The lake assessments are created in partnership with Hillsborough County and the Florida Center for Community Design and Research

LAKE ASSESSMENT DOCUMENT

Keystone Lake 7/30/98 Watershed: Brooker Creek

Lake assessments are being conducted to contribute physical and ecological data to the Atlas as a collaborative effort between project partners. The goal is to rapidly assess many of the lakes in the county and thus provide stakeholders a better understanding of the character of the lake, its shore, and the aquatic plants present there. These data are intended to assist in the future management of the lake and its watershed.

The first section of the report provides the results of the bottom mapping effort: a contour (bathymetric) map of the lake, area, volume and depth statistics, and the water level at the time of assessment (if available).

The second section provides the results of the ecological (vegetation) assessment conducted on the lake. These results can be used to better manage vegetation in your lake. A list is provided with the different plant species found at various sites around the lake. Potentially invasive, exotic (non-native) species are identified in a plant list and the percent of exotics is presented in a summary table. The results of this study are compared with other lakes in the watershed.

The intent of the assessment is to provide a starting point from which to track changes in your lake. These data can provide the information needed to determine changes and to monitor trends in physical condition and ecological health of the lake.

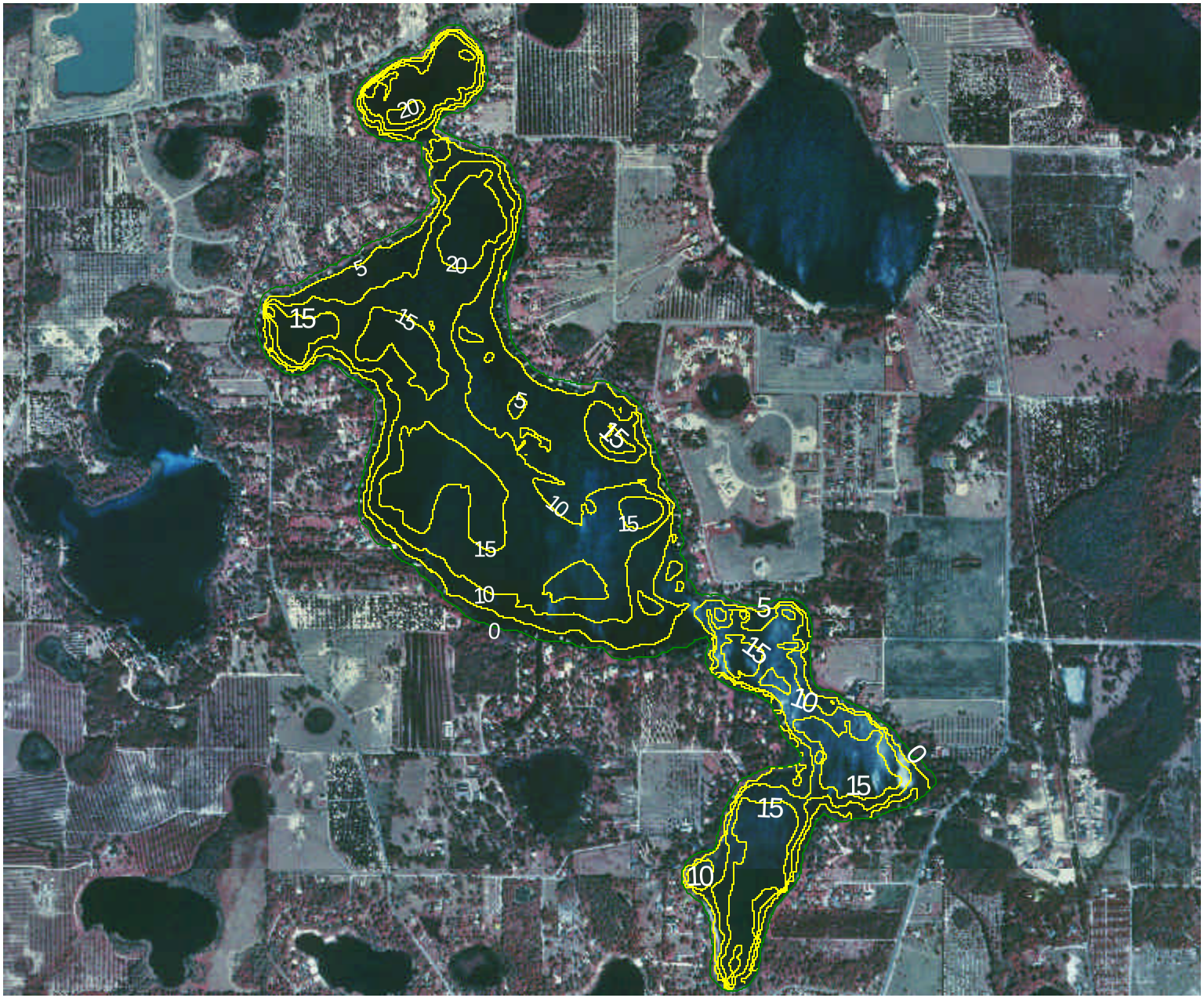
I. Physical Data – Area, Depth, Volume, & Bottom Contours

