

## SPECIAL STUDIES

### Waterwatch

Waterwatch is a community water quality monitoring program that aims to equip local communities with the skills and knowledge to take an active role in managing land and water. Waterwatch operates in every State and Territory. Waterwatch is federally funded through the Natural Heritage Trust and is locally administered by Environment ACT.

There are 3 part-time Waterwatch Coordinators who are employed by 3 different employers in 3 separate work locations: Lake Tuggeranong College; ACTEW; and the Ginninderra Catchment Group. The advantages of this are that Waterwatch is able to service a diverse range of groups and individuals, and that Environment ACT is able to have active partnerships with a number of organisations.

Regular contact with schools has also been used to deliver the objectives of the Waterwatch program. Schools have been invited to participate in a number of Waterwatch events and are encouraged to contact Waterwatch ACT to become involved in the program. This year Waterwatch ACT has:

- Held two fully funded one-day Waterwatch teacher inservices to teach teachers about the Waterwatch program and how they can be involved.
- Invited each school to participate in both the Autumn and Spring Water Bug (Macroinvertebrate) Surveys.
- Provided a display for ACTEW's Amazing World of Science Exhibition.
- Invited all schools to participate in Aquafest – an annual event comprising over 20 ‘hands-on’ exhibits held as part of National Water Week celebrations. Resource kits and worksheets are supplied to each of the schools who participate in Aquafest and are available on the ACTEW Home page.

In addition to this, there are currently 70 schools as well as Canberra Institute of Technology, ANU and Canberra University who are receiving the Waterwatch newsletter.

Waterwatch Coordinators are in regular contact with community and school groups participating in the Waterwatch program and

undertake Waterwatch activities both in the field and in classrooms.

The information collected also contributes to a database of water information for the ACT that includes the ACT Water Quality data. This information will then be available for a number of purposes including State of the Environment reporting and community use.

## Catchment Health Indicators

The Catchment Health Indicators (CHI) Project, a three year Natural Heritage Trust pilot project which aims to develop a method that can be used by the community to measure catchment health. The CHI project employs a project officer and is currently being trialed in four sub-catchments of the ACT.

Data is collected by community volunteers and is interpreted to identify problem areas so that landowners and Landcare groups can be directed into focussed on-ground activity. The CHI project, which will be completed in March 2001, has proven to be a valuable tool to integrate Waterwatch and Landcare programs. At the conclusion of the pilot program the CHI method will be adopted as one of the methods of delivery of the Waterwatch program.

## Sustainable Water Action Management Plan (SWAMP)

The purpose of SWAMP, funded by the National Heritage Trust for a three year period from May 1998 to April 2001, is to help address the concerns that the community holds for the health of the streams, catchments and water management in the project area. The area includes Woolshed Creek, Pialligo Brook, Reedy Creek, the Molonglo River from Burbong Bridge to the entrance of Lake Burley Griffin, Queanbeyan River below Googong Dam and Jerrabomberra Creek. The plan provides a framework to recognise current work and organise further actions.

On the whole, stream water quality in the project area meets the guidelines for designated uses, i.e. recreation, stock watering, urban supply and visual amenity. However, when measured against biological standards under the AUSRIVAS program, water quality is poor for maintaining macro-invertebrate species richness. Extraction of surface and ground water, and the use of farm dams places further pressures on the creeks and rivers. In a number of areas, further abstraction will severely impair stream health.

Weed infestation, especially willows requiring management, is an issue. Woolshed Creek, Pialligo Brook, Reedy Creek and Jerrabomberra Creek are entire sub-catchments that could be made free of willow infestation. Stormwater quality needs to be improved and fencing remnant vegetation and streams to prevent degradation through trampling by stock is still required.

In some areas, car bodies need to be removed from the streams, and stream corridors require revegetation with appropriate natives to provide a better habitat for native animals and to enhance water quality. Stream tours with landowners and resource managers are arranged to discuss these issues and take them forward through an integrated plan. Further collaboration between stakeholders to take strategic actions across catchments and borders remains an important requirement.

In summary, 23 issues affecting the creeks and rivers have been identified by the community. Six actions are being implemented project-wide. Twenty-three actions are being implemented at specific sites in the project sub-catchments to enhance stream health.

## ACT AUSRIVAS Report – Australia Wide Assessment of River Health

The Australia Wide Assessment of River Health (AWARH) is a national monitoring program with the aim of getting a snapshot of river health across Australia. The sampling is conducted using the AUSRIVAS method of biological assessment and is funded jointly by the States and Territories and the Federal Government (Environment Australia) under the Natural Heritage Trust.

As part of the AWARH, surveys of macro-invertebrates (bugs) in ACT streams have been undertaken over the period 1993–99. Sixty five test sites and ten reference sites were sampled for a range of streams in the Upper Murrumbidgee catchment in autumn and spring 1999.

Sampling under the AWARH is now complete and the program is in the final reporting stage. Environment ACT is continuing biological assessment in the ACT using the AUSRIVAS method on a reduced scale to that previously undertaken.

Test sites are identified as a result of a community consultation process. The identified test sites are then selected according to their potential or known impacts and their proximity to previously sampled test sites. Reference sites were established to represent a range of environmental factors, and used as a basis for comparison with the test (impacted) sites.

The reference site data is used to develop a predictive model of expected bugs (E) at sites, based on environmental factors. Observed bugs (O) for the test sites are then compared with expected (E) bugs for those sites, and observed/expected (O/E) ratios used as a measure of the level of impactedness.

