

1. INTRODUCTION

The implementation design phase of the National Aquatic Ecosystem Biomonitoring Programme (NAEBP) was initiated in August 1997. The riverine programme, renamed the River Health Programme (RHP), consists of four portfolios each focusing on different aspects of river health such as communication (including stakeholder and grassroots communication); capacity building; research, development and funding; and training. In addition to these general portfolios, each province of South Africa is represented by a regional "champion" who is responsible for the initiation of biomonitoring within their province. The overall objective of the RHP is to develop the procedures and infrastructures for implementation and ongoing maintenance of biomonitoring on a national scale.

Within the research and development component, attention has focused on establishing a method for the derivation of ecological reference conditions. The need for such a reference condition or established benchmark with which monitoring information can be compared, has been expressed on several occasions by organisations involved in biomonitoring. Reference conditions enable the degree of degradation or deviation from natural conditions to be ascertained. South Africa has a varied climate (and hence hydrological type), geology (and hence water chemistry) and geomorphology (and hence channel type, substratum composition, erosion potential). Variation in these factors, both among and within rivers, together with natural biogeographic differences in the distribution of riverine biota, may potentially lead to biotic differences. Such differences need to be taken into account when implementing a national biomonitoring programme and deriving ecological reference conditions.

The information described in this field-manual and which pertains to the *Ecological Reference Condition Field-data Sheets* and *Rivers Database* (Fowler *et al.* 2000), attempts to consolidate the aspects necessary for the characterisation of a site. Although the focus of the ecological reference condition project is the invertebrates, it is important to take into consideration other factors which will, either influence which river-type the site falls into, or which may affect the invertebrate assemblage. To this purpose, substantial information for the characterisation of a site has been included.

This field-manual is the first in a series of three to be published under the auspices of the RHP, all three of which incorporate aspects developed for the Rivers Database. This volume pertains to the general characterisation of a site, catchment condition and land-use, invertebrates and water chemistry. The field-manual and associated field-data sheets are divided into three sections as follows.

- **Section A:** Site specific information which is assessed during or after the first site visit. It includes:
 - General information
 - Geo-reference
 - Location details
 - Physical characteristics and geomorphology
 - Photographic record (Records of initial or any subsequent site visit can be recorded here).

- **Section B:** Site visit information which is assessed during the first site visit and is checked and reassessed on each subsequent site visit. It includes:
 - Catchment and land-use
 - Water quality impacts
 - Channel condition
 - Channel morphology
 - Present status

- **Section C:** site visit information which is assessed during each site visit. It includes:
 - General: site visit information, stream dimensions, substratum composition
 - Invertebrates: biotopes, invertebrates taxa, habitat assessment
 - Water chemistry

Volume two will include information for the assessment of riparian vegetation and volume three for the assessment of fish.

