Appendix 6. Evaluation of logistic regression model performance for models with turbidity or chlorophyll fluorescence as explanatory variables at the Wamego and De Soto sites on the Kansas River, Kansas

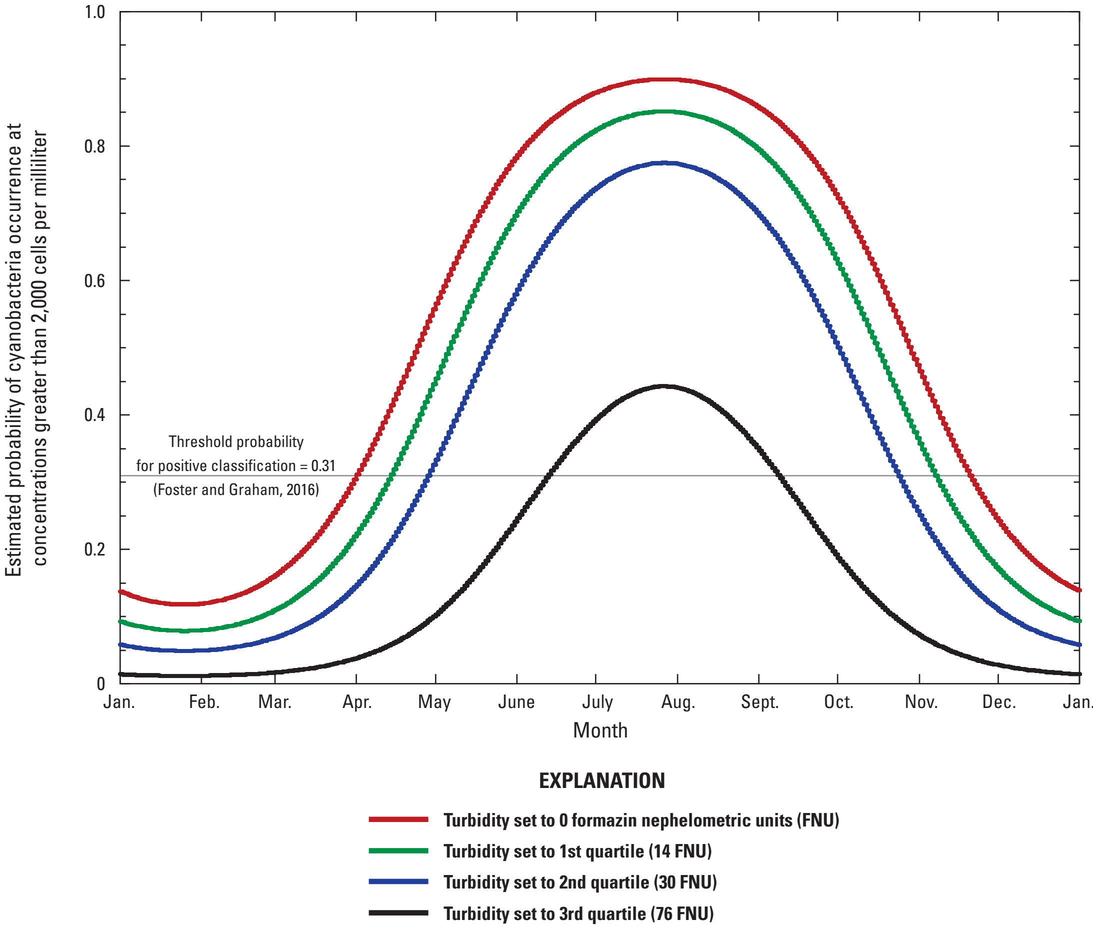
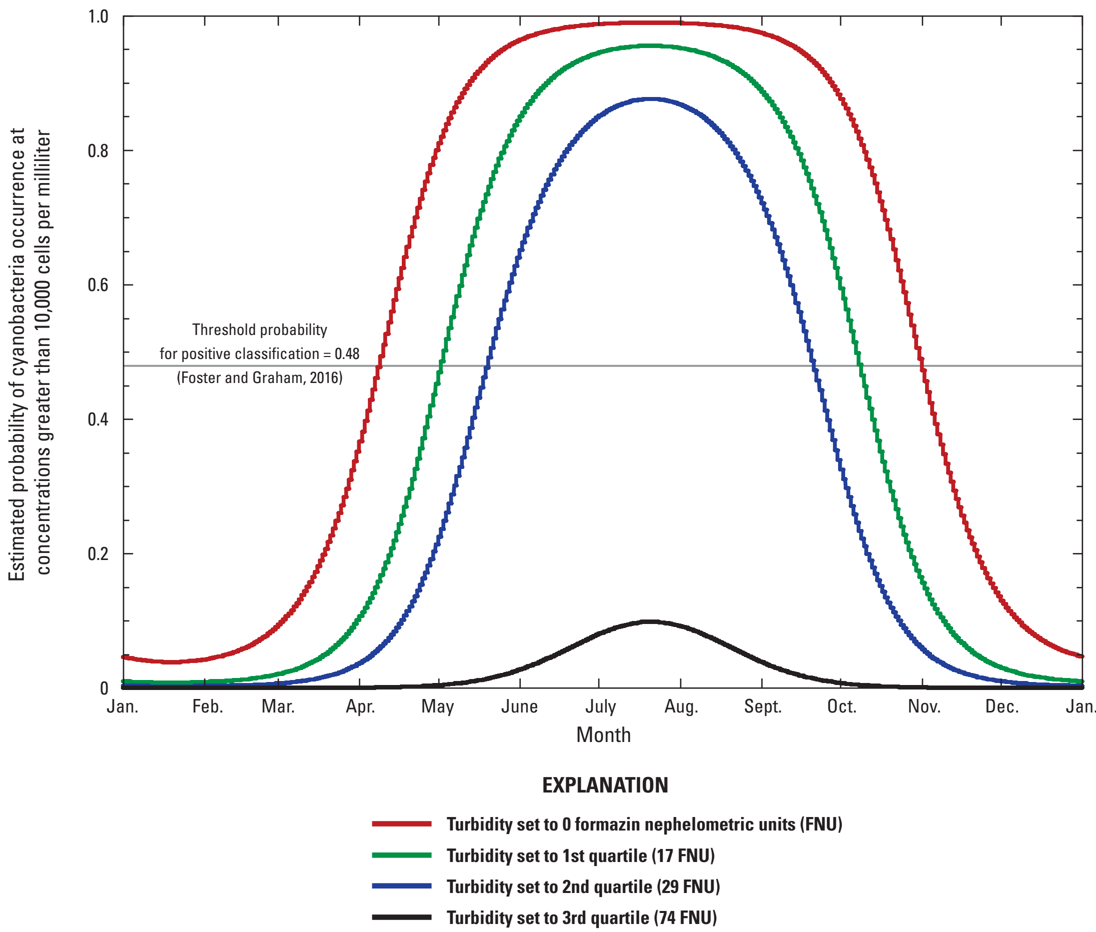


