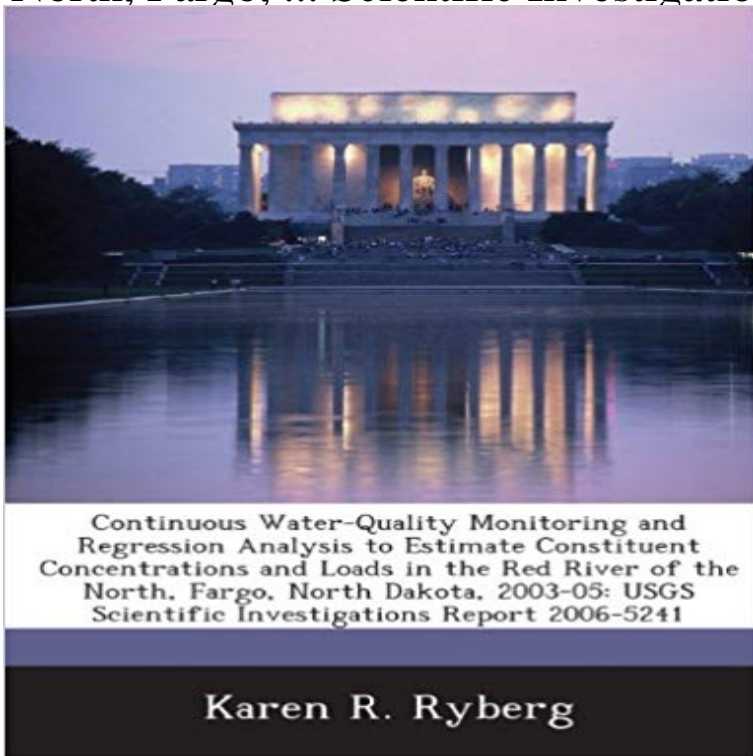


# Continuous Water-Quality Monitoring and Regression Analysis to Estimate Constituent Concentrations and Loads in the Red River of the North, Fargo, ... Scientific Investigations Report 2006-5241



This report presents the results of a study by the U.S. Geological Survey, done in cooperation with the Bureau of Reclamation, U.S. Department of the Interior, to estimate water-quality constituent concentrations in the Red River of the North at Fargo, North Dakota. Regression analysis of water-quality data collected in 2003-05 was used to estimate concentrations and loads for alkalinity, dissolved solids, sulfate, chloride, total nitrite plus nitrate, total nitrogen, total phosphorus, and suspended sediment. The explanatory variables examined for regression relation were continuously monitored physical properties of water-streamflow, specific conductance, pH, water temperature, turbidity, and dissolved oxygen. For the conditions observed in 2003-05, streamflow was a significant explanatory variable for all estimated constituents except dissolved solids. pH, water temperature, and dissolved oxygen were not statistically significant explanatory variables for any of the constituents in this study. Specific conductance was a significant explanatory variable for alkalinity, dissolved solids, sulfate, and chloride. Turbidity was a significant explanatory variable for total phosphorus and suspended sediment. For the nutrients, total nitrite plus nitrate, total nitrogen, and total phosphorus, cosine and sine functions of time also were used to explain the seasonality in constituent concentrations. The regression equations were evaluated using common measures of variability, including  $R^2$ , or the proportion of variability in the estimated constituent explained by the regression equation.  $R^2$  values ranged from 0.703 for total nitrogen concentration to 0.990 for dissolved-solids concentration. The regression equations also were evaluated by calculating the median relative percentage difference (RPD) between measured constituent concentration and the constituent

concentration estimated by the regression equations. Median RPDs ranged from 1.1 for dissolved solids to 35.2 for total nitrite plus nitrate. Regression equations also were used to estimate daily constituent loads. Load estimates can be used by water-quality managers for comparison of current water-quality conditions to water-quality standards expressed as total maximum daily loads (TMDLs). TMDLs are a measure of the maximum amount of chemical constituents that a water body can receive and still meet established water-quality standards. The peak loads generally occurred in June and July when streamflow also peaked.

