

SHOALS Completes the Lake Tahoe Jigsaw

Lake Tahoe, one of North America's deepest, clearest lakes is an environment in peril. While exquisite scenery, abundant outdoor activities, and world-class entertainment have made the region a popular recreation and vacation



destination, decades of development and exploitation has caused significant, perhaps, irreparable harm, and lake clarity has declined by 30% in just the last 30 years. In 1997, a series of public workshops, culminating in a Presidential Forum attended by President Clinton, identified a number of measures required to prevent the permanent loss of the lake's deep blue clarity. As a result an Executive Order established a Federal Interagency Partnership to work with State and local entities to preserve this national treasure.

One member of this partnership, the US Geological Survey mapped the deeper portions of the lake (over 1600 feet deep) in 1998, using a multi-beam sonar system, but this technology is ineffective in the critical shallow water margins from which unwanted nutrients entering the lake are thought to originate. Consequently, another member of the partnership, Sacramento District of the U.S. Army Corps of Engineers, recently brought in the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) system to survey these missing areas and complete the data set that would provide a complete map of the lake subsurface. This combined Corps/USGS data will be instrumental in understanding the cause and effect of natural and manmade lakeshore erosion processes.

SHOALS is a state-of-the-art technology that uses an airborne mounted laser to determine the water depth by measuring the time difference in laser energy returns from the water surface and the lake bottom. A world leader in airborne lidar hydrography, SHOALS is owned by the U.S. Army Corps of Engineers and administered by the Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX), a partnership with the Naval Meteorology and Oceanography Command, located at the Mobile District Office. The system is operated by international survey leader John E. Chance & Associates, Inc., a member of the multi-national Fugro group of companies with 200 offices in 45 countries.