

# **OKAUCHEE LAKE HYDRO ACOUSTIC SURVEY RESULTS November 2005**

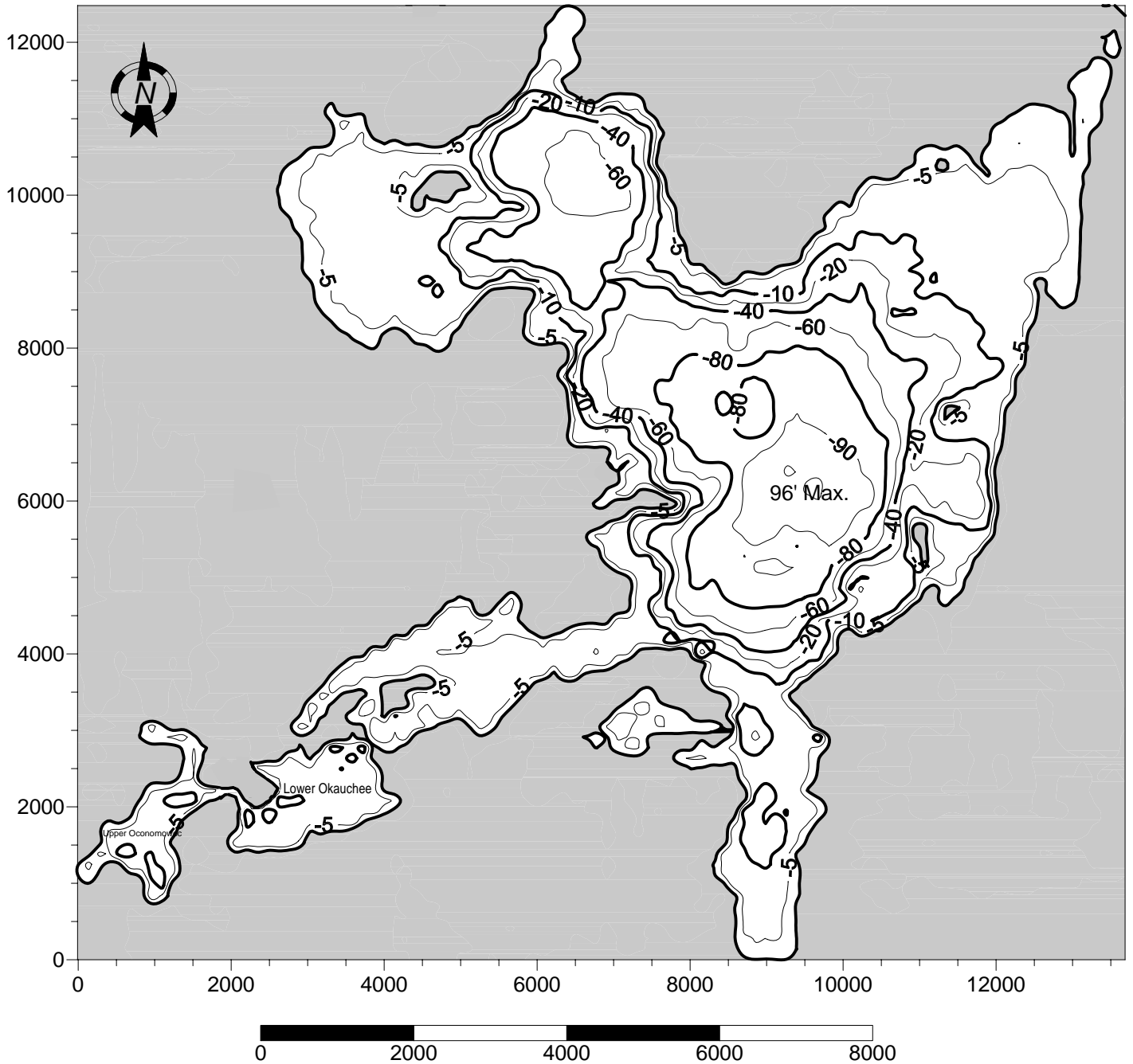


**PRESENTED BY  
MARINE BIOCHEMISTS  
6316 W. Eastwood Court  
Mequon, WI 53022**

# OKAUCHEE LAKE

(INCLUDES LOWER OKAUCHEE AND UPPER OCONOMOWOC)