The bottom of the lake was mapped using a sophisticated Global Positioning System (GPS) to determine the boat's position, and a depth-finder to provide depth associated with that measured position. The result is an estimate of your lake's area, mean and maximum depths, and volume (Table 1) and the creation of a bottom contour map.

Table 1. Physical Characteristics of Your Lake.

Surface Area (acres):	435
Mean Depth (feet):	10.2
Maximum Depth (feet):	28.2
Volume (gallons):	1,441,617,422

Keystone Lake



Section-Township-Range
15-27-17

Contour Lines Expressed in 5- Foot Intervals

Lake Perimeter ground level

EXPLANATION:
Survey date August 5, 1998.

Explanation:
Lake water level was 41.8 ft above Mean Sea Level when the lake was surveyed. Contours are expressed in absolute depth below this level.

DATA SOURCES:
Digital orthophotos by United States Geological Survey. All contours generated by Florida Center for Community Design and Research based on survey data provided by the Hillsborough County Lake Management Program.

200 0 200 400 Meters

Hillsborough County

University of South Florida
USF

Keystone Lake 7/30/98 Watershed: Brooker Creek

II. Ecological Data

Aquatic Plant Survey

Approximately equispaced sites are haphazardly mapped around the lake and the aquatic plants at each site are surveyed. The total number of species from all sites is used to approximate the total diversity of aquatic plants and the percent of invasive-exotic plants on the lake and in the watershed (Table 2). Many of these plants are considered ecologically harmful, as they tend to out-compete native species. Such "nuisance" plants can also make boating and other recreational activities difficult or impossible. The common and scientific names of plant species found on your lake are listed in Table 3.

Table 2. Comparison of species diversity between your lake and other assessed lakes located within your watershed.

	Keystone Lake	Brooker Creek (Average)
Number of Taxa:	64	31
Percent Exotic Plants:	19%	14%

Table 3. Botanical and common names of the most commonly found plants on your lake. Percent frequency (of occurence), habit (location where found), status (native or exotic), and EPPC status are provided.

