

# Declining Water Quality



## Background

The River Murray is a vital source of water for local communities, metropolitan Adelaide and large areas of country South Australia. To facilitate the continued health and well being of all users it is important that riverine water quality be maintained and where possible improved.

Although there is a lack of accurate data pertaining to saline, nutrient and other pollutant accessions (point and regional) in the Mid Murray LAP Region, the following contributing factors have been identified:

- Effluent disposal – disposal to the River and floodplain contributes pathogens, nutrients, and heavy metals into the aquatic environment. The most serious impact of elevated nutrient loads are algal blooms (particularly blue-green algae) which has the potential to affect both the economic and aesthetic benefits of the River.
- Salinity management – major sources of salt include saline groundwater discharge (natural and irrigation drainage induced), increased consumption of river water resulting in less dilution of saline inflows and an expected future increase in groundwater discharge due to the widespread clearance of mallee vegetation (dryland discharge has the potential to cause additional saline accessions of up to 218 tonnes per day).
- Urban stormwater discharge – contains a wide range of pollutants (i.e. bacteria, oils and greases, nutrients, heavy metals and suspended solids) most of which are associated with particulate matter. The quality of stormwater in the Mid Murray is very much catchment specific and is determined by land use, drainage form, climate, topography and soil type. Stormwater infrastructure records and monitoring in the Mid Murray townships is virtually non-existent, however a study soon to be completed by Kinhill Pty Ltd will detail point source and regional pollutant loads generated from the major riverine townships

## Links to other Issues

The issue of declining water quality is linked to:

- Unsustainable Agriculture – point source and non-point source nutrients are generated from fertilisers, herbicides, pesticides and grazing. Groundwater mounds generated beneath irrigated plantings, and recharge from cleared dryland farming areas influence saline discharges to the riverine environment.
- Unsustainable Recreation – point source and non-point source nutrients originate from camping, boating, direct disposal from houseboats, and leaking septic tanks around housing and shack sites.
- Natural habitat degradation – clearance of native vegetation both within the Mid Murray LAP Region and externally has increased recharge to localised and regional water tables. This has in turn accelerated the amount of saline groundwater discharging to the riverine environment.

## Extent and Severity

Information pertaining to the extent and severity of declining water quality within the Mid Murray LAP Region indicates that:

- currently there are 194 tonnes of salt per day discharging to the riverine environment. At the present level of irrigation and prevailing practices, the salt load to the riverine environment is predicted to increase to 403 tonnes per day by 2050 (AWE, 1999);
- the impacts of dryland recharge has the potential to cause an additional salt load of 219 tonnes/day by the year 2050, resulting in an annual economic cost to downstream users of about \$6.6 million (AWE, 1999);
- point and diffuse (non-point) source nutrients within the Mid Murray LAP are yet to be quantified however data collected directly upstream (Riverland West LAP) and downstream (Mannum to Wellington LAP) indicates:

- an increase in median total phosphorous and nitrogen concentrations between upstream and downstream locations;
- a significant increase in median NO<sub>2</sub> concentrations from upstream to downstream possibly linked with irrigation activities; and
- a significant increase in pathogens (measure of the possible presence of disease-causing microorganisms) between upstream and downstream locations. These are possibly linked (although no quantitative evidence exists) with stormwater accessions, septic/sewerage leakage, and faecal contamination arising from grazing.

**Key References**

For more a more detailed analysis on declining water quality within the Mid Murray LAP Region please refer to the following references:

- Australian Water Environments Pty Ltd 1999, A Study to Underpin a Land and Water Management Plan, report prepared for the Mid Murray Local Action Planning Committee.
- Kinhill Pty Ltd 1999, Mid Murray Riverine Township Stormwater Management Plan, report prepared for the Local Action Planning Associations of the Mid Murray and Riverland West in conjunction with the Mid Murray Council.



The quality of stormwater in the Mid Murray is very much catchment specific. Such issues are explored in water monitoring workshops like this one at Walker Flat.



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