April 2000

WaterShed

contents

The National Water Quality Management Strategy

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In 1992 the Commonwealth and State Governments, along with the water industry, developed the National Water Quality Management Strategy. This initiative was was established to integrate the Agriculture and Resource Management Council of Australia and New Zealand's (ARMCANZ) and the Australian and New Zealand Environment and Conservation Council's (ANZECC) water quality and management practice guidelines.

The National Water Quality Management Strategy has produced a series of National Guidelines, developed with extensive State input. These guidelines are being used and are seen as an essential building block in water quality management for Australia.

The guidelines are important documents, but if they are to provide real benefits they need further work.

- It is important to provide training in the use of the new risk-based guidelines to professionals and community groups.
- It is important to draw together documents demonstrating best practice with regard to various issues.
- It is important to realise that our understanding of water quality is still imperfect and evolving, and there is an ongoing need to update and review guidelines in the light of emerging knowledge.

continued on page 2

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- More work is needed to develop more user-friendly ways to use these guidelines – in particular to develop simple computer based models and decision support systems.
- More work is needed to develop appropriate monitoring protocols, statistical analysis tools and presentation tools so that the guidelines can be effectively used within the context of integrated catchment management.

Key Issues in Managing Water Quality in the next Five Years

We face a situation in Australia of increasing competition for scarce water resources, and increasing degradation of those resources through inappropriate development and mismanagement of land.

In this context of competition, regulators and scientists will be under increasing pressure to demonstrate the community benefits from particular guidelines. This will require better understanding of aquatic ecosystems and how they respond to various pollutants, as well as other factors such as river regulation, riparian zone damage and introduced species. Water quality must be seen as only one element of river health, and needs to be managed in an integrated way along with flow and other aspects.

increasing competition for scarce water

We also need to better communicate to the wider community why various contaminants are important. Simple conceptual diagrams need to be developed to show the linkages between, for instance, phosphorus and nitrogen and algal growth, and possibly with seagrass loss and so on. Science does have these simple models; but we have not been effective in communicating them to the community.

Professor Peter Cullen, Chief Executive CRCFE

There are of course many unknowns in aquatic ecology, which presently inhibit our predictive capacity. We clearly need more work in food web analysis, and in understanding the role carbon plays in driving various ecosystem processes. As part of this we need better understanding of natural conditions and their variability so that changes can be assessed.

An ongoing challenge for the scientific community is to develop measures of ecological health of rivers and other water bodies. At present we have augmented the traditional chemical measures with a range of biological measures. It may be possible to go further and develop useful tools that are based on ecosystem functions rather than ecosystem structure which is the basis of the current biological measures.

There are a number of specific water quality issues that we see will increase in importance in the next five years:

- Salinity – especially its impacts on ecosystems and human health;
- Agricultural chemicals such as pesticides and herbicides and their impacts on aquatic organisms and ecosystem functions. For instance, how are the increasing levels of herbicides in many waterways affecting patterns of algal succession?
- Urban stormwater and its impacts;
- Acidity arising specifically from acid sulphate soils and from more general soil acidification. How is this affecting the mobility of various ions?
- Hydrocarbon discharges from oil production facilities;
- Improved approaches to assessing risks from new chemicals;
- Nitrogen and its various species, its relation to phosphorus and other nutrients and their availability to stimulate algal and macrophyte growth;
- Sediment and turbidity;
- Trace metals like selenium.