Common Name	Plant Species	Frequency	Habit	Status	EPPC
Stream Bog Moss	Mayaka fluviatilis	97%	Submersed	Native	NL
Torpedo Grass	Panicum repens	93%	Emergent	Exotic	I
Water Primroses, Primrosewillow	Ludwigia spp.	90%	Emergent	Unknown	NL
Cypress	Taxodium spp.	90%	Emergent	Native	NL
Pickerel Weed	Pontederia cordata	70%	Emergent	Native	NL
Manyflower Marshpennywort, Water Penny	Hydrocotyl umbellata	60%	Emergent	Native	NL
Water Purslane	Didiplis diandra	57%	Submersed	Unknown	NL
Water Spangles, Water Fern	Salvinia minima	57%	Floating	Native	NL
Wild Taro, Dasheen, Coco Yam	Colocasia esculenta	50%	Emergent	Exotic	I
Banana Lily, Big Floatingheart	Nymphoides aquatica	50%	Floating	Native	NL
Punk Tree, Melaleuca	Melaleuca quinquenervia	47%	Emergent	Exotic	I
Climbing Hempvine	Mikania scandens	47%	Emergent	Native	NL
Swamp Fern	Blechnum serrulatum	43%	Emergent	Native	NL
Wax Myrtle	Myrica cerifera	43%	Emergent	Native	NL
Baldwin's Spikerush, Roadgrass	Eleocharis baldwinii	40%	Submersed	Native	NL
Alligator Weed	Alternanthera philoxeroides	37%	Emergent	Exotic	II

Maidencane	Panicum hemitomon	37%	Emergent	Native	NL
Lemon Bacopa	Bacopa caroliniana	33%	Submersed	Native	NL
Southern Red Maple	Acer rubrum var. trilobum	30%	Emergent	Native	NL
Carolina Redroot	Lachnanthes caroliniana	30%	Emergent	Native	NL
American White Water Lily, Fragrant Water	Nymphaea odorata	30%	Floating	Native	NL
Marsh St. John's Wort	Triadenum virginicum	30%	Emergent	Native	NL
Common Buttonbush	Cephalanthus occidentalis	27%	Emergent	Native	NL
Sedge	Cyperus spp.	27%	Emergent	Unknown	NL
Rush Fuirena	Fuirena spp.	27%	Emergent	Native	NL
Spatterdock, Yellow Pondlily	Nuphar lutea var. advena	27%	Floating	Native	NL
Burhead Sedge,Cuban Scirpus	Scirpus cubensis	27%	Emergent	Native	NL
Para Grass	Urochloa (Brachiaria) mutica	27%	Emergent	Exotic	I
Dayflower	Commelina spp.	23%	Emergent	Exotic	NL
Dahoon Holly	Ilex cassine	23%	Emergent	Native	NL
Buttonweed	Diodia virginiana	17%	Emergent	Native	NL
Popcorn Tree, Chinese Tallow Tree	Sapium sebiferum	17%	Emergent	Exotic	I
Creeping Primrosewillow, Red Ludwigia	Ludwigia repens	13%	Emergent	Native	NL
Pine Tree	Pinus spp.	13%	Emergent	Native	NL
Meadow Beauties	Rhexia spp.	13%	Terrestrial	Unknown	NL
Yellow-eyed Grass	Xyris spp.	13%	Emergent	Native	NL
Pigweed, Water Hemp	Amaranthus australis	10%	Emergent	Native	NL
Bacopa, Water-hyssops	Bacopa spp.	10%	Submersed	Native	NL
Smartweed, Knotweed	Polygonum spp.	10%	Emergent	Native	NL
Laurel Oak; Diamond Oak	Quercus laurifolia	10%	Emergent	Native	NL
Water Oak	Quercus nigra	10%	Emergent	Native	NL
Bur Marigold	Bidens spp.	7%	Emergent	Native	NL
Watergrass	Luziola fluitans	7%	Emergent	Native	NL
Water-Horehound,Bugle weed	Lycopus rubellus	7%	Emergent	Native	NL
Chain fern	Woodwardia spp.	7%	Emergent	Native	NL
Falsewillow	Baccharis spp.	3%	Emergent	Native	NL
Common Bacopa, Herb-Of-Grace	Bacopa monnieri	3%	Submersed	Native	NL
Water Sprite	Ceratopteris thalictroides	3%	Emergent	Exotic	NL
Fragrant Flatsedge	Cyperus odoratus	3%	Emergent	Native	NL
Southern Wood Fern	Dryopteris ludoviciana	3%	Emergent	Native	NL
Hydrilla, waterthyme	Hydrilla verticillata	3%	Submersed	Exotic	I
Bighead Rush	Juncus megacephalus	3%	Emergent	Native	NL
Sweetgum	Liquidamber styraciflua	3%	Emergent	Native	NL
Shade Mudflower, Baby's Tears	Micranthemum umbrosum	3%	Submersed	Native	NL
Vaseygrass	Paspalum urvillei	3%	Emergent	Exotic	NL
Marsh Fleabane,Camphorweed	Pluchea spp.	3%	Emergent	Native	NL
Horned Beak Rush	Rhynchospora cornulata	3%	Emergent	Native	NL
Bulltongue Arrowhead, Duck Potato	Sagittaria lancifolia	3%	Emergent	Native	NL
Willow	Salix spp.	3%	Emergent	Native	NL