NOT FOR NAVIGATION



Scale: 1 inch = 2000 feet

## Miscellaneous:

Okauchee, Lower Okauchee and Upper Oconomowoc approx. Volume	36,435 acre-feet
Okauchee Lake Surface Acreage	1183.5 acres
Lower Okauchee Lake Surface Acreage	44.3 acres
Upper Oconomowoc Surface Acreage	32.7 acres

## Survey Background

Hydro acoustics utilizes sound energy to detect objects and contours underwater. By integrating digital echo sounders with computer processors, GPS (Global Positioning System) data and GIS (geographical information system) software, graphic representation can be generated of bathymetry (depth contours and shape), fisheries, bottom sediment type, and submersed aquatic plant coverage and height within the water column.

On November 1 through November 5, 2005, hydro acoustic surveys were conducted on Okauchee Lake. Bathymetry data was generated, processed, and then graphically represented. The water level at the dam on Upper Oconomowoc during the surveys was 3" below the top of the overflow.

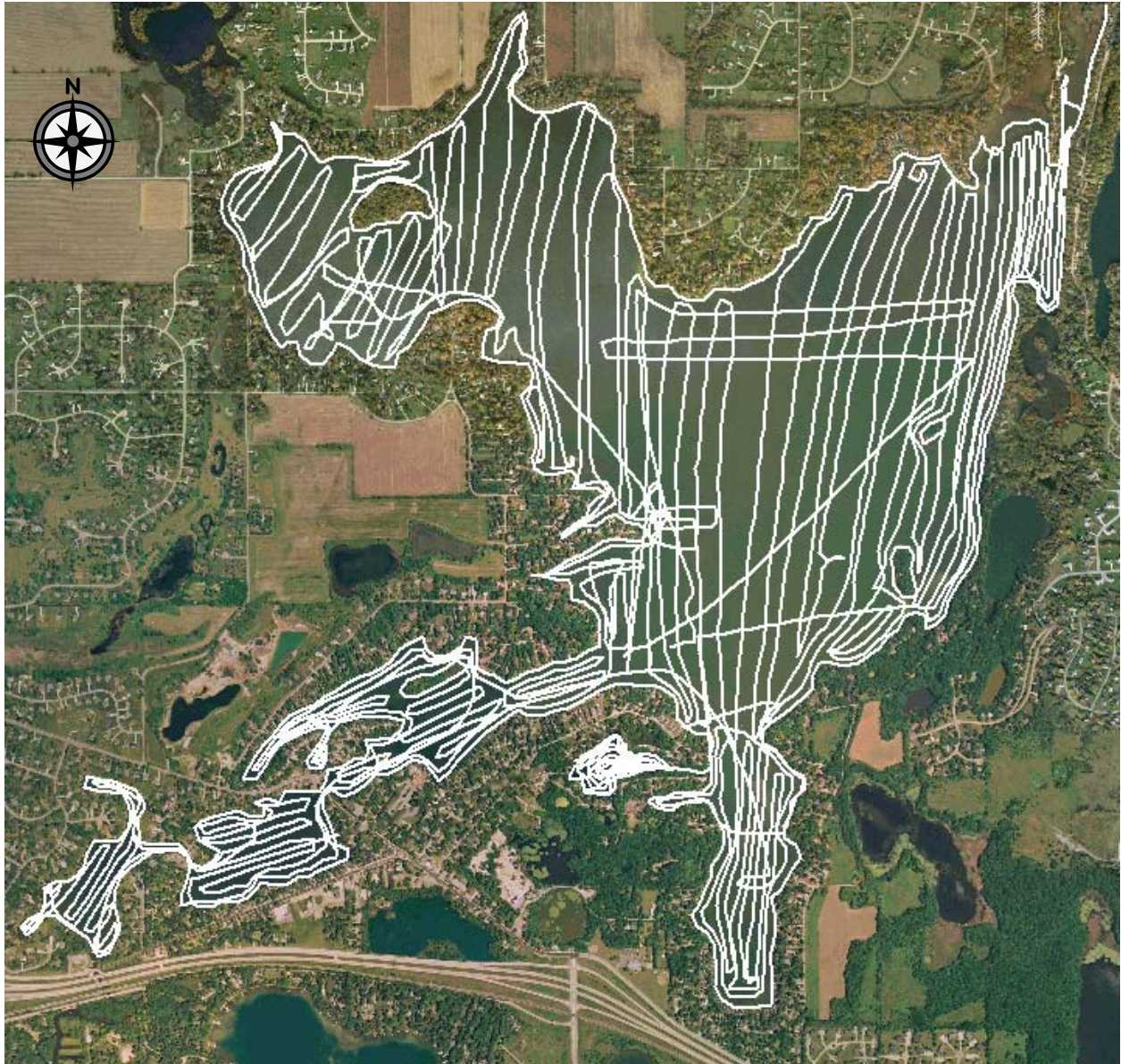
Utilizing GPS-interfaced imagery, navigation transects of the lake were made with an average of 75 to 125 feet between transects depending on the depth. This pattern allowed for complete mapping of the lake within 20 to 30 feet of the shoreline areas. Over-lapping transects were made in larger areas to ensure transect data cohesion. Docks, overhanging vegetation, and shallow depths limited some near-shore areas.

