

Bathymetric (Depth) Maps of Selected Indiana lakes

The staff of the Lake and River Enhancement Section (LARE) of the Division of Fish and Wildlife, Indiana Department of Natural Resources have completed vegetation and bathymetric surveys on selected lakes of northern Indiana starting in 2007, using hydroacoustic technology. Surveys were completed using the Biosonics DT-X™ Echosounder and Visual Acquisition 5.0 Software. This equipment provides data images and reports regarding depth and vegetation measurements within a body of water. EcoSAV 2.0 was used to quantify plant data by analyzing the data collected and stored by the echosounder system. EcoSAV is used to process the digital echo signal to extract submerged aquatic vegetation (SAV) information. The DT-X system consists of a surface unit (echosounder), digital transducers, a Global Positioning System (GPS), and laptop computer which allow the user to control settings and functions of the surface unit and runs the software system enabling data collection. This has proved to be an effective way to study various habitat influences as well as map and monitor important physical and seasonal habitat parameters such as bathymetry, bottom character, and aquatic vegetation distribution.

Hydroacoustic technology has become important for assessing lake ecosystems, monitoring fish movement, and lake and stream health. The hydroacoustic equipment operates from a slow-moving boat and records bottom depth, submerged vegetation height, and submerged vegetation cover. This information was coupled with geographic location coordinates from a Global Positioning System (GPS) satellite, and stored together in digital files, representing submerged aquatic vegetation (SAV) status at points along transect lines. Adequate spatial interpolation was used to present the SAV information, including cover, height, and water depth, as spatially continuous data for mapping bathymetry and littoral zones, which are important habitats for fish communities. The data collected is a result of recent technology that makes data collection more efficient, thus allowing the collection of many more data points than was possible with previous methods. Previous attempts to map these lakes took place in the 1950's when technology limited the amount of data that could be efficiently collected. Additionally, historical data on depths for some Indiana Lakes that was collected in the 1920's is on file in the Indiana State Library's historical archives.

These maps are accurate to the best of our ability and within the limits of current technology. Staff gauge level is a measurement of the actual lake level and is noted on the maps of those lakes that have gauges. Depths acquired on lakes without a staff gage do not have water level compensation during data processing and are assumed to be close to or at legal level during the time of survey. Visual estimation of lake level was obtained and noted on the maps of those lakes without gauges. Mapped depths at these lakes are not deemed to be precise, but an estimation of the actual level and depth of the lake at the time of survey.

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