

# REPORT

## **Title**

*Evaluation of Grass Carp (Ctenopharyngodon idella) as a Biocontrol Agent for Giant Salvinia (Salvinia molesta)*

## **Project Number**

2011TX398B

## **Primary PI**

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## **Other PIs**

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## **Abstract**

Giant salvinia (*Salvinia molesta*) and hygrophila (*Hygrophila polysperma*) are both invasive, introduced macrophytes that have quickly become established in Texas waters. First identified in Texas in 1998 near Houston, giant salvinia is now found in Lake Conroe, Toledo Bend Reservoir, Caddo Lake, and at least eight other public Texas impoundments. Listed as one of the most problematic aquatic plants by the state, giant salvinia is a floating fern capable of doubling its spatial occupation in a week. It can displace native aquatic plants that provide food and habitat for invertebrates and fish and produces a floating mat that blocks sunlight and reduces dissolved oxygen concentrations to dangerously low levels. Hygrophila is a fast growing and spreading submerged macrophyte capable of occupying the entire water column and outcompeting native species. It was first documented in the San Marcos River in the 1960's, and has spread to many drainages and impoundments throughout the state, including Caddo Lake. This research evaluated the potential use of triploid grass carp (*Ctenopharyngodon idella*) as a biological control agent for these two novel invasive species. Using a controlled mesocosm experiment, maximum consumption rates and feeding preferences were measured. Giant salvinia and hygrophila were compared to six native and introduced species common in Texas and the Southern US.

## **Problem and Research Objectives**

Determine the maximum consumption rates and feeding preferences of triploid grass carp for two novel invasive aquatic species.

## **Materials/Methodology**

A total of 8 native and invasive aquatic plants were collected from Texas waterways and introduced to triploid grass carp. Using a controlled mesocosm experiment, maximum consumption rates and feeding preferences were established through a series of paired comparison trials.

**Principal Findings**

Research has been completed and is currently being analyzed. Data will be presented at the 52<sup>nd</sup> Annual Meeting of the Aquatic Plant Management Society, and will also be published in the Masters thesis of Michael Neisch.

**Significance**

Triploid grass carp can be a potential biological control agent for giant salvinia and other invasive aquatic plants that are a significant threat to Texas' water resources. The use of triploid grass carp in controlling invasive plants can reduce the dependence on herbicides and provide a longer lasting treatment period.