

LAKE ASSESSMENT REPORT

HAYES, LAKE

5 /30/2001

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

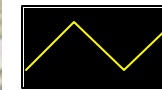
Surface Area (acres):	14
Mean Depth (feet):	5.0
Maximum Depth (feet):	13.2
Volume (gallons):	23,209,049



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).

Lake Hayes

Section - Township - Range
27-21-31



Contour Lines
Expressed in
2-Foot Intervals



Estimated Lake
Perimeter

EXPLANATION:

Assessment Date: May 30, 2001.

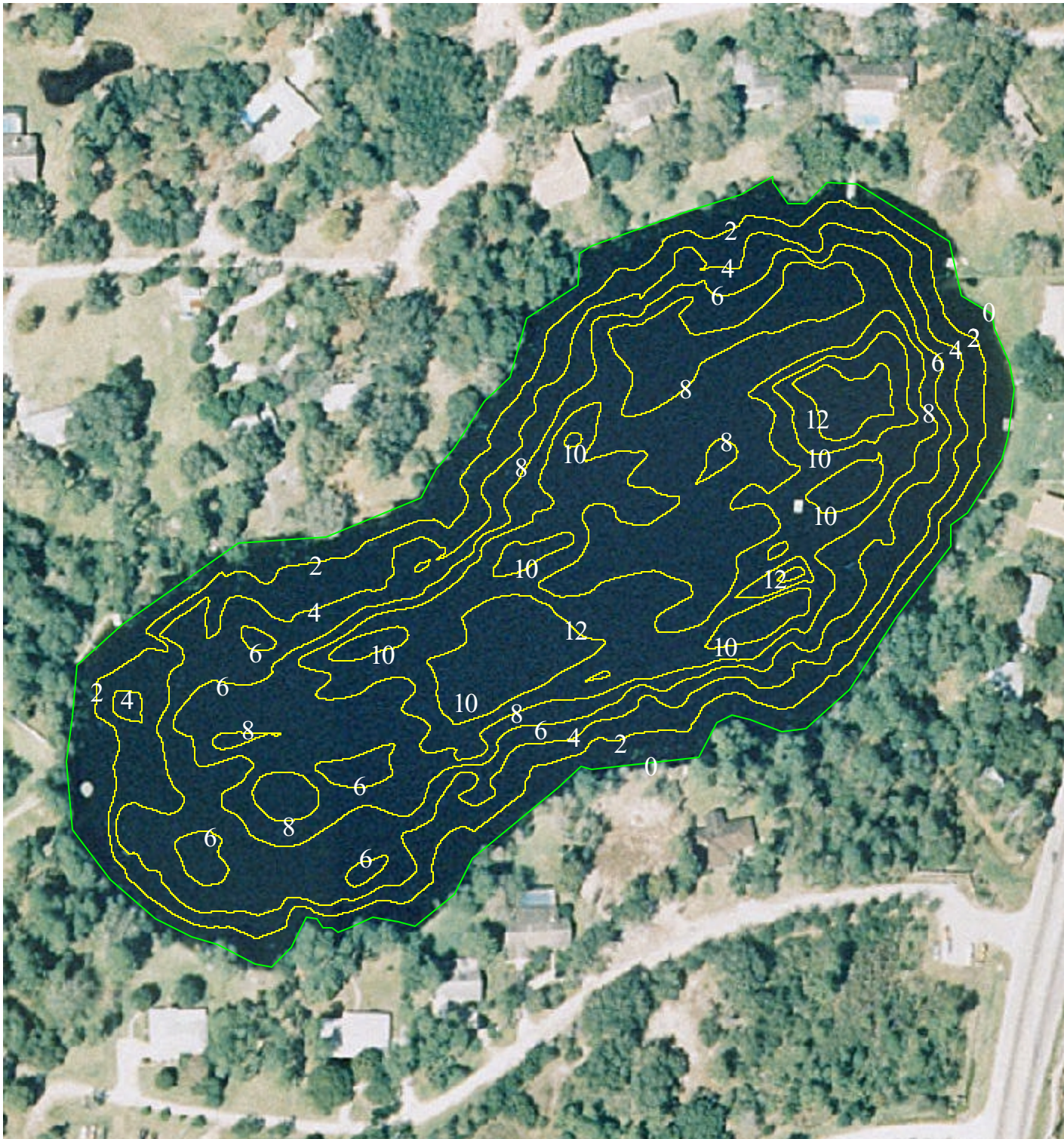
Lake water level was 44.3 ft.
above sea level when the lake was
assessed. Contours are expressed in
absolute depth below this level.

DATA SOURCES:

Seminole County 1999 color aerials
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.



