This data set compiles 43 years of limnological data from Missouri lakes and reservoirs collected by the University of Missouri Limnology Lab. Although the dataset includes information from nine different projects, the bulk of the data (~75%) come from the Statewide Lake Assessment Project and the Lakes of Missouri Volunteer Program, both of them funded primarily by Missouri Department of Natural Resources. The Statewide Lake Assessment Project began in 1978 sampling a small set of reservoirs. In 1989 the assessment expanded to include regular annual summer monthly collections between May and August, though monitoring was extended for some reservoirs in certain years. We monitored 240 lakes to create the dataset, which represents over 2600 lake-years. The Lakes of Missouri Volunteer Program began in 1992 monitoring 5 lakes and reservoirs and has expanded to 121 sites on 65 waterbodies. Volunteer community scientists monitor their respective sites approximately 8 times per season (April through September). This dataset represents over 15,000 sample events. Lake Ozarks is a long-term (1976-2014) spatial examination of a single large reservoir during summer. Table Rock Monitoring is another multi-year (1995-2009) spatial examination of a large reservoir, but includes year-round data. The rest of the projects included in the dataset monitored Missouri lakes and reservoirs various intervals including daily (Woodrail, Daily), weekly (icubed), and biweekly (High Res).