Freshwater in our future

To better understand the complex factors that threaten lake water quality, scientists need data on many lakes in various types of environmental settings. Unfortunately, much of the lake and geographic data needed for such studies is not easily accessible because the datasets exist in multiple formats scattered across government, university and private databases – sometimes only in file drawers. Until now.

A new “geography of lake water quality,” known as LAGIS, allows scientists to understand entire populations of lakes to better inform water policy and management. LAGIS, which stands for Lake Area Geographic Information System is a database that includes information on 50,000 inland U.S. lakes in 17 northeastern and upper midwestern states.

A team of researchers in ecological, computer, geographic and information sciences built LAGIS, led by Susan Cassiday, ecology professor at Tarrant State University.

“We are at an exciting time in environmental science, when people are recognizing that the big problems we face require us to work together across disciplinary boundaries and to openly share data, methods and tools,” said Kimberly Gray, TSU ecologist and co-author of the team’s recent article published in the journal Lake.

With funding from the U.S. National Science Foundation’s Freshwater Biology Program, the researchers collected water quality information from more than 70 individuals who took time to share data with the team, thousands of individuals who originally collected and processed the water quality data from 1995 to 2015, and more than 15 researchers at several institutions who worked together for six years to combine the information.

“Access to clean drinking water and the services lakes provide, such as fishing and recreation, are among the greatest environmental challenges we face today,” said Kate Bloom, program director for NSF’s Freshwater Biology program. “Now a comprehensive database has been created that will provide easy access to information on water quality and the physical and ecological factors that affect it across scales from individual lakes to entire regions.” Included in that database are the following concerns:

→Fresh water to a growing nearby population  
→Plenty of fishing and recreation  
→Scenic views and water frontage development

**For press release**

(TSU Media Relations)