

# Determination of sediment quality in the Nyl River system, Limpopo Province, South Africa

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## **Abstract**

The importance of wetland management and conservation is becoming more and more prevalent in the world today. It is thus important to determine baseline contamination values for wetlands to assist in making informed management decisions. Sediment from the Nyl River flood plain in the dry Limpopo Province was analysed using sequential extraction and ICP-MS to determine baseline metal concentrations, and bioavailability thereof. Eight heavy metal (Cu, Cd, Cr, Al, As, Zn, Mn, Pb) concentrations were determined and compared to sediment quality guideline values to assess sediment quality. Fractionation of the elements was also noted to assess the bioavailability of the metals. The results indicated that the sediment is of a fair quality in comparison to the sediment quality guideline values. They also indicate that the metals will only become available in the presence of strong reducing agents as most of the metal concentrations were recorded in the 4<sup>th</sup> and 5<sup>th</sup> fractions obtained from the Tessier sequential extraction of the sediment samples. The study concluded that the sediment is of a fair quality and that it poses little potential threat to the system.

**Keywords:** sequential extraction, Nylsvley, wetlands, sediment quality, metals