The purpose of this demonstration project is to develop and field test unique and previously untested technologies for creating floating marsh for potential use in fresh and intermediate zones. The first phase of the project consisted of two components in which buoyant vegetated mats or artificial floating systems (AFS) were developed and tested in a controlled environment during the first two years of the project. Various combinations of plant species, planting methods, structure materials and substrates were tested to determine optimal buoyancy and structure design. In addition, plant response to environmental effects was evaluated in effort to identify methods to accelerate floating marsh mat development. For the second phase of the project, the AFSs were then deployed into open water areas for field testing on Mandalay National Wildlife Refuge in 2006. Monitoring of the AFSs field performance is ongoing. The goal of this project is to develop methods for restoration of open areas within deteriorated floating marsh and other freshwater areas where establishment of maidencane (Panicum hemitomon) marsh is desired. In addition, the technology being developed is to be transferable to wider applications across the LA coastal area.