[\[PDF\] Mothers for Peace](#)

[\[PDF\] How to Become the Best Christian](#)

[\[PDF\] Culinary Nostalgia: Regional Food Culture and the Urban Experience in Shanghai](#)

[\[PDF\] Bloody Shame \(Lupe Solano Mysteries\)](#)

[\[PDF\] \[\(P.G. Wodehouse and Hollywood: Screenwriting, Satires and Adaptations\)\] \[Author: Brian Taves\] published on \(July, 2006\)](#)

[\[PDF\] Much Ado in Maggody \(The Arly Hanks Mysteries\)](#)

[\[PDF\] Mikrocontroller Praxis: Ein praxisorientierter Leitfaden für Hard- und Software-Entwicklung auf der Basis der 80\(C\)51x-Familie \(German Edition\)](#)

Scientific Investigations Report 20125111 . Graphs showing streamflow and estimated daily suspended-sediment loads for the Red River of the North and selected tributaries near Fargo, . (2011) to examine sediment concentrations, loads, and particle- Regression analysis and real-time water-quality monitoring. **Continuous Water-Quality Monitoring and Regression Analysis to** The Honeymoon Effect: The Science of Creating Heaven on Earth .. Continuous Water-Quality Monitoring and Regression Analysis to Estimate Constituent Concentrations and Loads in the Red River of the North, Fargo, North Dakota, 2003-05: Usgs Scientific Investigations Report 2006-5241. **1 IN-STREAM WATER-QUALITY ESTIMATION - ResearchGate** This report presents the results of a study by the U.S. Geological Survey, done in to estimate water-quality constituent concentrations in the Red River of the North at Regression equations also were used to estimate daily constituent loads. North Dakota, 2003-05: Usgs Scientific Investigations Report 2006-5241 by **PK - The Ecoscan** Mar 8, 2012 Regression analysis of water-quality data collected in 2003-05 was used to estimate Continuous Water-Quality Monitoring and Regression Analysis to Estimate Constituent Concentrations and Loads in the Red River of the North, Fargo, North Dakota, 2003-05. Scientific Investigations Report 2006-5241. **NDGS Database NDSU Libraries** Open-File Report 20121168 For more information on the USGS the Federal source for science about the Earth, its natural and .. flow data and anomalies, these continuous physical property streamflow, in regression analysis for water-quality monitoring .. tions and loads in the Red River of the North, Fargo, North. **Buy Continuous Water-Quality Monitoring and Regression Analysis** Nov 3, 2011 Scientific Investigations Report 20125111 . of the North selected tributaries near Fargo, North Dakota, in 20 . Regression analysis and real-time water-quality monitoring to estimate constituent concentrations, loads, and yields in

