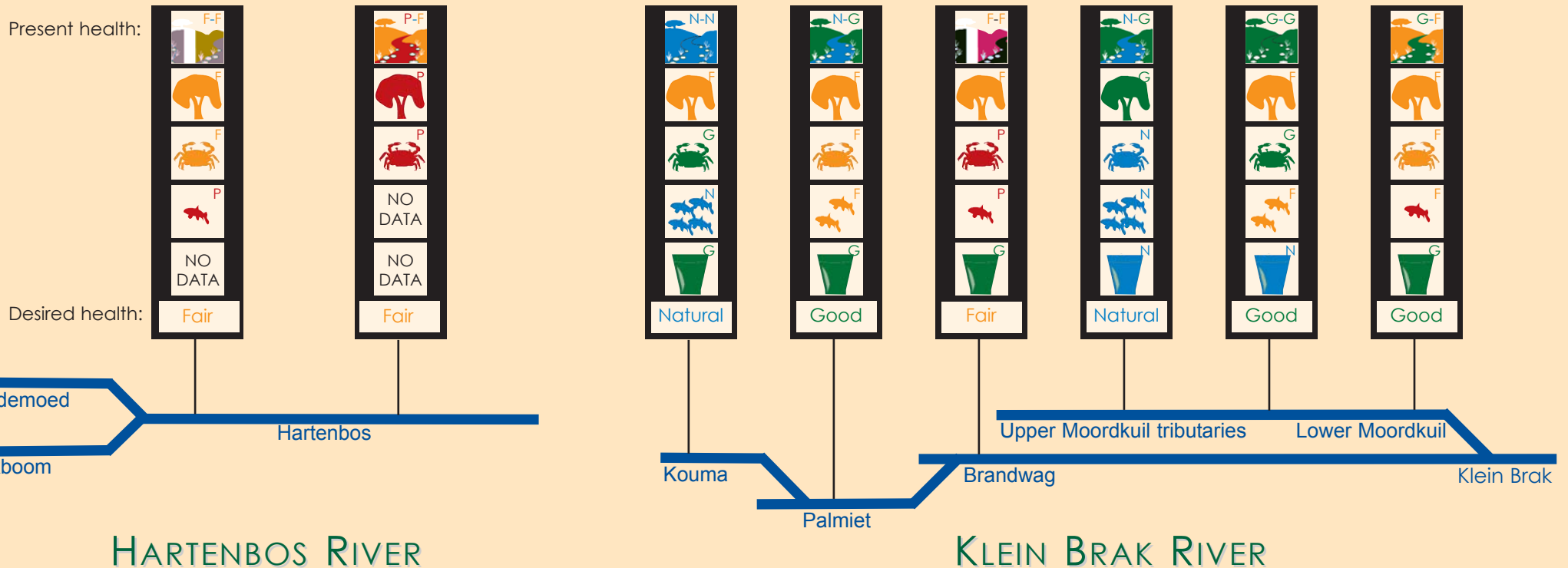
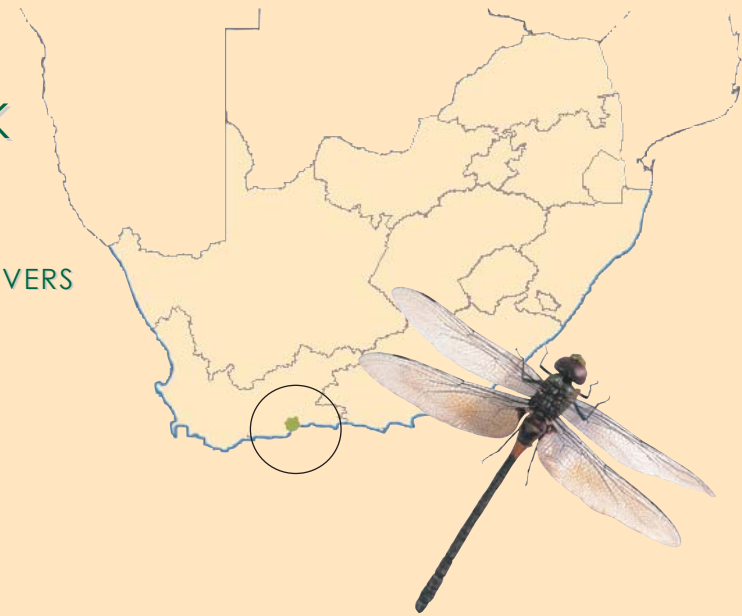
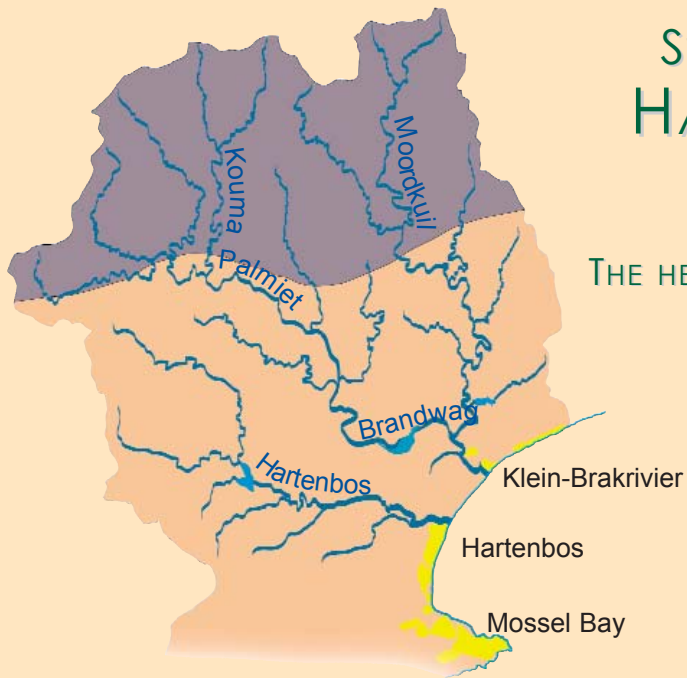


