

Focus on CSIR Research in Water Resources

The South African River Health Programme

In South Africa water is a scarce and precious commodity and efficient management of our water resources has a direct bearing on our standard of living and economic benefit.

In the early 90s the Department of Water Affairs and Forestry initiated the design of the River Health Programme (RHP) to monitor the health of rivers in South Africa. The RHP forms part of a bigger initiative, the National Aquatic Ecosystem Health Monitoring Programme which will eventually cover all surface water resources, including wetlands and estuaries. The information provided by the RHP helps water resource managers to understand how these aquatic ecosystems function and respond to multiple stressors and to subsequently make informed decisions that would ensure sustainable use of these resources.

Vision and objectives

The long term vision of the National Aquatic Ecosystem Health Monitoring Programme is to implement, maintain and improve biomonitoring for all inland aquatic ecosystems in South Africa and throughout the southern African region. The objectives of the RHP are to:

- Measure, assess and report on the ecological state and trends of aquatic ecosystems;
- Identify and report on problems



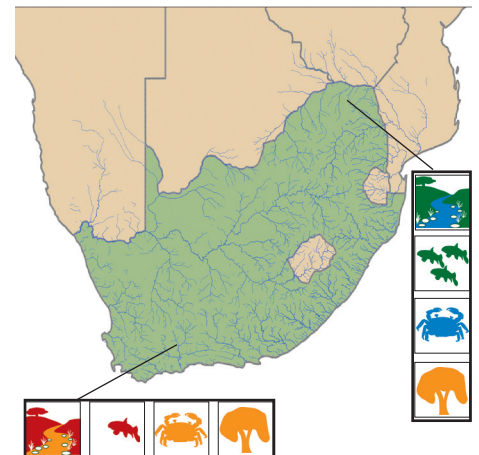
- areas; and to
- Create awareness by informing politicians, water resource managers, industry and the public about the human impact on aquatic ecosystems.

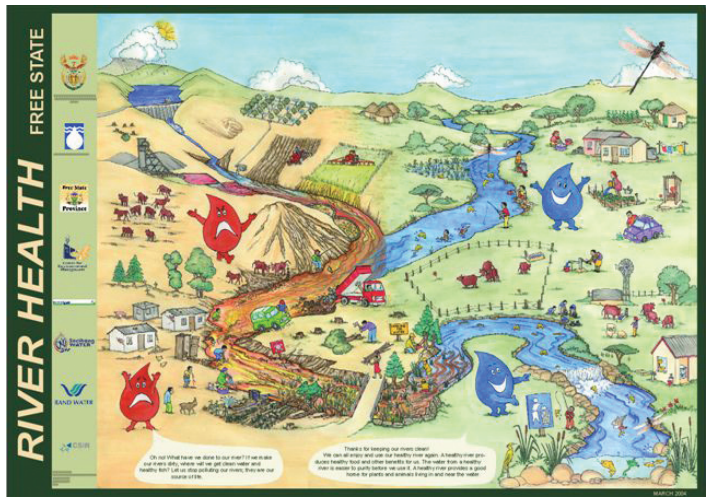
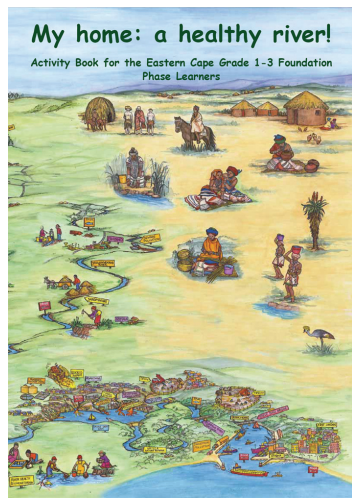
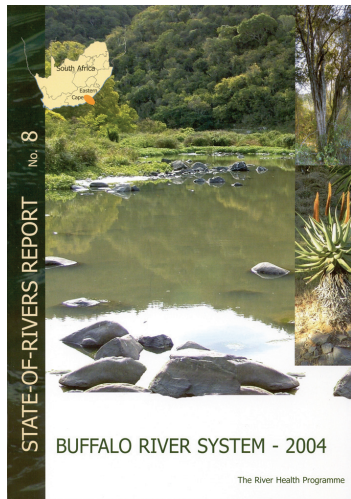
Collaboration

At a national level the Department of Water Affairs and Forestry, together with the Department of Environmental Affairs and Tourism and the Water Research Commission are the programme custodians while at a provincial level several organisations such as provincial government departments of the environment, conservation agencies, water boards and academic institutions take part in implementing the programme.

River Health Indices

Indicators of river ecosystem health are physical, chemical and biological characteristics of rivers that can provide quantitative as well as qualitative information on a river.





The River Health Programme focuses mainly on biological characteristics as indicators of river health, e.g. macro-invertebrates, fish communities and in-stream and riparian habitat. The rationale for a “biomonitoring programme” is that the measurement of only physical and chemical water quality variables cannot provide an accurate account of the overall condition of an aquatic ecosystem. For example, chemical monitoring alone is insufficient to detect the cumulative effects of multiple stressors on aquatic ecosystems. Since biological communities are adapted to certain environmental conditions, changes within their environment disrupt their composition and abundance characteristics in a measurable way. The River Health Programme aims to detect and interpret these integrative measures of ecosystem status. The selected river health indices

represent the larger ecosystem aspects that are feasible to measure by using standardised and proven scientific techniques. Data on each indicator group are collected, assessed and expressed in an easily understandable format.

River Health Categories

Once river health indices are measured, they need to be interpreted in such a way as to allow the health of monitoring sites to be compared, and also for comparison between river systems. For standardisation purposes, a river health categorisation is used where each of the river health categories is associated with a level of ecosystem health. The present health is a measure of the present ecological state of a certain river on its own does not add any value towards ensuring sustainable development of our river systems.

Communicating River Health Information

The RHP has a broad target audience ranging from politicians and the general public to water resource managers, all having different information requirements. The RHP information needs to be

communicated in the right way to the right people at the right time, to ensure maximum impact.

An example of communicating RHP information is the State-of-Rivers reports which have become the flagship product of the River Health Programme. These reports and other related communications have gained wide acceptance and popularity amongst managers, specialists and the general public.

State-of-Rivers reports are full-colour, brochure-style reports written in simple, accessible language. Other products that also convey the river health message are: posters translated into several of South Africa’s indigenous languages; non-verbal fun posters; and activity books.

RHP website

For more information on the South African River Health Programme, visit our website at: <http://www.csir.co.za/rhp>.

Contact details:

CSIR Natural Resources and the Environment

Ms Liesl Hill
Senior researcher

Tel +27 12 841 2639
Fax +27 12 842 7734
Email lhill@csir.co.za

www.csir.co.za