

## GIS Project Proposal

Title: Water Quality and Flow Characteristics of Barton Springs and Surrounding Area

Background: Barton Springs is a valuable resource in the Austin area, both in terms of recreational and ecological value. The water that flows through the springs is completely from groundwater, having originally fallen as precipitation within the aquifer's recharge zone. Increased urbanization in the area has caused concern about the potential for deteriorating water quality. This project will attempt to create a map that depicts changing water quality along with the flow characteristics of the spring and surrounding area.

Approach: Historical census and land cover data will be used to see the urbanization trends in the area. Topographical data will be used along with stream flow from surrounding USGS gages, and precipitation data to depict the flow conditions. Layers for watershed boundaries, the Edwards aquifer, and flowlines in the area will also be added to the map. Because of Barton Springs' importance, several agencies have performed water quality monitoring at and around the springs. For simplification, only USGS water quality data will be added to the map. Water quality data will be downloaded from the USGS NWIS site for several time periods over the years to depict how it has been changing. The parameters that will be mapped are discharge, water level, conductivity, temperature, DO, pH, orthophosphate, phosphorous, nitrate plus nitrite, nitrate, ammonia, and fecal coliform.



Data:

Historical census data: <http://www.nhgis.org/>

Topographical data: <http://www.tnris.org/> and

<http://www.capcog.org/information-clearinghouse/geospatial-data/>

Precipitation: <http://www.twdb.state.tx.us/mapping/gisdata.asp>

USGS water quality and stream gage data: <http://waterdata.usgs.gov/tx/nwis/>