Over 750,000 individual soundings were taken. These were analyzed and processed into over 67,000 individual data points, which were extrapolated into graphic color depth regions. These graphic color depth regions were overlayed onto satellite imagery to produce a color bathymetric map of Okauchee Lake. This color bathymetric map was further enhanced to show greater definition between depth regions. The map was also simplified to show line depth contours of the lake. Depth markings were added to the line contours to create a Simplified Contour Bathymetric Map. The following pages contain:

- Transect Track Data
- Color Bathymetric Map of Okauchee Lake
- Enhanced Color Bathymetric Map of Okauchee Lake
- Simplified Contour Bathymetric Map of Okauchee Lake
- Contour Bathymetry Map of Okauchee Lake with Scale



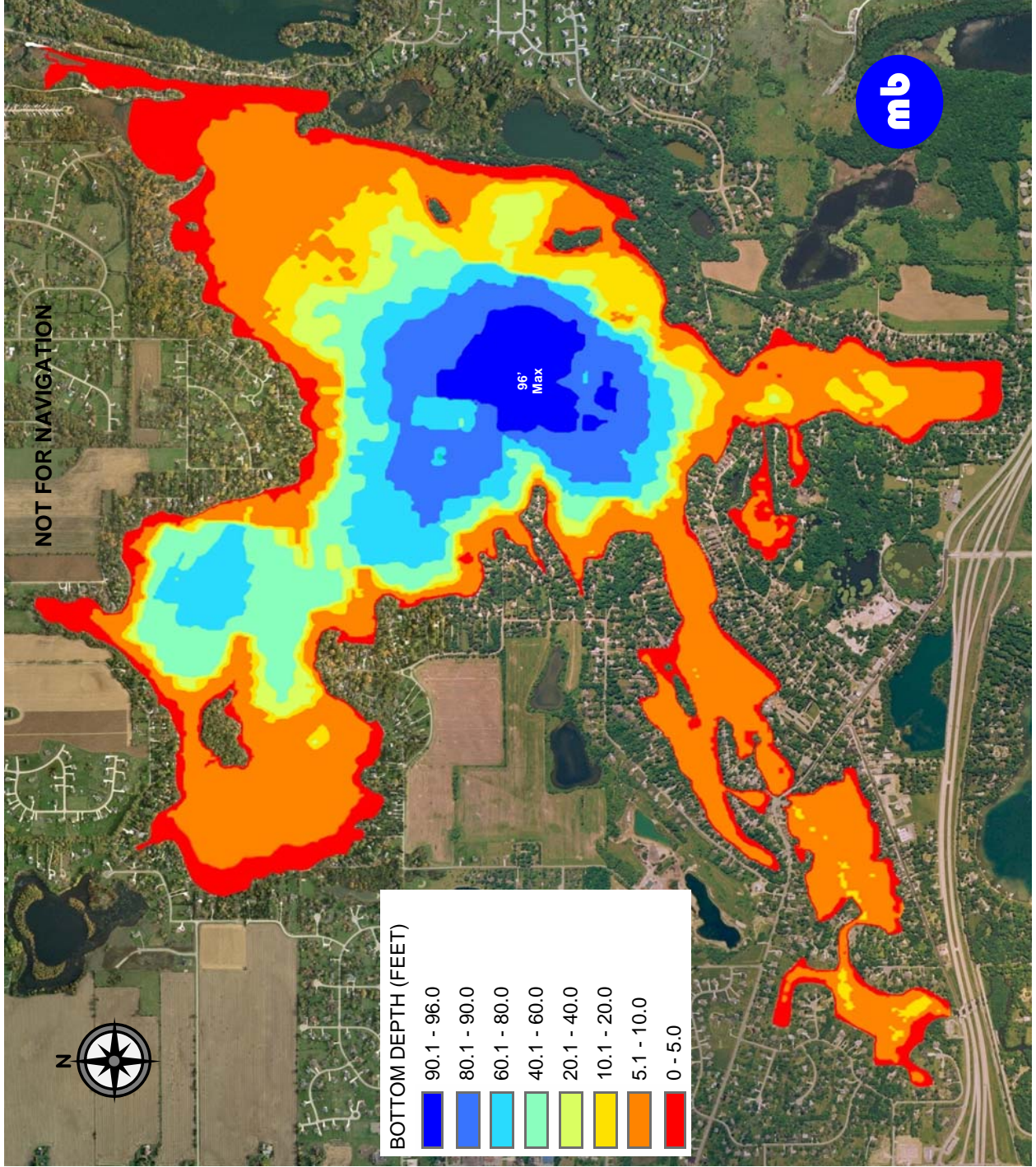
## Survey Transect Data



Approximate Survey Track Data overlaid on satellite imagery

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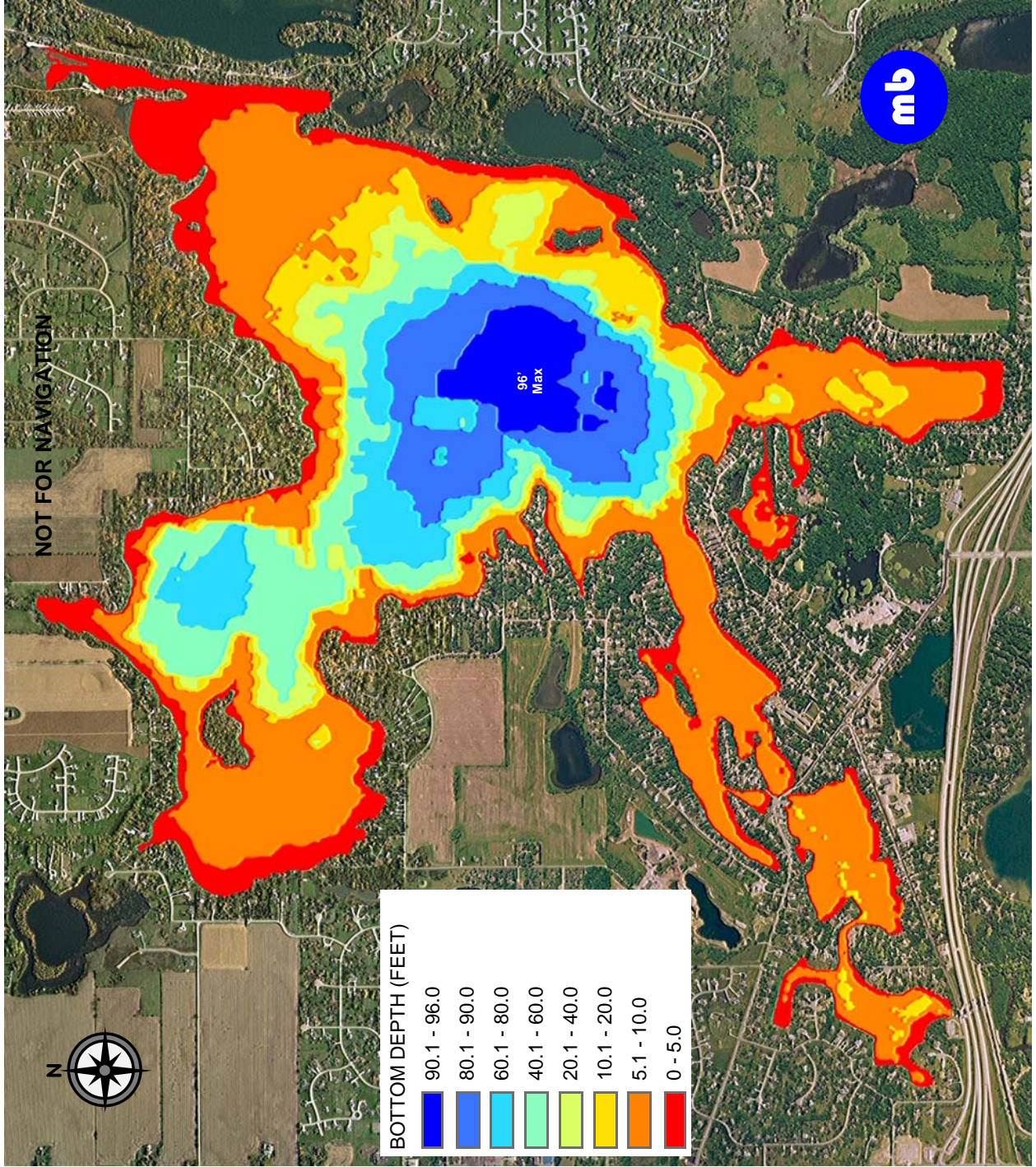