STATE-OF-RIVERS SUMMARY OF THE HARTENBOS AND KLEIN BRAK RIVER SYSTEMS - 2003

THE HEALTH OF THE HARTENBOS AND KLEIN BRAK RIVERS IS BASED ON FINDINGS OF SURVEYS CONDUCTED AS PART OF THE RIVER HEALTH PROGRAMME IN THE WESTERN CAPE. THE SURVEYS TOOK PLACE DURING 2001 AND 2002.



The **Hartenbos** and **Klein Brak** rivers are situated on the Cape south coast. They are typical coastal river systems draining the Table Mountain Sandstone formations of the Cape Fold Mountains.

Land-use in these catchments consists of nature conservation, plantation forestry, grazing, limited agriculture, game farming and small rural settlements. Klein-Brakrivier and Hartenbos are the only relatively large towns in the area. Other urban areas in the catchment are Ruitersbos (Forestry Station), Freimersheim and Brandwag.

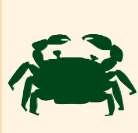
The RHP focuses on selected ecological indicator groups that are representative of the larger ecosystem and are feasible to measure. The following indices have been used to present data in an easy-to-understand format:



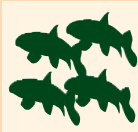
The Index of Habitat Integrity (IHI) assesses the impact of disturbances on the river bank and within the river (abstraction, river channel modification).



The Riparian Vegetation Index (RVI) measures changes (erosion, vegetation removal, construction, and alien vegetation) in the structure and function of the riparian zone.



The South African Scoring System (SASS) is based on the aquatic invertebrate families (insect larvae, beetles, snails and crabs) found at a site.



The Fish Assemblage Integrity Index (FAII) measures the difference between fish found in the river and what is expected in the absence of human impacts.

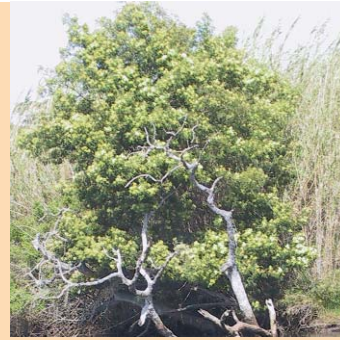


Water quality measures the suitability of the water for aquatic ecosystems (phosphates, nitrates, suspended solids, dissolved oxygen, pH and conductivity).



HARTENBOS RIVER

Flow regime and habitat are severely altered in this system. This is as a result of the Hartebeeskuil Dam which does not have any flow releases. In addition, sand mining operations have resulted in a decrease in habitat diversity with a consequent loss of biodiversity in the river.



KOUMA RIVER

Endemic fish (redfin minnow) are still found in the Kouma River. As such, the Kouma River is an important tributary of the Klein Brak River and has a high conservation status. However, alien vegetation found along the river banks have reduced the overall health of the river.



PALMIET AND BRANDWAG RIVERS

Water quality and habitat integrity within the rivers deteriorates downstream as a result of development (farming and housing). The presence of alien fish (carp) and vegetation (water hyacinth) impairs river health.



MOORDKUIL RIVER

Habitat and water quality in the Moordkuil River and its tributaries are in a good to natural state. The major impacts on river health are the presence of alien fish (largemouth bass) and alien vegetation (black wattle) within the riparian zone.

RIVER HEALTH CATEGORIES

The **present health** of a river is a measure of the present ecological state of the river during the time of the survey and is presented in terms of the river health categories given below.

The **desired health** of a river is an indication of the envisioned future ecological state of the river and is based on ecological considerations and the need for sustainable development.

River Health Category	Ecological Perspective	Management Perspective
Natural N	No or negligible modification	Relatively little human impact
Good G	Biodiversity and integrity largely intact	Some human-related disturbance but ecosystems essentially in good state
Fair F	Sensitive species may be lost; lower abundances and sometimes higher e.g. opportunistic species	Multiple disturbances associated with the need for socio-economic development
Poor P	Loss of some species; alien species invasion; disrupted population dynamics; species are often diseased	High human densities or extensive resource exploitation