Bear Gully lake Survey 2009-2010

On **January 26, 2010**, Dean G Barber (SC Consultant) and Thomas Calhoun (Sc Assisstant Scientist) surveyed Bear Gully Lake surveyed the aquatic plants in Bear Gully Lake. Hydrilla *(Hydrilla verticillata)* was observed throughout the lake to a depth of 3 feet. Although hydrilla is now found throughout the lake, other native submersed aquatic vegetation (SAV): coontail *(Ceratophyllum demersum)*, roadgrass *(Eleocharis baldwinii)*, baby tears *(Micranthemum glomeratum)*, southern naiad *(Najas guadalupensis)*, bladderwort *(Utricularia inflata)* and eelgrass *(Vallisneria americana)* have expanded also in the last several months. Southern naiad, was found to be the most abundant SAV in the lake, has established both inshore and offshore (to 7 feet) of the hydrilla. These native SAV continue to play an important role in keeping the Hydrilla in check. The most abundant emergent aquatic plant continues to be the invasive torpedo grass *(Panicum repens)* which is present on all lake resident's waterfront. It is recommended that residents remove this exotic species and replant with beneficial native aquatic plants. These native plants with maintenance of your waterfront, will help keep the torpedo grass from reestablishing. Be sure you have an FWC Aquatic plant permit for this activity for mechanical or hand removal if greater than the allowable access corridor (50ft or 50% of shoreline- whichever is less) or if removing using herbicides.

The Secchi (water quality) was 3.4 feet at a depth of 9.3 feet. The water elevation at the time of the survey was 49.59 feet.

On **23 March, 2010**, Seminole County Lake Management Program staff Gloria Eby, Dean G Barber (Consultant) and Thomas Calhoun (Assistant Scientist) surveyed the aquatic plants in **Bear Gully Lake**. Hydrilla was observed throughout the lake to a depth of 6 feet, but at fewer locations than the 26 January 2010 survey with less plants observed (photo attached). Native submersed aquatic vegetation (SAV) such as lemon bacopa, coontail, roadgrass, baby tears, southern naiad, bladderwort and eelgrass (seen to a depth of 6 feet) continues to expand, with southern naiad observed to a depth of 7.5 feet, being the most abundant aquatic plant in the lake. Hopefully southern naiad, a beneficial native, will continue to maintain on the deep side of the hydrilla preventing hydrilla from expanding into deeper water as the grass carp fish graze on hydrilla.

Bladderwort (see along the shore with a yellow bloom) and the emergent aquatic plant pickerelweed were more abundant than the invasive emergent torpedo grass. As spring approaches, plants will be expanding. If lakefront owners inhibiting the expansion of torpedo grass, more beneficial native plants, like the flowering pickerelweed, canna and duck potato, will expand into the torpedo grass habitat, competing for space and reduce the work you will have to do to maintain your waterfront. Be sure you have an FWC Aquatic Plant Control permit (a free permit) if you intend to use aquatic herbicides or remove plants outside of an allowable access corridor (50ft or 50% of shoreline- whichever is less, see recommendation #2).

The Secchi (water quality) was 3.7 feet in a depth of 17.8 feet, an improvement from 3.4 feet on the January survey. The water elevation was 49.3 feet compared to 49.59 feet. All this information and much more is available on the Seminole County Water Atlas at: http://www.seminole.wateratlas.usf.edu/lake/default.asp?wbodyid=7513&wbodyatlas=lake

Attached is our new guide for lakefront homeowners! In it you will find information from on how you can protect your lake (pg2-3) to plant identification to handy contacts and resources for you (pg19). I included the graph below which indicates nutrient levels (measured by the Trophic State Index [TSI]) for your lake. A score of 60 or above is considered impaired (or polluted) lake.

On **June 2, 2010** 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 Bear Gully Lake. The LVI was created by the Florida Department of Environmental Protection as a rapid screening tool (bioassessment) for ecological condition; it determines how closely a lake's flora (aquatic plants) resembles that of an undisturbed lake.

Native submersed aquatic vegetation (SAV) found during this survey include; coontail, roadgrass, baby tears, southern naiad, bladderwort (*Utricularia inflata*) and eelgrass. Southern naiad was observed to a depth of 7 feet, being the most abundant aquatic plant in the lake. Some native emergent plants found during the survey included: soft rush (*Juncus effuses*), shore rush (*Juncus marginatus*), pickerel weed (*Pontederia cordata*) and duck potato (*Sagittaria lancifolia*). These natives continue to compete for space along the shoreline with the non-native invasive plant torpedo grass (*Panicum repens*).

On **16 September 2010** Seminole County Lake Management Staff Dean G Barber and Thomas Calhoun surveyed the aquatic plants in **Bear Gully Lake**. Native submersed aquatic vegetation (SAV) found during this survey include; coontail, roadgrass, baby tears observed to a depth of 2 feet, southern naiad to a depth of 6 feet, 2 bladderworts (*Utricularia inflata, U. gibba*) and eelgrass. Southern naiad was previously observed (on 2 July 2010) to a depth of 7 feet, and was the most abundant aquatic plant in the lake. During this survey, eelgrass was the most abundant aquatic plant, coming to the surface from 4 feet and observed to a depth of 5 feet. Although expanding, it is not blocking boater access from resident's docks and boat houses.

The invasive exotic aquatic plant hydrilla was observed in several thick clusters in the inshore area to a depth of 1-2 feet throughout the lake and sparsely to a depth of 5 feet. Although hydrilla was observed throughout the lake in similar sites as the native SAV, the plant is being impacted from expansion by both emergent and submersed aquatic plants (such as eelgrass and southern naiad) and the present stocking rate of triploid grass carp fish.

The most extensive population of emergent aquatic plants in Bear Gully Lake is the invasive/exotic torpedo grass having expanded significantly from the last survey throughout much of the lake; from the shore out to 2.5 feet. Also observed, about 0.2 acres of the invasive/exotic water hyacinth in the eastern end of the discharge creek. The distance from discharge creek to lake is great enough that no lake introduction is anticipated. Hyacinths were not observed in the lake.