Bathymetric Data overlaid on satellite imagery

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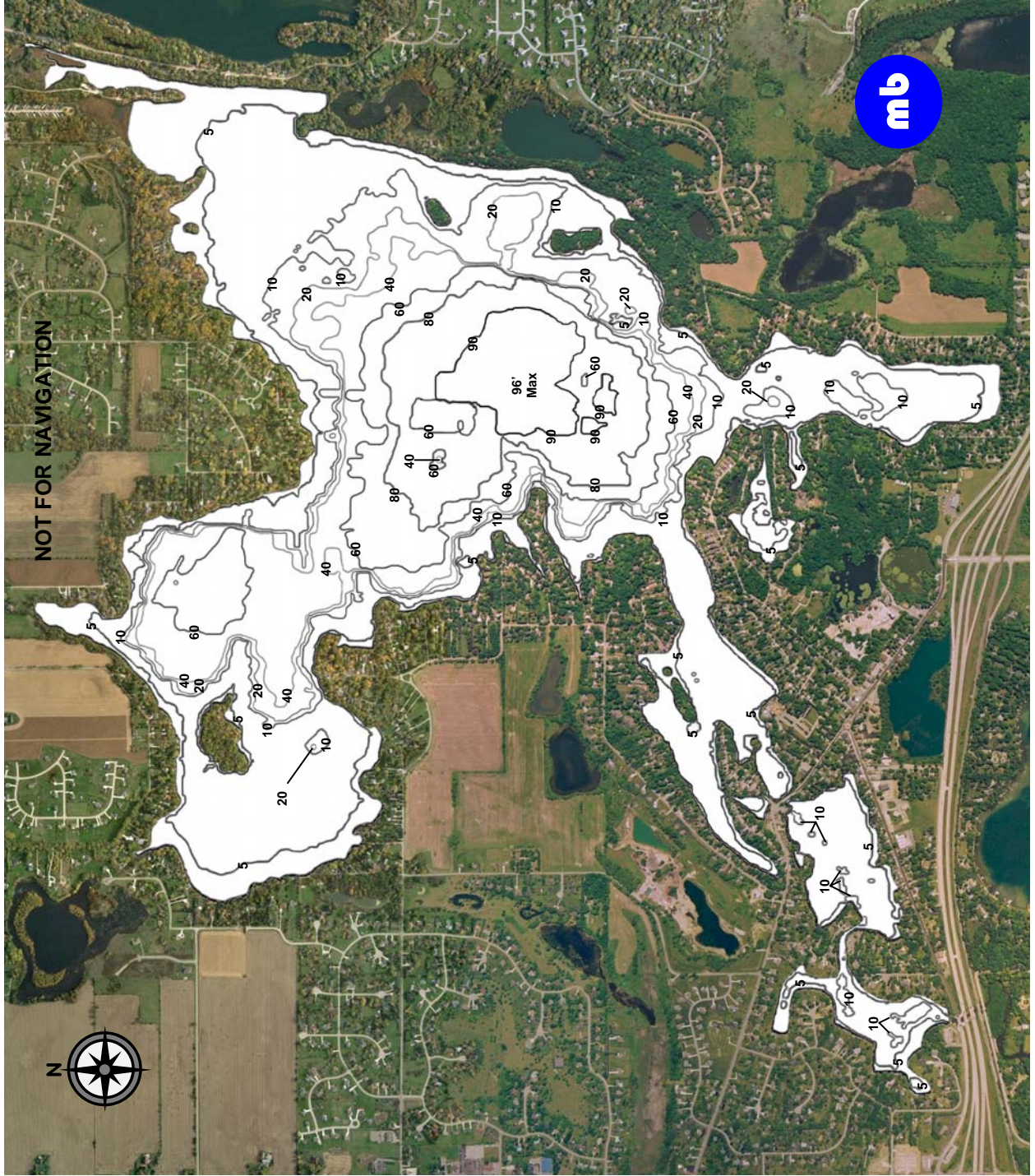




Enhanced Bathymetric Data overlaid on satellite imagery

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Bathymetric Contour Data overlaid on satellite imagery

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## **Survey Discussion**

The result of the hydro acoustic surveys show deeper than historically recorded depths in the center of the lake, and several other variations from existing maps. Fisheries data and sediment type data were also collected at the time of the surveys, but not processed. This data can be processed at a later time if requested in accordance with previously quoted fees.

Data established during the surveys can be used to generate volumetric data as well as delineate aquatic vegetation areas of concern. Additional copies of the maps have been enclosed in this report package. Electronic copies of the maps are available upon request.

Please contact Marine Biochemists should questions arise or further analysis be requested.

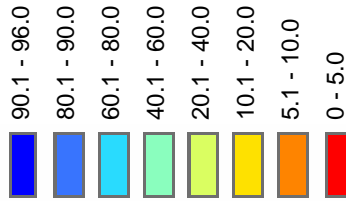


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BOTTOM DEPTH (FEET)



96'  
Max.

