

LAKE ASSESSMENT REPORT

BEAR LAKE

7 /14/2000

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 the 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 the 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 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 the lake's area, mean and maximum depths, and volume (Table 1) and the creation of a bottom contour map. *NOTE: This map is for recreational purposes only.*

Table 1. Physical Characteristics of the Lake

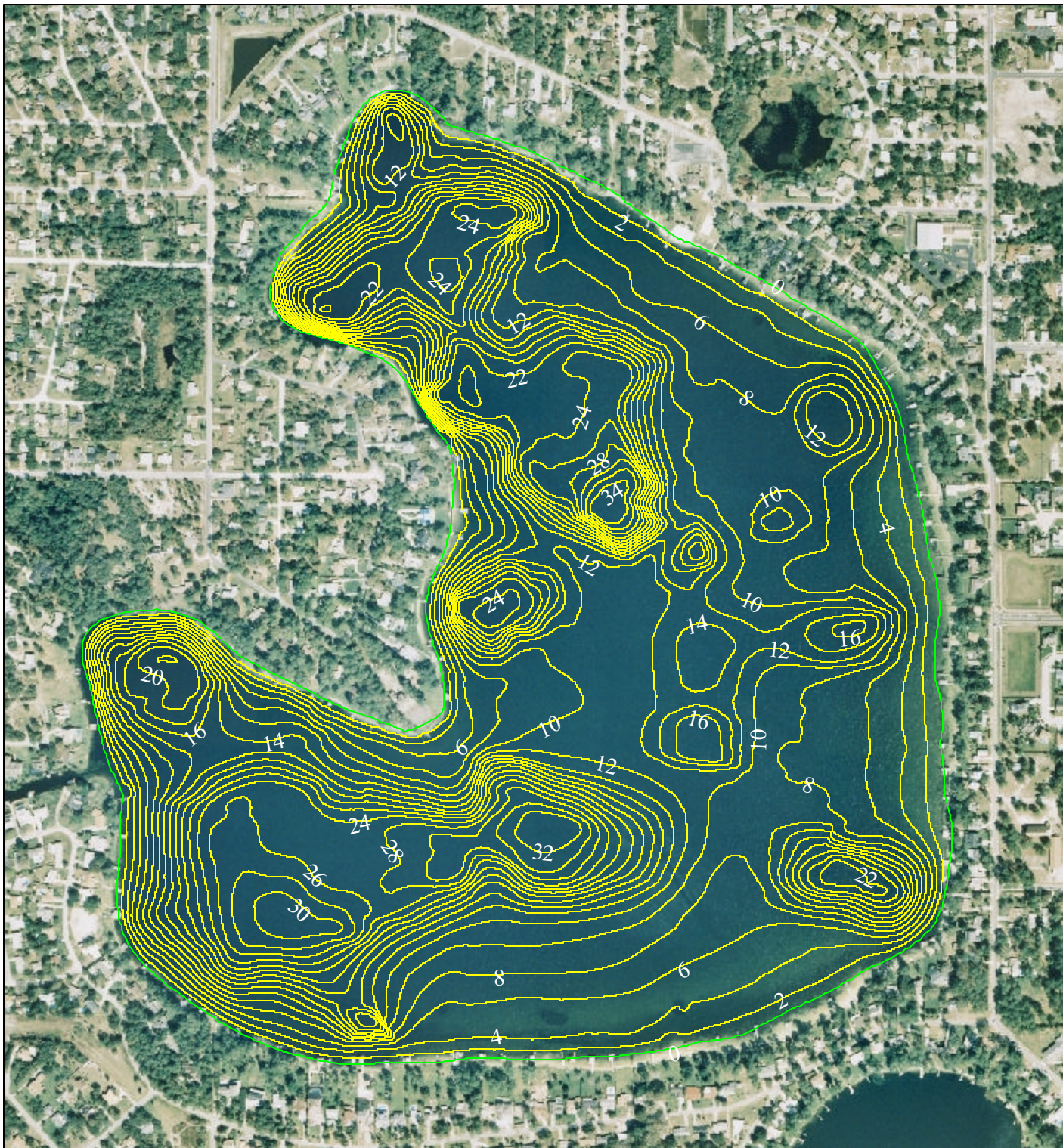
Surface Area (acres):	295
Mean Depth (feet):	12.4
Maximum Depth (feet):	36.7
Volume (gallons):	1,191,673,580

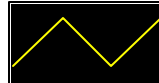
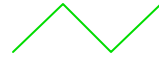


The lake assessments are created in partnership with Seminole County and the Florida Center for Community Design and Research. If you have any questions, please use the "Contact Us" form on the Seminole Atlas Website (www.seminole.wateratlas.org).

Bear Lake

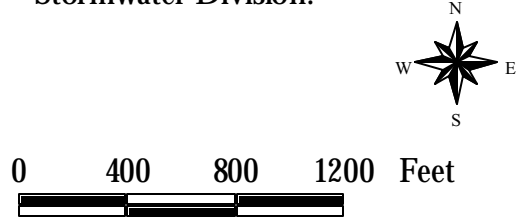
Section - Township - Range
18&19-21-29



-  Contour Lines
Expressed in
2-Foot Intervals
-  Estimated Lake
Perimeter

EXPLANATION:
Assessment Date: July 13, 2000.
Lake water level was 102.8 ft.
above sea level when the lake was
assessed. Contours are expressed in
absolute depth below this level.