Brazilian Pepper	Schinus terebinthifolius	3%	Emergent	Exotic	I
Cattails	Typha spp.	3%	Emergent	Native	NL
Caesar's-weed	Urena lobata	3%	Emergent	Exotic	II
Bladderwort	Utricularia spp.	3%	Submersed	Native	NL

Standing Crop

In addition to an overall survey of the types of plants on a lake, an estimate of the standing crop (biomass) of the lake has been obtained for many lakes. This was done by calculating the average weight of the vegetation within a quarter-meter square quadrat tossed haphazardly into three zones (see Figure) at each sampling site around the lake: (1) the emergent zone, (2) the floating zone and (3) the submersed zone. The average weight of the plants (Table 4) from all sampling sites and the dominant type of vegetation (Table 5) are provided. If data tables are not shown, no standing crop estimates were obtained for this lake.

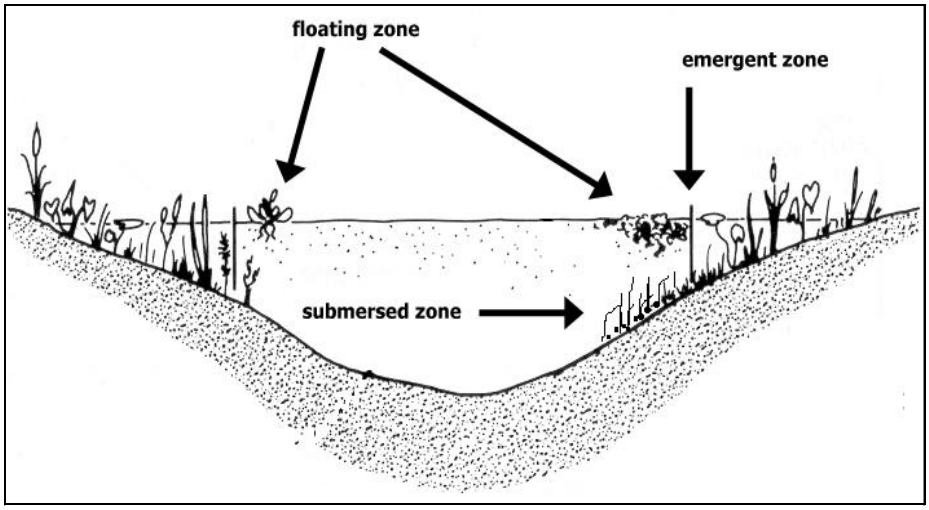


Table 4. Comparison between the average biomass from three zones within your lake and among all lakes assessed within your watershed.

	Keystone Lake	Brooker Creek (Average)
Emergent Zone:	5.34	3.71
Floating Zone:	0.64	0.82
Submersed Zone:	1.35	1.63

Number of lakes sampled in your watershed: 25

Note: All biomass measurements are shown in kilograms per square meter.

Table 5. Dominant taxa from three zones within your lake.

Zone	Dominant Plant	Status
Emergent Zone:	Torpedo Grass	Exotic
Floating Zone:	Spatterdock, Yellow Pondlily	Native
Submersed Zone:	Stream Bog Moss	Native