mb

11-2005

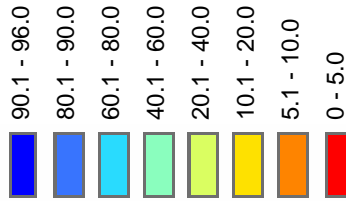


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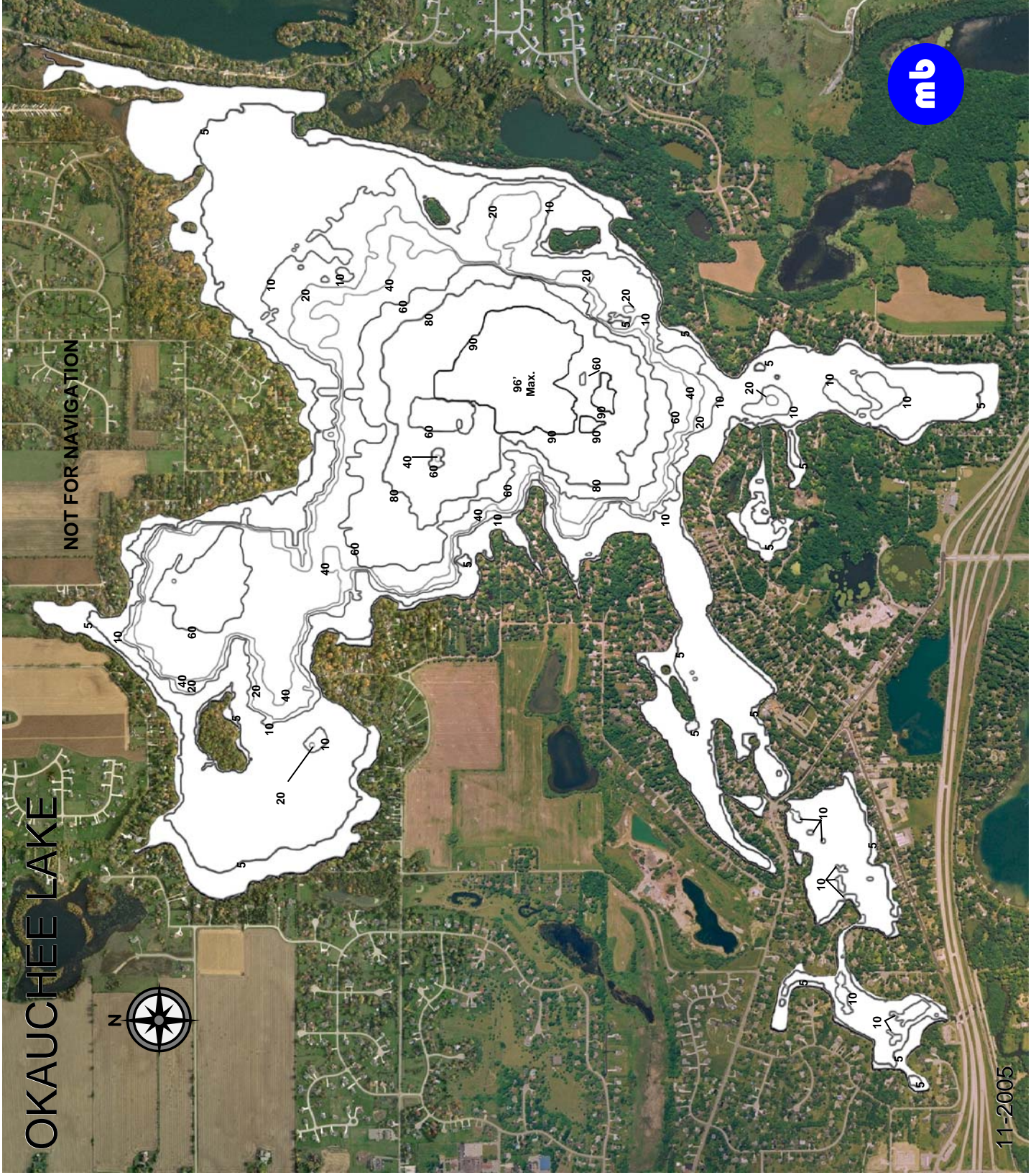
