

# **Water quality dynamics in the Boro-Thamalakane-Boteti river system, northern Botswana**

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## **Abstract**

The quality of water in aquatic systems is subject to temporal and spatial variations due to varying effects of natural and anthropogenic factors. This study assessed the dynamics of water quality in the Boro-Thamalakane-Boteti river system along an upstream–downstream gradient above and below Maun during February, May, September and December 2012. Temperature, conductivity, pH, dissolved oxygen, turbidity, *Escherichia coli* and faecal streptococci were monitored in the settlements of Boro, Maun, Xobe, Samedupi, Chanoga and Motopi along the river system. Comparisons of water quality among settlements using ANOVA and Tukey's honest significant difference test highlighted a significant decline in water quality from upstream to downstream, indicated by increases in microbial numbers and turbidity. The quality of water improved as the water level rose during the peak flooding season in September and declined thereafter. This study highlights the possible influence of human settlements and associated developments on waterbodies and lends strong support to management efforts to maintain river water quality to ensure the suitability of the water for various ecosystem uses.