1 INTRODUCTION

1.1 Background

The development of the Rivers Database was initiated as a small component of the Ecological Reference Condition project which began in August 1997 within the national River Health Programme (RHP). Initially, the purpose of the Rivers Database was to store data collected for the derivation of ecological reference conditions for Mpumalanga. However, during the course of this project, the need for a system which would ensure the efficient storage and management of all ecological information collected as part of the RHP became evident. Consequently, the Rivers Database project was expanded to include all aspects of general importance to the RHP thereby providing a standard biomonitoring data protocol for the collation and management of data on a national scale.

1.2 Current data

Besides its basic framework for the inclusion of biomonitoring data, the Rivers Database currently houses a considerable amount of data. In particular, data collected as part of the pilot study from the Mpumalanga region for the final design phase of the RHP (Roux 1999), together with historic data for primary catchments B and X are included in the database [Institute for Water Quality Studies (IWQS), Department of Water Affairs & Forestry (DWAF)]. Using existing spatial information captured in Geographic Information Systems (GIS), basic information regarding rivers and their subregions was extracted for the design of the tree view. Also, basic site information such as longitude/latitude, geological- and vegetation-type has been extracted from GIS covers. Most of the biological data that are available relate to invertebrate taxa (using SASS), water chemistry and habitat characteristics collected for water quality assessments undertaken by IWQS since 1993.

1.3 Maintenance and future links to the Water Management System (WMS)

It is envisaged that a central body such as DWAF would maintain the national “Rivers Database”, with each province or authority having their own regional “Rivers Database”. Although mechanisms of updating the “Rivers Database” at provincial and national levels are being explored, the exact process of data transferral has not yet been finalised. However, it is likely that the “Rivers Database” will link up with the Water Management System (WMS) which is being developed by DWAF and will ultimately house all water resource related data. Discussions are

currently underway with the database architects of the WMS to determine the most efficient means of transferring data between the “Rivers Database” and the WMS.

1.4 User control and data security

It will be the responsibility of each regional authority or "champion" to facilitate and regulate the capture of data at regional level. All authorities applying the RHP (or components thereof) and who wish their data to contribute to the national database will need to work through their regional "champion". For security purposes all users will need to register and will be allocated a user name and password. All users will be able to view the data, but only the "owner" of a particular data-set will be able to edit data that has been added under their user name. A site transaction form tracks changes made to site level components of the database and enables a detailed record to be kept of such changes.

1.5 Layout of the manual

This manual has been written as a guide to users of the Rivers Database application. It is divided into the following sections:

- General structure of the database, viewing and editing data, and adding new data
- Querying the database
- Technical Information

Terms used in this manual are described in the glossary appended (Appendix 1). Additional details are available in the manual written for the ecological reference condition project (Dallas 2000) and on which the Rivers Database is based.

1.6 Current status of the Rivers Database

This manual accompanies the Rivers Database currently distributed on CD. Most components of the database are finalised with the exception of the riparian vegetation and fish indices. Both of these indices require testing and further refinement. It is likely that additional components such as hydrological and geomorphological indices may be incorporated in subsequent phases of the Rivers Database. Further development on the reference condition aspect of the database is also planned for future phases.