

**Specifications for Tennessee Wildlife Resource Agency
TWRA Aquatic Weed Control in Reelfoot Lake
Event 32801-12514**

A. General Information

1. Contractor shall supply all labor, materials, and equipment required by these specifications to treat aquatic macrophytes on Reelfoot Lake as requested by the contract administrator.
2. Weeds to be treated shall be determined by the State's Contract Administrator.
3. Contractor shall treat but is not limited to the following species:
 - a. Swamp Loosestrife (*Decodon verticillatus*)
 - b. American Frog's Bit (*Lymnobia spongia*)
 - c. Marsh Pennywort (*Hydrocotyle ranunculoides*)
 - d. Curly-Leafed Pondweed (*Potamogeton crispus*)
4. Swamp loosestrife, frog's bit, and marsh pennywort are aquatic macrophytes shall be treated with overcast applications of a mixture of aquatic herbicides.
 - a. **For item 1000200427.** This mix shall consist of monopotassium salt of glyphosate (such as Refuge or equivalent) with a weight of 52.3% at a rate of 64 oz. mixed with isopropylamine salt of imazapyr (such as Habitat or equivalent) with a weight of 27.8% at a rate of 32 oz., and a nonionic surfactant methylated seed oil (such as SunEnergy or equivalent) at a rate of 32 oz. These herbicides shall be mixed in 50 gallons of water and shall cover 1 acre of emergent and floating-leaved species. All chemicals shall be approved by the U.S. EPA and shall have been proven environmentally safe for aquatic weed control. **Herbicide shall be applied using foliar application with handgun. See specifics below.**
 - b. **For item 1000200426.** Herbicide 2,4-D (Dimethylamine Salt of 2,4-Dichlorophenoxyacetic Acid) 2,4-D shall be applied at minimal of 0.5 gallon of 2,4-D and 1 pint of surfactant per acre. **Herbicide shall be applied using foliar application with handgun. See specifics below.**
5. Curly-leafed pondweed shall be treated with Diquat or equivalent.
 - a. **For item 1000143155 with copper.** The active ingredient in Diquat is diquat dibromide [6,7-dihydrodipyrido (1,2-a:2',1'-c)]. This herbicide shall be applied at minimal of 1.5 gallons of diquat dibromide and 3 gallons of copper per acre shall be applied subsurface injection via trailing hoses.
 - b. **For item 1000200425 without copper for areas where copper use is restricted.** The active ingredient in Diquat is diquat dibromide [6,7-dihydrodipyrido (1,2-a:2',1'-c)]. This herbicide shall be applied at minimal of 1.5 gallons of diquat dibromide and 1 gallon of endothall per acre shall be applied subsurface injection via trailing hoses.
 - c. The contractor shall contact Patrick Johnson or Chase Taylor, TWRA, to determine curly-leaf pondweed problems areas and areas to focus treatments.

- I. Chase Taylor: Chase.Taylor@tn.gov or 615-339-5588
- II. Patrick Johnson: Patrick.Johnson@tn.gov or 731-445-5386

B. Treatment Approach

1. Near 90% (+/- 5%) control of the aquatic macrophytes in Reelfoot Lake shall be achieved. To achieve this, the Contractor shall:
 - a. evenly distribute the herbicide mixture over the surface of the target species using an airboat-mounted pump, handguns that shall spray at least 40 feet out from the boat, and boominator spray nozzles mounted on airboats that shall spray at least 40 feet out from the boat.
 - b. targeted species shall respond to the herbicide within 5 days
 - c. dropout of the vegetation shall be observed within 21 days.
 - d. an edge treatment approach shall be utilized with airboats traveling along the outside edge of weed colonies.
 - e. Herbicidal spray shall be directed an average of 40 feet into the colonies, and linear distance of treatment shall be calculated utilizing GPS systems.
 - f. Acres shall be calculated using two measurements (spray width x linear distance).
 - g. Each boat utilized shall treat at least 10 acres per day. Three boats daily shall be able to treat 30 acres per day
 - h. It is expected that approximately seven hundred (700) acres shall be treated annually with a treatment time required of no more than twenty-four (24) days.

C. Qualifications

1. The contractor shall have the following:
 - a. on-staff botanist with a minimum M.S. degree in botany.
 - b. additional employed field biologists
 - c. a minimum of five experienced applicators that are certified to apply aquatic herbicides in the state of Tennessee
 - d. a minimum of 5 airboats equipped with onboard mounted pumps, long-spraying handguns, and boominators that can be utilized for the scope of work
 - e. at least 7 years of experience and working knowledge of herbicide applications on reservoirs larger than 10,000 acres.
 - f. be able to provide proof that they have completed contracts that exceed a gross value of \$200,000 with major companies/agencies, such as TVA or public utility companies.
 - g. a minimum of five years of experience in large reservoir work (larger than 10,000 acres).