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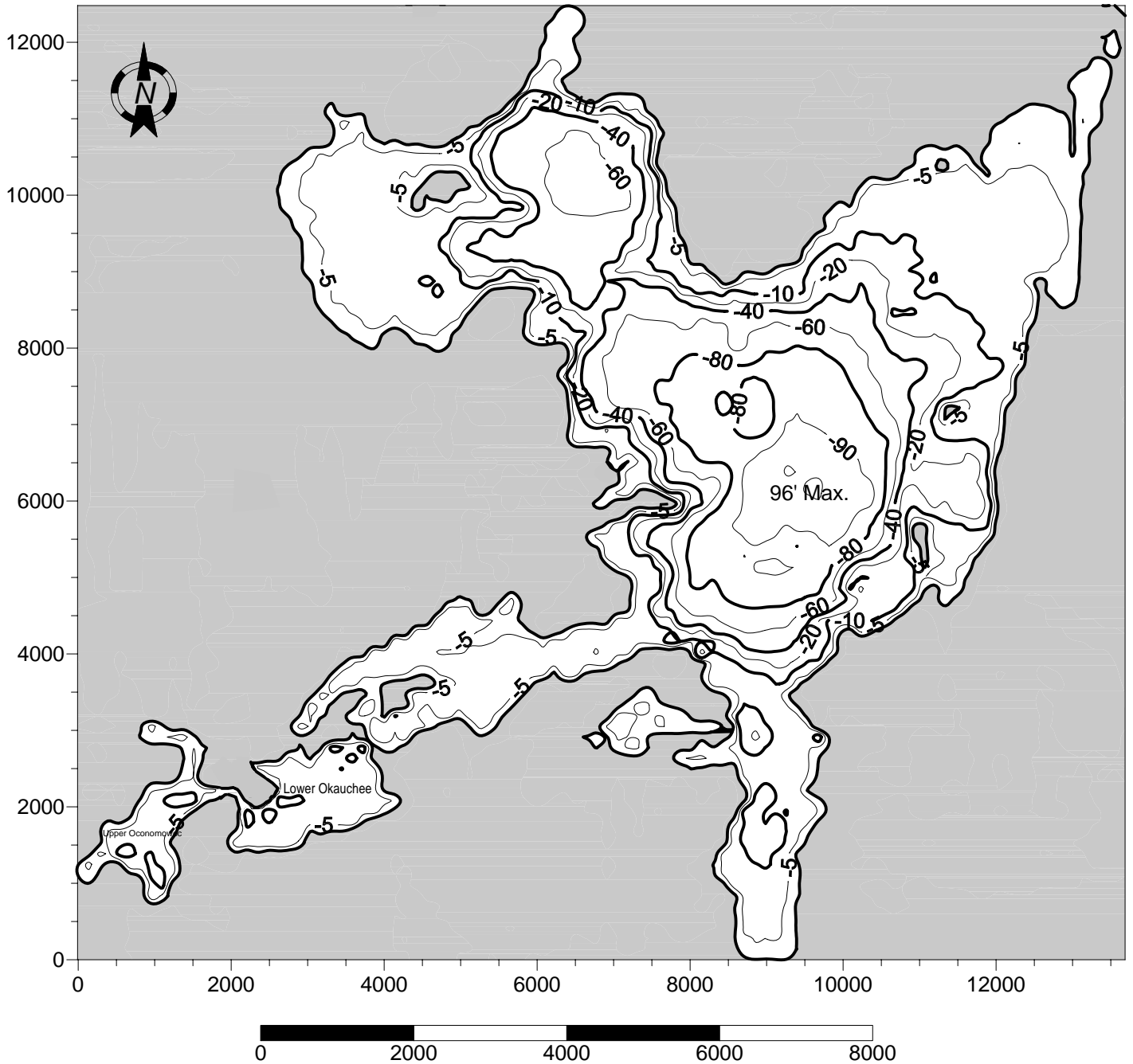


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