Figure 6.1. Estimated probability of cyanobacteria occurrence at concentrations greater than 2,000 cells per milliliter (cells/mL) at the Kansas River at Wamego site during a calendar year with turbidity held constant using quartiles (quartile values were calculated using continuous turbidity data collected from July 2012 through September 2016).



Model form: Logit P=0.724-1.254sin(2πD/365)-3.725cos(2πD/365)-0.0928(Turb); where P=probability of cyanobacteria presence (>10,000); Turb=turbidity in formazin nephelometric units (FNU); D=julian day of year; and Sin & Cos=seasonality component (Foster and Graham, 2016).

Figure 6.2. Estimated probability of cyanobacteria occurrence at concentrations greater than 10,000 cells per milliliter (cells/mL) at the Kansas River at De Soto site during a calendar year with turbidity held constant using quartiles (quartile values were calculated using continuous turbidity data collected from July 2012 through September 2016).

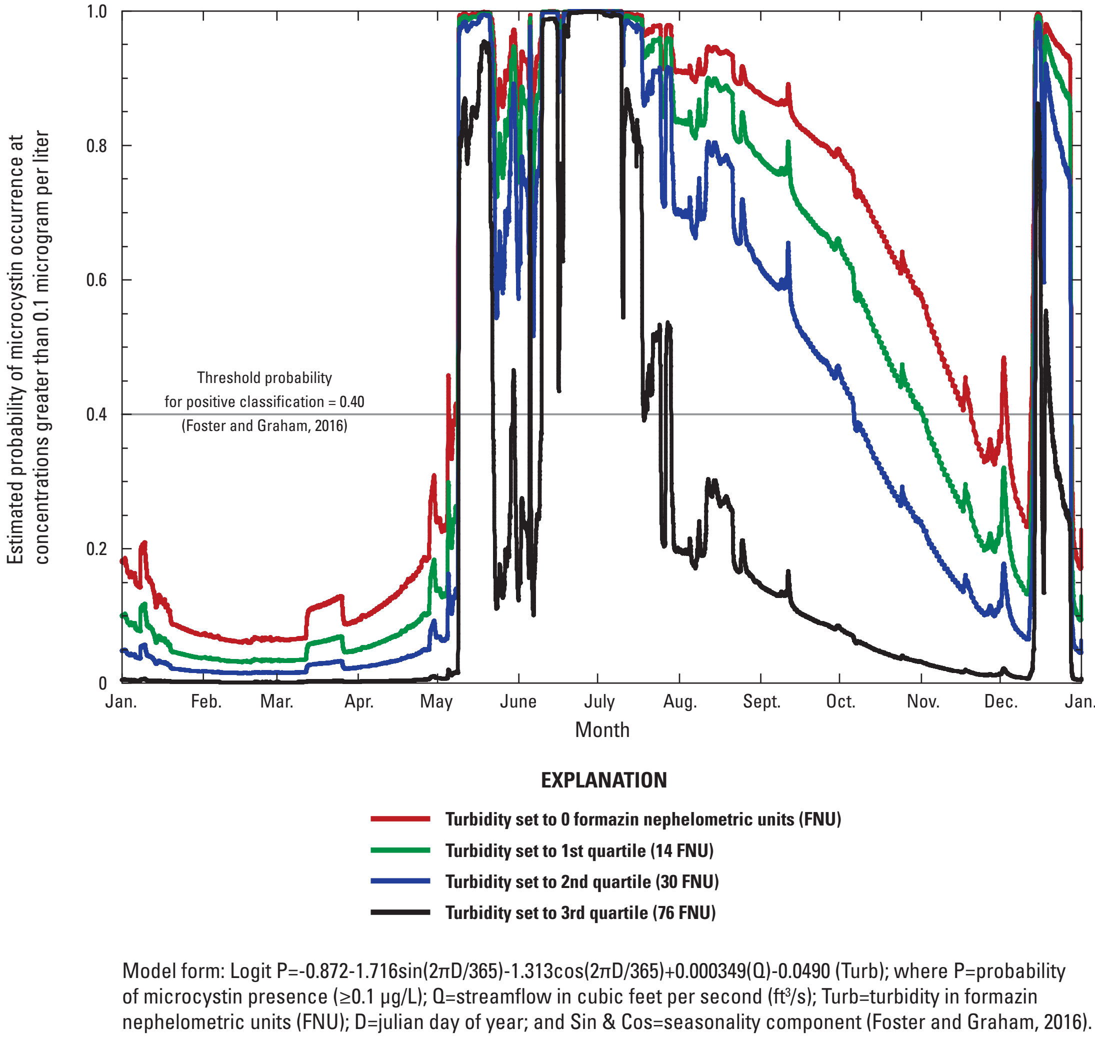


Figure 6.3. Estimated probability of microcystin occurrence at concentrations greater than 0.1 microgram per liter (μg/L) at the Kansas River at Wamego site during a typical year (2015) with turbidity held constant using quartiles (quartile values were calculated using continuous turbidity data collected from July 2012 through September 2016).