DATA SOURCES:
Seminole County 1999 color aeriels
provided by Seminole County Public
Works. All contours generated by
Florida Center for Community Design
and Research based on GPS/Sonar
data provided by the Seminole County
Stormwater Division.



II. Ecological Data - Aquatic Plant Survey

Approximately equispaced sites (typically ten or more) are 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 beneficial 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 the lake and other assessed lakes located within the same watershed

	<u>Lake</u> BEAR LAKE	<u>Watershed</u> Little Wekiva
	(Average)	
Number of Taxa:	52	36
Percent Exotic Plants:	21%	18%

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

Common Name	Scientific Name	Frequency	Habit	Status	EPPC
Common Bacopa	Bacopa monnieri	87%	Submersed	Native	NL
Peruvian Primrosewillow	Ludwigia peruviana	87%	Emergent	Exotic	NL
Wild Taro	Colocasia esculenta	80%	Emergent	Exotic	I
Baldwin's Spikerush, Roadgrass	Eleocharis baldwinii	73%	Submersed	Native	NL
Manyflower Marshpennywort, Water Penny	Hydrocotyl umbellata	73%	Emergent	Native	NL
Torpedo Grass	Panicum repens	73%	Emergent	Exotic	I
Haspan Flatsedge	Cyperus haspan	60%	Emergent	Native	NL
Alligator Weed	Alternanthera philoxeroides	53%	Emergent	Exotic	II
Creeping Oxeye	Wedelia trilobata	53%	Emergent	Exotic	II
Arrowhead	Sagittaria spp.	47%	Emergent	Native	NL
Wax Myrtle	Myrica cerifera	33%	Emergent	Native	NL
Hairy pod Cowpea	Vigna luteola	33%	Terrestrial	Native	NL
Water Hyacinth	Eichsornia crassipes	27%	Floating	Exotic	I
Pond Weed	Potamogeton spp.	27%	Submersed	Native	NL
Rattlebox, Purple Sesbans	Sesbania punicea	27%	Emergent	Exotic	NL
Southern Red Maple	Acer rubrum	20%	Emergent	Native	NL
Asian Pennywort, Coinwort	Centella asiatica	20%	Emergent	Native	NL
Southern Naiad	Najas guadelupensis	20%	Submersed	Native	NL

Algae	Periphyton spp.	20%	Submersed	Native	NL
Cattails	Typha spp.	20%	Emergent	Native	NL
Para Grass	Urochloa mutica	20%	Emergent	Exotic	I
Tapegrass	Valisneria americana	20%	Submersed	Native	NL
Yerba De Tajo	Eclipta alba	13%	Emergent	Native	NL
Rush Fuirena	Fuirena spp.	13%	Emergent	Native	NL
Climbing Hempvine	Mikania scandens	13%	Emergent	Native	NL
Virginia Creeper, Woodbine	Parthenocissus quinquefolia	13%	Emergent	Native	NL
Redbay	Persea borbonia	13%	Emergent	Native	NL
Frog-fruit, Carpetweed, Turkey Tangle Fogf	Phyla nodiflora	13%	Emergent	Native	NL
Elderberry	Sambucus canadensis	13%	Emergent	Native	NL
Cypress	Taxodium spp.	13%	Emergent	Native	NL
Grapevine	Vitis spp.	13%	Emergent	Native	NL
Lemon Bacopa	Bacopa caroliniana	7%	Submersed	Native	NL
Bamboo	Bambusa spp.	7%	Emergent	Exotic	NL
Canna	Canna spp.	7%	Emergent	Exotic	NL
Buttonbush	Cephalanthus occidentalis	7%	Emergent	Native	NL
Jamaica Swamp Saw Grass	Cladium jamaicense	7%	Emergent	Native	NL
Sedge	Cyperus spp.	7%	Emergent	Unknown	NL
Dog Fennel	Eupatorium capillifolium	7%	Emergent	Native	NL
Dahoon Holly	Ilex cassine	7%	Emergent	Native	NL
Creeping Primrosewillow, Red Ludwigia	Ludwigia repens	7%	Emergent	Native	NL
Manatee Mudflower, Baby's Tears	Micranthemum glomeratum	7%	Submersed	Native	NL
Boston Fern	Nephrolepis spp.	7%	Emergent	Unknown	NL
Spatdock, Yellow Pondlily	Nuphar lutea	7%	Floating	Native	NL
Cinnamon Fern	Osmunda cinnamomea	7%	Emergent	Native	NL
Palm	Palm	7%	Terrestrial	Unknown	
Pickereel Weed	Pontederia cordata	7%	Emergent	Native	NL
Pale Meadowbeauty; Maryland Meadowbea	Rhexia mariana	7%	Terrestrial	Native	NL
Duck Potato	Sagittaria lancifolia	7%	Emergent	Native	NL
Willow	Salix spp.	7%	Emergent	Native	NL
Chinese Tallow Tree	Sapium sebiferum	7%	Emergent	Exotic	I
Soft-stem Bulrush	Scirpus validus	7%	Emergent	Native	NL
Bladderwort	Utricularia spp.	7%	Submersed	Native	NL