summer and fall of 2013 to determine plant distribution and abundance. Most rangers at the Richard B. Russell Project have been trained to identify and report aquatic plants of concern that would be expected to occur in this area. No treatment is currently planned for 2013.

## **Hartwell Lake**

Aquatic plants have not become abundant in Hartwell Lake. Therefore, no treatment program is planned for CY 13. However, there is concern that hydrilla will be moved from J. Strom Thurmond Lake or Keowee Lake into Hartwell Lake. In an effort to identify the spread of hydrilla as early as possible, boat surveys will be conducted periodically throughout the summer and fall. Most rangers at the Hartwell Project have been trained to identify and report aquatic plants of concern that would be expected to occur in this area. Additionally, the Lake Hartwell Association membership has agreed to report any aquatic vegetation observed.

If hydrilla is located in Hartwell Lake, it is the intent of the Corps of Engineers to treat all known hydrilla infestations during CY 13 using herbicides to minimize the spread of hydrilla within the impoundment. However, if significant infestations are located before scheduled treatment, all treatment areas will be prioritized based on criteria established in the APMP.

## **Aquatic Plant Management Activity Summary CY 2012**

### **New Savannah Bluff Lock and Dam (NSLBD)**

Aquatic plant populations in the upstream embayment were monitored periodically throughout the growing season. The following aquatic plants were identified: waterhyacinth, elodea, fanwort, pickerelweed, and cattail. Water hyacinth (a floating invasive species) was somewhat problematic at the NSBLD again this summer. In August, plants began floating downstream and accumulating on the upstream buoy line. However, personnel from the J. Strom Thurmond Power Plant were able to periodically adjust the flow rates over the spillway gates to remove the accumulation of water hyacinth.

### **J. Strom Thurmond Project**

The growth rate and distribution of hydrilla was monitored from May through October. Throughout most of the growing season, the lake level was 8 to 13 feet below normal summer pool. The abundance of hydrilla varied greatly from area to area, however, it did not adversely impact most recreation area operations.

Funding restraints limited treatments to only those Corps boat ramps where the abundance of hydrilla impacted ramp use. The following boat ramps were treated in order to minimize user impacts:

<b>Treatment Area</b>	<b>Acres</b>	<b>Herbicide and Application Rate</b>
Keg Creek Ramp	1.0	Komeen – 16 gallons per acre Reward – 0.5 gallons per acre
Parksville Recreation Area	2.0	Komeen – 16 gallons per acre Reward – 0.5 gallons per acre

No permits were requested by adjoining property owners to treat hydrilla around their docks. Lincoln County treated approximately 1.5 acres adjoining the Cherokee Recreation Area. All herbicide applications were made by a licensed applicator using herbicides approved for the treatment of aquatic plants.

In October and early November of 2010, an extensive boat survey of the lake was conducted with assistance from Georgia Department of Natural Resources, South Carolina Department of Natural Resources, and Warnell School of Forestry and Natural Resources, University of Georgia. The lake was divided into 9 separate survey routes and sample points were established every 1,760 feet (1/3 mile) along the entire lake shoreline and included selected islands. These points were surveyed for the presence or absence of hydrilla. The survey teams used a two-sided metal garden rake with a rope to drag the lake bottom perpendicular to the shoreline to a depth of approximately 20 feet. If hydrilla was detected visually, the use of the rake was not required. Plant density estimates were produced by surveying 77 transects perpendicular to the shoreline at randomly selected survey points where hydrilla was detected during the rake sampling. These density samples were collected using a BioSonics DT-X

Echosounder with a 420 khz digital transducer. BioSonics Visual Acquisition software was used to analyze the echograms and estimate plant density at each sample point. Findings were mapped in ArcView using 1-foot bathymetry data acquired from Navionics, Inc.

Hydrilla is present along 641 miles of shoreline. The majority of plant growth occurs in water depths less than 15 feet. On average, hydrilla was found to occupy 44% of the available habitat where it is present. The 2010 survey results are as follows:

*	Project Total	Georgia	South Carolina
Estimated Hydrilla Coverage	4,959 acres	3,392 acres	1,567 acres
Potential Acreage where Hydrilla is Present	11,271 acres	7,708 acres	3,563 acres
Potential Acreage where Hydrilla is Absent	7,579 acres	5,219 acres	2,360 acres
Not Surveyed (shallow areas not accessible by boat, unmarked shoals or un-surveyed islands)	1,939 acres	1,242 acres	697 acres
Total Available Acreage (330' msl to 315' msl)	20,790 acres	14,170 acres	6,620 acres

\*All acreage estimates were determined by estimating the area between elevations 330' msl and 315' msl using 1-foot contour bathymetry data

During the 2011 growing season, a limited survey of areas near known hydrilla populations was conducted to determine the presence or absence of new hydrilla growth. Additional plant populations were found along 12.2 miles of shoreline in South Carolina and 6.8 Georgia. Areas where hydrilla had been detected previously were not resurveyed in 2011. Due to the low lake level, a survey to determine the extent of hydrilla migration was not conducted in 2012.

Maps showing the known locations of hydrilla infestations are on file at the J. Strom Thurmond Lake Operations Project Manager's Office. A map is also posted on the J. Strom Thurmond Project website:

[http://www.sas.usace.army.mil/Portals/61/docs/lakes/thurmond/Hydrilla\\_Dist\\_2011.pdf](http://www.sas.usace.army.mil/Portals/61/docs/lakes/thurmond/Hydrilla_Dist_2011.pdf)

In 2010, approximately 32 acres of water primrose (*Ludwigia spp.*) and 10 acres of alligatorweed (*Alternanthera philoxeroides*) were discovered growing in the Little River, SC and Dry Fork Creek portions of the lake. In 2011, an additional 62.2 acres of alligator weed was found in Little River, SC and 5.1 acres Big Creek, GA. No additional plant populations of water primrose were found. Plant growth did not impact public recreation area uses.

In 2012, a large population (approximately 600-acres) of slender pondweed (*Potamogeton pusillus*) was present in the Savannah River headwaters of J. Strom Thurmond Lake (RBR tailwater). The abundance of this plant appeared to be in direct response to drought conditions and falling water levels in J. Strom Thurmond Lake. The plant proved to be

problematic for pumped storage operations at Richard B. Russell Dam. In response, a total of 251 acres of slender pondweed were treated in July and August with Reward and Komeen.

### **Richard B. Russell Project**

Periodic boat surveys of the lake were performed throughout the growing season. Sparse patches of Brazilian Elodea (*Egeria densa*) were present on the Savannah River 1 to 5 miles below Hartwell Dam. No hydrilla was detected in Richard B. Russell Lake during the 2012 growing season. Aquatic plant growth has not reached nuisance levels requiring treatment.

### **Hartwell Project**

Periodic boat surveys of the lake were performed throughout the growing season. The distribution and abundance of water primrose in Eighteen Mile Creek does not appear to have increased relative to previous years.