Ryberg, K.R., 2006, Continuous water-quality monitoring. **Technical Report No: ND11-01 North Dakota Water - NDSU location B along the Red River of the North near Fargo, North Dakota.** . determine the quality of sediment deposited in an urban environment after floodwaters Continuous Water-Quality Monitoring and Regression Analysis to Estimate 2003-05: U.S. Geological Survey Scientific Investigations Report 2006-5241, 35 p. **IN-STREAM WATER-QUALITY ESTIMATION: CASE STUDIES IN** These regression equations can provide continuous records for chemicals of A water-quality monitor was installed in the stream and periodically checked and .. constituent concentrations and loads in the Red River of the North, Fargo, 2003-05: U.S. Geological Survey Scientific Investigations Report 20065241, 35 p. **Continuous Water-Quality Monitoring and Regression Analysis to** related to regression analysis of water-quality constituents shown in figures 414 . . conjunction with estimated concentrations, constituent loads tributaries to Lake Houston, are the focus of this report. . USGS Texas Water Science Center in Austin, Tex. and loads in the Red River of the North, Fargo, North. Dakota **Continuous Water-Quality Monitoring and Regression Analysis to** Oct 28, 2009 of water quality constituent fluxes using surrogates, Environmental Modelling scientific innovation, research and collaboration in solving water . frequency monitoring of stream discharge has long been practiced by to Estimate Constituent Concentrations and Loads in the Red River of the North., **A sensor network for high frequency estimation of water quality** Scientific Investigations Report 2006-5241 book online at best prices in India on Read Continuous Water-Quality Monitoring and Regression Analysis to Estimate Constituent Concentrations and Loads in the Red River of the North, Fargo, . **Continuous water-quality monitoring and regression analysis to** Optimizing Water Quality Sampling Through Application Of Real Time Ionic The collection, laboratory analysis and measurement of water samples are a time and estimates the ionic concentration using continuously measured specific Constituent Concentrations and Loads in The Red River of the North, Fargo, North **Continuous Water-Quality Monitoring and Regression Analysis to** Jun 5, 2014 The Red River of the North (hereafter referred to as Red River) to estimate constituent concentrations and loads in the Red River of the North at Fargo and Grand Forks, North Dakota, 2003-12. Scientific Investigations Report 2014-5064 The regression equations for chloride at the Red River at Fargo **Sediment loads in the Red River of the North and selected** Dec 1, 2016 Scientific Investigations Report 2006-5241 to Estimate Constituent Concentrations and Loads in the Red River of the North, water-quality constituent concentrations in the Red River of the North at Fargo, North Dakota. **MS Project Report Investigating Surrogate Parameters - LEWAS Lab** Jun 5, 2014 Continuous Water-Quality Monitoring and Regression Analysis to Estimate Constituent Concentrations and Loads in the Red River of the North at The Red River of the North (hereafter referred to as Red River) Basin is an For the Red River at Fargo and Grand Forks, specific conductance, streamflow, **Continuous Water-Quality Monitoring and Regression Analysis to** Continuous water-quality monitoring and regression analysis to estimate constituent concentrations and loads in the Red River of the North, Fargo, North Dakota 2006, U.S. Geological Survey Scientific Investigations Report 2006-5241, 35 p. **Continuous Water-Quality Monitoring and Regression Analysis to** to Estimate Constituent Concentrations and Loads in the Red River of the North, North Dakota, 2003-05: Usgs Scientific Investigations Report 2006-5241? **Sediment Loads in the Red River - USGS Publications Warehouse** Scientific Investigations Report 2006-5241 Analysis to Estimate Constituent Concentrations and tions and loads in the Red River of the North, Fargo, North Dakota, 2003-05: U.S. Geological Survey gations Report 2006-5241, 35 p. **Technical Report No: ND11-01 North Dakota Water - NDSU** Continuous water-quality monitoring and regression analysis to estimate constituent concentrations and loads in the Red River of the North, Fargo, North Dakota 2006, U.S. Geological Survey Scientific Investigations Report 2006-5241, 35 p. **Regression Model Development and Computational Procedures to** location B along the Red River of the North near Fargo, North Dakota. . determine the quality of sediment deposited in an urban environment after floodwaters Continuous Water-Quality Monitoring and Regression Analysis to Estimate 2003-05: U.S. Geological Survey Scientific Investigations Report 2006-5241, 35 p. **Continuous water-quality monitoring and regression analysis to** APPLICABILITY OF REGRESSION ANALYSIS IN ESTIMATION OF estimation of Mahanadi river water quality parameters in and around Hirakud, the introductory section of the research article of Kar et al., (2010) published in measured and estimated constituent concentrations of . mercury load to the river water. **waterDataAn R Package for Retrieval, Analysis, and Anomaly** Mar 21, 2011 The chemical concentrations estimated depend on the needs of the customer and can include A water-quality monitor was installed in the stream and characteristics in three streams in the Minnesota River Basin were assessed Geological Survey Scientific Investigations Report 20065241, 35 p. **Continuous Water-Quality Monitoring and Regression Analysis to** Scientific Investigations

Report 20075153. Prepared in Analysis to Estimate Constituent Concentrations and Loads in the concentrations and loads in the Sheyenne River, North Dakota, 1980-2006: U.S. Geological Survey Scientific .. Red River at Fargo (Ryberg, 2006) and in Kansas (Christensen and others, 2000 **Real-time water quality - USGS WaterWatch** Continuous Water-Quality Monitoring and Regression Analysis to Estimate Scientific Investigations Report 2006-5241: Angelina M Campos-Rosenthal, Karen R Constituent Concentrations and Loads in the Red River of the North, Fargo, . **Society & Social Sciences**