Impacts are ranked according to O/E bands, as follows:

- X Above reference
- A Equivalent to reference sites
- B Slightly impaired
- C Moderately impaired
- D Severely impaired

At the time of the autumn sampling the study area had again experienced below average flows. Five of the six reference sites sampled in spring 1998 and autumn 1999, improved by one biological band indicating a minor improvement in the biological condition since spring 1998, however five reference sites fell below reference condition, four of which appear to be due to flow.

In addition to low-flow induced impacts, other impacts on the rivers and streams of the Upper Murrumbidgee River Catchment include chemical pollutants, nutrient enrichment, habitat degradation, sedimentation and river regulation. With the exception of river regulation, all the described impacts are directly related to land use practices.

Overall, there was a general improvement in the biological condition of the rivers and streams in the Upper Murrumbidgee River catchment between autumn and spring 1999 sampling. Five of the reference sites and 32 of the test sites improved by one or more biological band since autumn 1999, while only three reference sites and nine test sites declined in biological condition during the same period. This improvement may be a result of the higher flows recorded during spring 1999, compared to the low flows of autumn 1999.

Urban run off can contain a variety of pollutants including fertilisers, pesticides and petroleum products that impact on a large proportion of the aquatic invertebrate community.

Aquatic habitat degradation and sedimentation are related problems, with sediment input resulting in instream habitat degradation at a number of sites. Catchment erosion within the Upper Murrumbidgee River catchment is widespread, with some degree of erosion observed at almost ninety percent of impacted test sites. The main sources of sediment inputs to streams in this study area were from the erosion of agricultural and forestry land and the instability of riverbanks.

Appendix 2 contains the tabulated results of O/E bands.

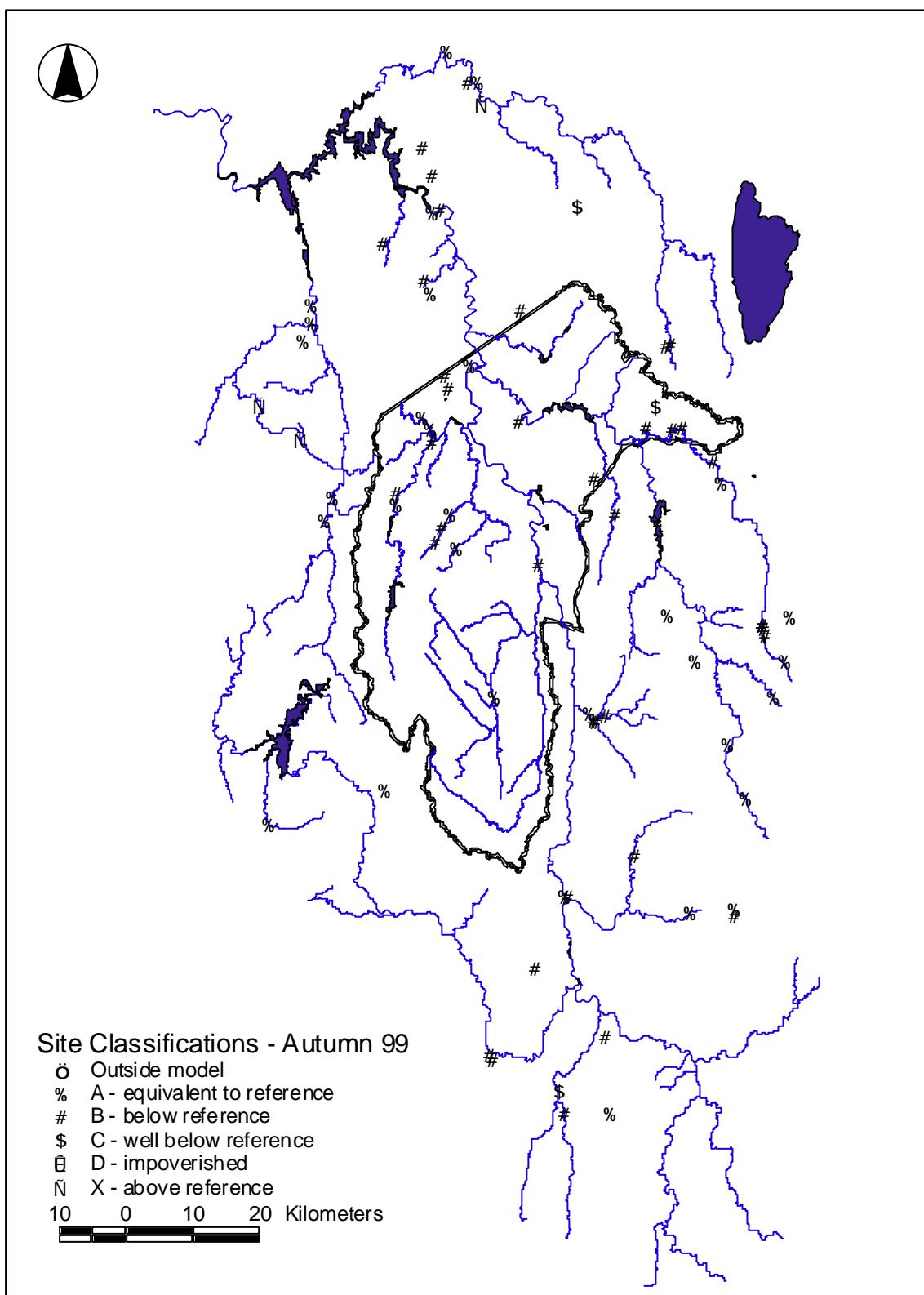
**Figure 15: Autumn 1999 Sampling Sites**

Figure 16: Spring 1999 Sampling Sites

