



Use of tracers in the rapid assessment of hydrological processes in un-gauged rivers and wetlands in Kasanka National Park, northern Zambia.

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The rivers and wetlands of Kasanka National Park comprise a range of habitats with internationally important conservation value; particularly notable are large populations of Straw-coloured fruitbats (*Eidolon helvum*) and the aquatic antelope Sitatunga (*Tragelaphus spekii*). These habitats and species provide the basis for a significant levels of ecotourism in the National Park, which in term underpins an important source of local employment in one of the poorest parts of Africa. The main river systems at Kasanka have their headwaters outside of the Park's protected area and are threatened by proposed agricultural intensification, reservoir development and population re-settlement. This will almost certainly have adverse impacts on the quantity and quality of river flows that sustain many of the Park's wetland habitats and valuable species. This poster will present the preliminary results of research funded by the UK Darwin Initiative, which aims to provide a hydrological management plan from the Park. Previous hydrological monitoring has been minimal and the major challenge is to develop an adequate conceptualization of the hydrological processes which sustain the main wetland habitats. This assessment must proceed rapidly if the Park is to be able to negotiate adequate environmental flows from upstream catchment areas as they experience major land use change. Basic monitoring of river, lake and groundwater levels has been supplemented by extensive tracer surveys of the Park's major rivers and wetlands. These have used geochemical tracers to identify water sources and stable isotopes to assess the nature and timing of seasonal patterns of water movement. This is being combined with mapping of hydrologically significant landscape characteristics (topography, soils etc.) to give an overall understanding of key hydrological

processes at Kasanka at a range of spatial and temporal scales. The poster will also examine the how such information can be used to underpin management decisions.