

Lake Howell Survey 2009-2010

On April 20, 2010, Gloria Eby (SC Biologist), Dean G Barber (SC Consultant), Thomas Calhoun (Assistant Biologists) and Ken Terrell surveyed the aquatic plants in Lake Howell and inspected restoration sites prior to the April 24th restoration event. Native submersed aquatic vegetation (SAV) continues to expand around the lake from the inshore shallow water to 4 feet. The most abundant SAV was eel grass (*Vallisneria Americana*). Other SAV observed included: road grass (*Eleocharis spp*), baby's tears (*Micranthemum glomeratum*), water hyssop (*Bacopa monnieri*), southern naiad (*Najas guadalupensis*) and muskgrass (*Chara spp*). Most of these native SAV were expanding with their new spring growth. Lake Howell has a fair diversity of shoreline plants. Some of the native emergent aquatic plants found include: soft rush (*Juncus effuses*), pickerel weed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*) and bulrush (*Scirpus californicus*). Some of the exotic emergent aquatic plants include: para grass (*Brachiaria mutica*), elephant ear (*Colocasia esculenta*), torpedo grass (*Panicum repens*) and cattails (*typha spp.*). During an inspection post April 24th's restoration event we have found that many of the plants have been popping up. So if any residents can please replant these when they see them this will ensure us a successful restoration. The Secchi (water clarity) reading at the time of inspection was 4.2ft in a depth of 12.3ft total.

On June 2, 2009, Gloria Eby (Seminole County [SC] Senior Environmental Scientist), Marianne Pluchino (SC Senior Environmental Scientist), Dean G Barber (SC Consultant), Thomas Calhoun (Assistant Scientist), David Scharr (DEP) and Day McClanahan (DEP) surveyed the aquatic plants and conducted a Lake Vegetation Index (LVI) of Lake Howell. The LVI was created by the Florida Department of Environmental Protection as a rapid screening tool for ecological condition; it determines how closely a lake's flora resembles that of an undisturbed lake. The secchi (water clarity) was 3.7 ft in a depth of 11 ft.

The Water Quality Index (Trophic State) was 53 (Good) taken 2/23/2010. The water quality range for 146 samples taken from 1982 to 2009 has been 36 (Good) to 84 (Poor). All this information is available on the Seminole County Water

Atlas <http://www.seminole.wateratlas.usf.edu/lake/?wbodyatlas=lake&wbodyid=7579>. Graph below indicates nutrient levels (measured by the Trophic State Index [TSI]). A score of **60 or above** is considered impaired (polluted) for lakes. By using low fertilizer use; phosphorous free fertilizers; keeping a functional shoreline with beneficial native aquatic plants; keeping grass clippings out of your storm drains leading to the lake aids in reducing personal pollution into Lake Howell.

Aquatic plants observed during the **June 2, 2009** inspection:

Lake Howell had a fair diversity of shoreline plants (ditch bank and emergent) several invasive exotic plants were observed such as: Para grass (*Brachiaria mutica*), wild taro (*Colocasia esculenta*), alligator weed (*Alternanthera philoxeroides*) and water primrose (*Ludwigia peruviana*) and parrots feather (*Myriophyllum aquaticum*). The exotic trees noted were Chinese tallow (*Sapium sebiferum*) and Brazilian pepper (*Schinus terebinthifolius*). There was a fair amount of beneficial native species found during the inspection. Some these beneficial natives include: button bush (*Cephalanthus occidentalis*), soft rush (*Juncus effuses*), pickerel weed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*), bulrush (*Scirpus californicus*), fire flag (*Thalia geniculata*) and eel grass (*Vallisneria americana*).

The plantings of **the April 24, 2010** event were inspected and some of the areas experience plant loss while others are flourishing. These specific sites are indicative of the existing grass carp fish likely feeding on the newly planted aquatic plants. Ken Terrel (with the Friends of Lake Howell) provided us with an update on May 29th noting plant damage. Upon our inspection, we found missing plants.

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