

**RFHP FY 10 AQUATIC HABITAT RESTORATION PROJECT PROPOSAL**  
**Submitted by The Lake Conroe Conservation Association**  
**A Friends of Reservoirs Partner**

**Title:** Habitat Enhancements for Fisheries and Ecosystem Improvement at Lake Conroe, Texas

**Project Summary:**

Lake Conroe and the West Fork of the San Jacinto River below the reservoir lie within the Houston Metropolitan Area, a population center of 5.6 million as of the 2007 U.S. Census. These waters provide recreational opportunities and surface drinking water for the sixth largest population center in the United States. The primary issue at Lake Conroe is the need to enhance littoral habitat including the native aquatic plant community while controlling invasive exotic aquatic vegetation. Lake Conroe has been in a state of flux since its impoundment in the late 1970's with an early infestation of hydrilla followed by total removal of the aquatic plant community by 270,000 diploid grass carp stocked in the early 1980's. Native vegetation restoration was begun in 1995 by Texas Parks and Wildlife (TPWD) and its partners, but increased nutrient loading caused by rampant urbanization along with attrition of the grass carp population led to a re-infestation of the reservoir by hydrilla and water hyacinth. In addition the exotic aquatic fern giant salvinia was discovered in Lake Conroe in 2000. In 2006 TPWD, the San Jacinto River Authority (SJRA), the Lake Conroe Association (LCA), the Seven Coves Bass Club (SCBC), and other constituent groups created the Lake Conroe Habitat Management Plan for the control of exotic vegetation and the enhancement of the native aquatic plant community. Hydrilla, water hyacinth, and giant salvinia are now under control, but as a result of grass carp stockings as part of the integrated pest management (IPM) strategy, native vegetation has also been greatly reduced. In Phase 1 of the Lake Conroe Habitat Improvement Project SCBC, SJRA, TPWD, and the US Army Corps of Engineers Lewisville Ecosystem Research Facility (LAERF) constructed a native plant nursery below the Lake Conroe Dam using grant funding from the Bass Anglers Sportsman's Society (BASS) and the US Fish and Wildlife Service (USFWS) with additional funds from TPWD, SJRA, and LAERF. This proposal (Phase 2) will continue native aquatic vegetation restoration focusing on grass carp tolerant species to increase littoral fish and wildlife habitat, sequester excess nutrients, filter the water column, stabilize bottom sediments, control erosion, and fill empty niches to help control exotic aquatic plant species; and increase abiotic littoral habitat to increase fish production and angling success.

**Objectives and Methods:**

Objective 1 - Establish a diverse native aquatic plant community that is resistant to grass carp herbivory using best practices for native aquatic vegetation (2012 completion).

- Grass carp resistant native aquatic plants will be planted in 10-ft X 10-ft protective wire cages to allow plants to establish founder colonies then spread beyond the protective wire. Cages will be constructed of 6-ft tall, 2-in X 2-in mesh, vinyl coated wire supported by 1.5-in diameter PVC pipe.

- Each cage will be planted with 10 mature plants. Plants will be a mix of emergents (water willow, giant bulrush, spike rush, pickerel weed), floating leaved (American lotus, spatterdock, fragrant water lily), and submersed species (water celery, American pondweed, Illinois pondweed, water stargrass).
- Cages will be placed approximately 50-ft apart in water < 5 ft deep. Ten water willow seedlings will be planted equally spaced along the shoreline between cages. Approximately 2 miles of shoreline will be planted in founder colonies.
- Success of plantings will be documented during biannual vegetation surveys.

Objective 2 - Create angling “hot spot” using abiotic materials for structural fish habitat. (2012 completion)

- Fish attracting structures will be constructed using concrete blocks for bases with varying lengths of irrigation header pipe, bamboo, and brush inserted.
- Blocks will be distributed within an approximately 1 acre area in 10- to 20-ft deep water near a creek channel.
- “Hot spot” area will be geo-referenced for inclusion in fishing maps and brochures.
- Utilization of “hot spot” will be measured during creel survey scheduled for 2013.

**Funding Required:**

**Native Vegetation Plantings**

<b>Materials Required</b>	<b>Number of Units</b>	<b>Cost per Unit</b>	<b>Total Cost</b>
40' X 6' 2"X2" Cage	200	\$40.00	\$8,000
8' X 1.5" PVC Pipe	1,600	\$4.50	\$7,200
8" Zip Ties	8,000	\$0.05	\$400
Mature Plants	4,000	\$10.00	\$40,000
Labor for Cage Construction and Planting			\$20,000
<b>Objective Total</b>			<b>\$75,600</b>

**Fishing “Hot Spot”**

<b>Materials Required</b>	<b>Number of Units</b>	<b>Cost per Unit</b>	<b>Total Cost</b>
Concrete Blocks	2,000	\$1.00	\$2,000
Irrigation Header Pipe (ft)	3,200	\$0.25	\$800
Ready-Mix 80 lb	500	\$2.00	\$1,000
6 ft <sup>3</sup> Portable Electric Cement Mixer	1	\$600.00	\$600
Bamboo, Christmas Trees, Etc.	>2,000	Donated	\$0
Labor for Structure Construction and Deployment			\$10,000
<b>Objective Total</b>			<b>\$14,400</b>

## **Partners Involved and Their Contribution:**

### **Current funding partners**

- RFHP (requested) - \$20,000 for native vegetation protective fence materials for native aquatic vegetation plantings and concrete blocks, irrigation header pipe, ready-mix, and portable cement mixer for fishing “hot spot”. If the above materials can be secured through private donations (partially or completely), all remaining funds would be used to purchase additional labor to build cages and plant native aquatic plants.
- Seven Coves Bass Club, San Jacinto River Authority, TPWD, and US Corps of Engineers - \$40,000 for in-kind donation of native aquatic plants grown at the Lake Conroe plant nursery.
- TPWD, Seven Coves Bass Club and other volunteers, and San Jacinto River Authority - \$30,000 for in-kind labor and equipment use donation to build cages and plant native aquatic plants, and construct and deploy fish attractors in fishing “hot spot”.

### **Other identified partners with unknown funding contribution or possible additional leveraged funding. (Project could be increased with additional funding).**

Texas Commission on Environmental Quality (Sediment/nutrient abatement program)  
US Fish and Wildlife Service  
Natural Resource Conservation Service  
Montgomery County  
Texas Black Bass Unlimited  
Bass Anglers Sportsman’s Society  
Texas A&M University  
Sam Houston State University  
The Dockline Magazine and Printing Company  
Pineywoods Chapter Master Naturalists