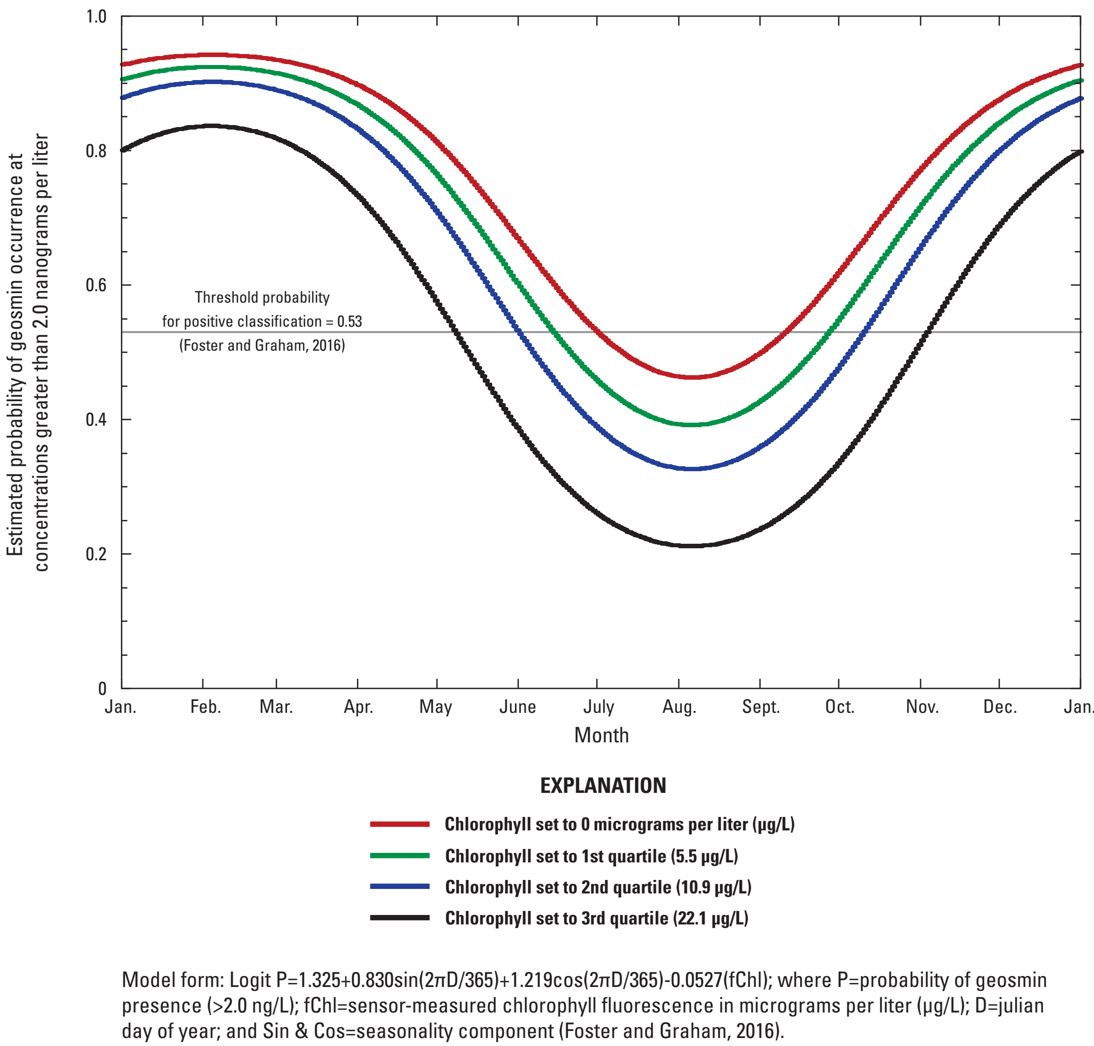


Figure 6.4. Estimated probability of geosmin occurrence at concentrations greater than 2.0 nanograms per liter (ng/L) at the Kansas River at Wamego site during a calendar year with chlorophyll held constant using quartiles (quartile values were calculated using continuous chlorophyll data collected from July 2012 through September 2016).

References Cited

Foster, G.M., and Graham, J.L., 2016, Logistic and linear regression model documentation for statistical relations between continuous real-time and discrete water-quality constituents in the Kansas River, Kansas, July 2012 through June 2015: U.S. Geological Survey Open-File Report 2016–1040, 27 p. [Also available at https://doi.org/10.3133/ofr20161040.]