

# MONITORING OF THE BUFFALO RIVER

30 Oct – 01 Nov 2007



**water & forestry**

Department:  
Water Affairs and Forestry  
REPUBLIC OF SOUTH AFRICA



**Prepared by:**

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## **Introduction**

Water quality samples were taken only at the RHP sites where also biomonitoring was conducted. These sites are : Above Maiden Dam, Nxamkwana, Horseshoe Bend, Ngqokweni, Pirrie Mission, Buffalo Pass and Lonsdale bridge at Yellowwoods.

## **Team**

N. Njuze, U. Mgidlana, B. Sidawu, N. Macozoma and E. Weni conducted the monitoring from the 30<sup>th</sup> of October – 1<sup>st</sup> of November 2007.

## **Findings/Results**



**Fig 1.**The team conducting SASS 5, using invertebrates



**Fig 2. No water flowing over the weir wall at Mgqakhwebe.**



**Fig 3. Irrigation scheme and fertilizers nearby Horseshoe bend.**

Parameter	Above Maiden Dam	Horseshoe Bend	Pirrie Mission	Ngqokweni	Lonsdale bridge at Yellowwoods	Nxamkwana	Buffalo Pass	Qongqotha
Dissolved Oxygen (ppt)								
Temperature (°C)								
Conductivity (mS)								
pH								
Time								
No of Taxa	13	33	32	14	15	20	22	
SASS Score	69	201	167	57	83	100	115	
ASPT	5.3	6.1	5.2	4.1	5.5	5	5.2	
Fish caught	2 <i>Barbus anoplus</i>	-	-	-	9 <i>Barbus anoplus</i> 1 <i>Tilapia sparammaai</i> 1	-		No fish sampling due to absence of flows.

Key : ASPT interpretation

< 5 = Poor (highly impacted site)

5-5.9 = Fair (Impacted site)

6-6.9 = Good site

≥ 7 = Natural site

## **Discussion**

The SASS5 results indicate that there is no natural condition in any of the sites. Conditions range from poor to good, and Horseshoe Bend being good. The water at this latter site was clear and there was *Prosopitostomatidae* (water spes) which does not tolerate the polluted environment. Algae and low water flows were also noted in this stream and the causes may be fertilizers applied to nearby crop fields and irrigation scheme, respectively. The livestock manure also contributes to algal bloom.

Ngqokweni is impacted as it is in a poor condition. Algal bloom was noted at Lonsdale Bridge and some signs of waste dumping into the stream were visible. The poor quality at Ngqokweni can be attributed to the raw effluent (sewerage, industrial discharges including chemicals and soap) that is directly discharged into the stream. Lots of *Planaria* (flatworms) and *Hirudinea* (leeches) were observed in this site. Although these two species dwell in 'clean' water, they also thrive in polluted waters as they can tolerate pollution. We also found an uncommon Hydrophilid larvae species at Yellowwoods.

## **Conclusions and recommendations**

Buffalo River is generally in fair conditions. The rain has not fallen for sometime before this sampling, hence low flows and fair conditions of the sites. The poor site can improve if the sign post citing "NO DUMPING" can be raised up at Lonsdale Bridge. Also if the raw effluent can be tested to comply with standards of effluent, the river health will improve.

Prepared by  
The Team  
05 November 2007

**P. Gasa-Lubelwana**

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MANAGER: WATER RESOURCE PROTECTION