

RIVER HEALTH PROGRAMME IN THE NORTH WEST PROVINCE

What is the River Health Programme?

- , It is a national programme co-ordinated by DWAF, DEAT, WRC designed to monitor the condition of rivers in South Africa using standardised bio-monitoring techniques.

What is biomonitoring?

- , Use of living organisms as biological indicators of ecosystem or environmental “health”.
- , Animals and plants provide a long-term integrated reflection of water quality and quantity, habitat quality and other environmental conditions

What is being monitored in the River Health Programme?

Indices of Ecosystem health

- , Fish (Fish Community Integrity Index)
- , Aquatic Invertebrates (South African Scoring System SASS4)
- , Aquatic Habitats (Integrated Habitat Assessment System IHAS)
- , Plants (Riparian Vegetation Index RVI)
- , Water flow (Hydrological Index)
- , Water quality (Dissolved Oxygen, pH, Conductivity, Temperature)
- , River channel condition (Geomorphological Index)

Advantages of biomonitoring

- , Detects changes in water quality e.g pollution from mining, industry and agriculture
- , Detects effects of changes in water flow e.g dams, bridges and forestry
- , Standardized method of comparison of water quality
- , Easy to use practical means of assessing water quality
- , Relatively cheap and quick
- , Can detect water quality changes which may be missed by chemical sampling
- , Non-destructive - animals returned live to water.

Disadvantages to biomonitoring

- , A fair amount of training is required
- , Can be open to subjective interpretation
- , Does not provide an exact figures of water quality parameters
- , Cannot pinpoint the exact cause of water quality problems
- , Has no legal standing

North West Rivers identified for River Health Programme

- , Groot Marico River**
- , Hex River near Rustenburg**
- , Elands River near Rustenburg**
- , Crocodile River downstream of Hartebeespoort Dam**
- , Mooi River near Potchefstroom**
- , Schoonspruit near Ventersdorp to Orkney**
- , Harts River from Lichtenburg to Spitzkop Dam**
- , the section of the Vaal River forming the boundary between the Free State and the North West.**
- , the dolomitic eyes or springs such as the Molopo, Groot Marico, Schoonspruit, Malmane and Wondergat Eyes.**

River Health in North West

Future plans

- , **Site selection and preliminary surveys and sampling of other key rivers by IWQS and ACE staff planned for 2001.**
- , **Rivers in the eastern region of the province are a high priority, particularly the Hex and Elands Rivers around Rustenburg.**
- , **There is potential to integrate the RHP in the eastern region with existing monitoring programmes being conducted by Magalies Water and the platinum mines and NECSA in Pelindaba.**
- , **Further SASS4 and Habitat Assessment training of three ACE biomonitoring teams.**
- , **There is a need to formalise the PIT and co-opt additional members from DWAF and the Marico Crocodile West CMA, Universities and industry.**
- , **Need to co-ordinate North West RHP activities with Gauteng (especially the biomonitoring of the Kromdraai and upper reaches of the Crocodile) and with the Northern Province (lower reaches of the Crocodile).**
- , **Hoping to begin regular biomonitoring (SASS & IHAS) of a number of catchments in the North West by the year 2001. These include: Hex, Elands, Groot Marico (Eastern Region), Schoonspruit, Mooi (Central Region), Harts Rivers (Central-Western Region).**

River Health in the North West Province

Progress thus far:

- , **Helicopter survey of Groot Marico, Hex and Elands Rivers for habitat integrity assessment and potential sampling sites in September 1999.**

- , **Four sites on the Groot Marico and two on the Hex were sampled in September 1999 with DWAF IWQS staff. SASS4, Habitat Assessments and Water Samples were taken.**
- , **Preliminary site assessment of the Elands River in March 2000.**
- , **Fifteen sites in the central region (Schoonspruit & Mooi River catchments) were sampled in May 2000 during an initial site selection process.**
- , **Three RHP biomonitoring teams (the PMT) have been formed comprising staff within the North West Dept. Agriculture, Conservation & Environment. Each team consists of four staff members. The teams are based in the Eastern, Central and Western regions of the province respectively.**
- , **Three training workshops have been held for North West Dept. Agriculture, Conservation & Environment RHP monitoring staff for SASS, IHAS and use of water quality instruments.**
- , **Most of SASS equipment, GPS's and Water Quality instruments obtained.**
- , **Rivers Database acquired (version 2).**
- , **North West RHP is now registered with the national Rivers RHP database.**
- , **Some promotion of the North West RHP through Elands and Molopo River Fora, Crocodile West Marico CMA, University of Potchefstroom, University of the North West.**

GUIDELINES FOR INTERPRETING TOTAL SCORES AND ASPT'S WITH RESPECT PREVAILING WATER QUALITY (CHUTTER, 1998):

Total Score	ASPT	Water Quality
>100	>6	water quality natural, biotype diversity high
<100	>6	water quality natural, biotope diversity low

>100	<6	borderline case between water quality natural and some deterioration in water quality, interpretation should be based on the extent by which Total Score exceeds 100 and ASPT < 6
50 - 100	<6	some deterioration in water quality
<50	variable	major deterioration in water quality

PRELIMINARY SASS RESULTS FOR GROOT MARICO AND HEKS RIVERS

SITE	Total Score	Number Families	ASPT
Groot Marico 1st site	182	25	7,28
Groot Marico 2nd site	101	19	5,32
Groot Marico 3rd site	224	34	6,59
Groot Marico 4th site	152	22	6,91
Hex River top site	91	17	5,35
Hex River lower site	71	17	4,18