

Introduction

Background

The Logan/Albert Water Resource Plan (WRP) Technical Advisory Panel (TAP) has been appointed to assess the current condition of major rivers and streams in the Logan River Basin, including the Albert River sub-basin WRP study area. The State of the Rivers (SOR) team is contributing to these assessments by collecting information about river stream characteristics and condition in regard to pressures on condition, physical habitat and vegetation.

Objectives

The objective of this report is to provide information on river and stream characteristics and condition at selected sites within the Albert WRP study area.

Method

Methodology

The 'State of the Rivers' methodology (Anderson 1993 b, c) assesses the current physical and ecological condition of rivers and streams. It uses a snapshot approach such that various key components of the stream, stream banks and environs are recorded. Assessments are made along reaches of varying length and take approximately 45 to 60 minutes at each site. At each survey site, a comprehensive of data is collected with the aid of eleven datasheets that were designed to record key components of the stream and its environs (Appendix I, Datasheets). Descriptions of these components are presented below.

Reach Environs

Information is recorded about the local land adjacent to the reach on each side and about the types of disturbance, land use and land tenure at the time of sampling.

Subjective assessments of disturbance levels present in the reach environs are also recorded during the time of survey and provide an overall impression of the condition of the reach environs (Appendix I, Sheet 4).

Channel Habitat

The proportion and dimensions of the various types of channel habitats within the reach are recorded (pools, runs, riffles, cascades, rapids etc.) (Appendix I, Sheet 5).

Cross-sectional measurements are made of the major channel habitat types. Measurements taken within the channel include channel width and depth, and bank slope, width and height. The sediment composition of the bed and of the lower and upper banks is also recorded (Appendix 1, Sheet 6).

Bank Stability

An assessment of the condition of banks is made by identifying the dominant processes at each site (eroding, slumping, aggrading), and the location along the banks of where the process occurs. Causes of disturbance and artificial bank protection measures are also documented (Appendix 1, Sheet7).

Bed and Bar

The dominant stream morphology processes and stability of the streambed is assessed, the location, size and particular features of bars are also documented.

Additionally, factors affecting the stability is recorded, and the ease of passage through the reach for aquatic organisms is assessed by classifying the barriers present (natural and artificial) and estimating the required flow level to overcome these barriers (Appendix 1, Sheet 8).

Riparian and Aquatic

The survey technique is designed to assess the riparian vegetation zone and the instream aquatic vegetation in terms of:

- the percentage cover by structural vegetation types (e.g. trees, shrubs, herbs, emergent aquatics, submerged aquatics, floating aquatics); and
- the percentage cover over the riparian zone and/or the streambed.

Vegetation was also assessed using Garry Werren's Riparian Vegetation Rapid Assessment of Condition scoresheet (Appendix 2). This survey technique assesses key components within the riparian zone and instream area.

Aquatic Habitat

The aquatic habitat assessment is made in terms of the percentage cover of the surface area for the zone specified for each habitat type (instream debris, rock outcrops, vegetation and the overhanging stream cover provided along the bank by vegetation, bank and man-made infrastructures).

Further, a subjective assessment of the overall aquatic value is recorded. This is intended to combine all the assessment items and general signs at the site to assign overall ratings for fish, invertebrates, birds and mammals. These values range from very poor to very high. (Appendix I - Sheet 10 for a description of the assessment criteria).

Data analysis

Once the data is collected it is entered into a data base (Visual FoxPro 6.0) where various analyses and data manipulation programs are run. The results of this analysis and data manipulation is then reported. Condition ratings for each attribute are produced from a set of formulae that employ various weighted combinations of raw data.

Outline

Not all collected data has been used in this report, only specific attributes as required by the TAP have been reported on. This includes data collected at sites located on the Albert River and Canungra Creek. Data collected at sites on Sandy Creek, Collins Creek, Cedar Creek and Cainbale Creek is available on request.

Data summaries have been presented in tables with text summaries at the beginning of each section. There are a total of four sections in the body of this report these include, pressures on condition which lists information on local disturbances, land use and land tenure. The geomorphology and physical habitat section which includes information about hydraulic habitat types, flood plain features, bed and bank stability, bed and bank composition as well as barriers identified as restricting aquatic passage. The vegetation section lists information on aquatic and riparian vegetation structure and composition, while the aquatic habitat section includes information on instream debris types and stream cover.

During the survey a set of photographs were taken at each survey site, these have been scanned onto CD ROM and can be easily identified using Table 1.

A locality map identifying sites for this study is included in the back of this report.

General Information

The Albert River sub-basin forms part of the Logan River basin and comprises an area of approximately 800 Km². A total of 24 survey sites were identified within the study area, however only 16 of these have been reported as requested by the TAP. Refer to Map 1.

Prior to data collection the TAP inspected a number of sites during a two day field trip. The site data presented in this report is intended to complement the sites visited by the TAP.

Table 1. lists the streams, SOR site numbers, WRP reaches, site descriptions, date surveyed, water level at the time of survey and photo numbers.