0 100 200 300 Feet



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> HAYES, LAKE	<u>Watershed</u> Howell Creek (Average)
Number of Taxa:	47	42
Percent Exotic Plants:	15%	17%

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
Southern Naiad	<i>Najas guadelupensis</i>	100%	Submersed	Native	NL
Spatdock, Yellow Pondlily	<i>Nuphar lutea</i>	75%	Floating	Native	NL
Hydrilla, waterthyme	<i>Hydrilla verticillata</i>	63%	Submersed	Exotic	I
Torpedo Grass	<i>Panicum repens</i>	63%	Emergent	Exotic	I
Buttonbush	<i>Cephalanthus occidentalis</i>	50%	Emergent	Native	NL
Wax Myrtle	<i>Myrica cerifera</i>	50%	Emergent	Native	NL
Para Grass	<i>Urochloa mutica</i>	50%	Emergent	Exotic	I
Aster spp., Elliot's Aster	Aster spp.	38%	Unknown	Unknown	Unknow
Dahoon Holly	<i>Ilex cassine</i>	38%	Emergent	Native	NL
Climbing Hempvine	<i>Mikania scandens</i>	38%	Emergent	Native	NL
Royal Fern	<i>Osmunda regalis</i>	38%	Emergent	Native	NL
Maidencane	<i>Panicum hemitomon</i>	38%	Emergent	Native	NL
Southern Red Maple	<i>Acer rubrum</i>	25%	Emergent	Native	NL
Algal Mats, Floating	Algal spp.	25%	Floating	Unknown	Unknow
Alligator Weed	<i>Alternanthera philoxeroides</i>	25%	Emergent	Exotic	II
Lemon Bacopa	<i>Bacopa caroliniana</i>	25%	Submersed	Native	NL
Common Bacopa	<i>Bacopa monnieri</i>	25%	Submersed	Native	NL
Asian Pennywort, Coinwort	<i>Centella asiatica</i>	25%	Emergent	Native	NL

Jamaica Swamp Saw Grass	<i>Cladium jamaicense</i>	25%	Emergent	Native	NL
Dayflower	<i>Commelina</i> spp.	25%	Emergent	Native	NL
Manyflower Marshpennywort, Water Penny	<i>Hydrocotyl umbellata</i>	25%	Emergent	Native	NL
Shore Rush, Grassleaf Rush	<i>Juncus marginatus</i>	25%	Emergent	Native	NL
American White Water Lily, Fragrant Water	<i>Nymphaea odorata</i>	25%	Floating	Native	NL
Cinnamon Fern	<i>Osmunda cinnamomea</i>	25%	Emergent	Native	NL
Pine Tree	<i>Pinus</i> spp.	25%	Emergent	Native	NL
Pickereel Weed	<i>Pontederia cordata</i>	25%	Emergent	Native	NL
Duck Potato	<i>Sagittaria lancifolia</i>	25%	Emergent	Native	NL
Wapato, Common Arrowhead, Duck Potato	<i>Sagittaria latifolia</i>	25%	Emergent	Native	NL
Bur Marigold	<i>Bidens</i> spp.	13%	Emergent	Native	NL
Bog Hemp, False Nettle	<i>Boehmeria cylindrica</i>	13%	Emergent	Native	NL
Sedge	<i>Carex</i> spp.	13%	Emergent	Unknown	
Camphor-tree	<i>Cinnamomum camphora</i>	13%	Emergent	Native	I
Umbrella Flat Sedge	<i>Cyperus alternifolius</i>	13%	Emergent	Exotic	II
Yerba De Tajo	<i>Eclipta alba</i>	13%	Emergent	Native	NL
Water Hyacinth	<i>Eichsornia crassipes</i>	13%	Floating	Exotic	I
Southern Umbrellasedge	<i>Fuirena scirpoidea</i>	13%	Emergent	Native	NL
Peruvian Primrosewillow	<i>Ludwigia peruviana</i>	13%	Emergent	Exotic	NL
Water Primroses, Primrosewillow	<i>Ludwigia</i> spp.	13%	Emergent	Unknown	NL
Sweetbay Magnolia	<i>Magnolia virginiana</i>	13%	Emergent	Native	NL
Algae	Periphyton spp.	13%	Submersed	Native	NL
Redbay	<i>Persea borbonia</i>	13%	Emergent	Native	NL
Swampbay	<i>Persea palustris</i>	13%	Emergent	Native	NL
Marsh Fleabane,Camphorweed	<i>Pluchea</i> spp.	13%	Emergent	Native	NL
Arrowhead	<i>Sagittaria</i> spp.	13%	Emergent	Native	NL
Cordgrass	<i>Spartina</i> spp.	13%	Emergent	Native	NL
Bald Cypress	<i>Taxodium distichum</i>	13%	Emergent	Native	NL
Cattails	<i>Typha</i> spp.	13%	Emergent	Native	NL