

## 7 Recommendations

### 7.1 Management options

Communicate results to all major stakeholders (Department of Environment and Conservation, Forestry Products Commission, Water Corporation) so that they can action or have input into any subsequent or ongoing work.

Maintain clearing controls. Since July 2004, clearing applications in these areas have been regulated under the Environmental Protection Act 1986 and no clearing should be permitted.

Specifically retain the options for silviculture (thinning), on government freehold land and of wandoo, throughout the catchment. Reforest government freehold land, especially that near Abercorn Road, to the appropriate density; so, to allow management of density by thinning/burning/logging, do not include in a National or Conservation park. Map the areas where, to increase runoff, pines could be less than maximum density. Negotiate with the Forest Products Commission (FPC).

Manage the remaining cleared areas forming 3% of the catchment. Advise landholders near Mt Observation and Dobaderry Swamp (Localities F & E) that they are within the Mundaring catchment and brief them regarding land use. Consider more land purchases at Abercorn and Goods roads, Wundabiniring Road, Talbot Road West, Mt Observation and Flynn Road (Localities B, C, D, F & H) in no priority order, and monitor the areas near Qualen Road and Dobaderry Swamp (Localities A & E) in case they discharge into the Darkin River.

Focus on management of the subcatchments with highest salinities under the 1990–2003 rainfall.

Examine in more detail the impacts of prescribed burning regimes and forest fires on hydrology and salt load by extending the results of this study's modelling. Investigate whether silviculture, specifically burning and thinning for enhanced water yield, is desirable in the area that may for increased security against clearing-related salinity, be added to the Helena National Park. Thinning, in addition to just prescribed burning, should be a management option.

Investigate the hydrogeology, flow or discharge from Darkin Swamp to determine the risk of it beginning to discharge water and salt.

Establish targets and standards against which management progress can be measured.

Examine the status of the catchment area below Mundaring Weir and its effects on management of the Helena Water Resource Recovery Catchment.

Consider pumping and draining the sedimentary aquifer near Ngangaguringuring and diversion of the Helena River there or at Poison Lease to reduce runoff from the east.

Prepare a catchment management plan from this Salinity Situation Statement, detailing actions, timelines and responsibilities.

## 7.2 Monitoring and evaluation

Continue streamflow and salinity monitoring at the gauging stations to determine whether recent trends, particularly runoff decline, continue. Continue monitoring to assess for rainfall trends. In particular, revise the saltfall data and examine the chemistry for changes in  $\text{NO}_2$  and  $\text{S-SO}_4$  as they both pre-date the 30-year-old rainfall change.

Expand monitoring of groundwater levels and salinity beyond a few representative bores in Flynn plantation by constructing multi-level investigation bores in sedimentary aquifers north of Darkin Swamp and Ngangaguringuring.

Continue Landsat monitoring to assess changes in forested land, the impacts of fires of different intensity and vegetation recovery after fire, especially in Darkin Swamp where vegetation reduction could lead to export of water and salt.

## 7.3 Where to from here?

This study focuses on conceptual salinity reduction options — to understand the extent of the land-use changes needed to reach the salinity target. It is the first step in the recovery approach.

The next step will be the evaluation of the management options from this study. For this the water quality objectives will be defined and, in consultation with key stakeholders (considering social, economic and environment aspects) scenarios to meet these objectives will be evaluated. Additional and more detailed modelling will be used. In the recovery plan step the major components of management options to be implemented will be identified, an implementation strategy developed and funding sources identified (Appendix 7).

The final step will be to implement this plan and to recover this catchment from salinity.