



HEALTHY RIVERS  
HEALTHY COMMUNITIES &  
REGIONAL GROWTH

**VICTORIAN RIVER HEALTH STRATEGY**



Department of  
Natural Resources  
and Environment

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# HEALTHY RIVERS HEALTHY COMMUNITIES & REGIONAL GROWTH

**VICTORIAN RIVER HEALTH STRATEGY**



## > FOREWORD

Rivers are a vital part of Victoria's natural infrastructure. They are fundamental to our regional economies and quality of life. Our rivers support high value, efficient agricultural industries, provide safe drinking water, and are often a major drawcard for recreation and regional tourism. In addition, they are highly significant ecosystems in their own right. For many in the community, rivers have a special place in their memories and are deeply associated with their 'sense of place' and 'belonging'. This is particularly true for Indigenous Victorians.

But our rivers are degrading. Currently, only 22% of major rivers and streams are in good or excellent condition. As they degrade, we are losing a significant part of our natural infrastructure and risking all the benefits they bring.

We need a significant commitment in river protection and restoration to restore the health of our rivers and safeguard the regional economies that are dependent on them.

The Victorian River Health Strategy will provide the framework for communities to work in partnership with Government to manage and restore our rivers over the long term. It sets the scene for integrating all our efforts on rivers, managing them within an integrated catchment management context and ensuring that we get the most effective river health benefits for the effort and resources invested.

The Victorian Government is strongly committed to this task and this is shown by our list of achievements in this area.

We recently passed the Farm Dams legislation which will result in a more secure supply of water for the environment and other users. We invest over \$21.5 million in river and floodplain management each year and have recently added another \$10.6 million over the next three years to assist in the improvement of stressed rivers. This is in addition to \$244 million to restore the Snowy River, \$77 million to pipeline the Wimmera-Mallee stock and domestic system to provide improved environmental flows in the Wimmera and Glenelg Rivers, \$15 million in improving the health of the River Murray and over \$150 million per annum in general catchment management activities.

However, we recognise that to achieve the vision and objectives of the Victorian River Health Strategy will require a major effort from the community in partnership with Government over the long term.

The success of our efforts will be measured by our children and grandchildren and they will be looking for the same pleasures and associations that our grandparents had. Our success will be measured in terms of the sounds of frogs, the ability to swim in waterholes shaded by river red gums, the chance of catching a cod, watching sun-dappled ripples in the water and listening to the rush of the river.

I would encourage all Victorians to recognise the importance of healthy rivers for our future and to get involved in river restoration programs in their region. The Victorian River Health Strategy is the blueprint for the future management of our rivers.

**Sherryl Garbutt**

Minister for Environment and Conservation

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# INTRODUCTION

## 1. Introduction

Rivers make up only a small portion of the Victorian landscape and yet their overall significance for the economy, the ecology and the social fabric of Victoria is immense.

In an economic sense, our society is dependent on rivers as a key component of our natural infrastructure. Rivers provide safe drinking water for four million people, and water to support our rural production including \$5.2 billion of irrigated agricultural and aquacultural production. They are a key input to our manufacturing industries.

However, this statement of the community's economic reliance on rivers does not acknowledge their social value. In the past, nearly every town in Victoria was situated on or near a river to provide a source of water and transport. Consequently, the rivers have become entwined in the lives and histories of people. Rivers have been the focus for recreation, and have provided community meeting places and an attraction for people outside their region. Communities have fought their rivers during floods and anxiously watched them in droughts. People have grown up beside their rivers, linking their personal growth with the annual or seasonal changes in the river. As a result of this, for many in the community, rivers have a special place in their memories and are deeply associated with their 'sense of place' and 'belonging'. This is particularly true for Indigenous Victorians.

Rivers are also important to Victorians at play. They provide a pleasant environment for walking, picnicking, swimming, hiking, canoeing and rafting. In particular, they are the focus for some 110 000 fisherfolk who contribute at least \$400 million to the State economy. Moreover, rivers and estuarine environments are becoming more and more the hub for regional tourism as the interest in nature-based and adventure tourism increases. Areas such as the Gippsland Lakes, the Murray River and the Goulburn River contribute greatly to their regional economies.

Finally, rivers and their associated floodplains and estuaries are diverse and complex ecosystems in their own right. They support a large array of native flora and fauna (many of which are threatened or endangered), are highly important in the movement and cycling of sediment and nutrients through the landscape, and are a significant interface between aquatic and terrestrial systems. Whilst these environmental values have long been well known and appreciated, we are only now becoming aware of a range of ecosystem services that functioning riverine ecosystems can provide to human communities, such as purification of water by natural catchments. As we start to fully appreciate the level of service provided by riverine ecosystems in these areas, it will be possible to put an economic value on them.

Virtually all of these values that rivers provide to our community, whether they are economic, social or environmental, are reliant to some extent on river condition. Some values, such as maintenance of ecological communities, tourism, supply of clean drinking water or recreational fishing, require rivers to be in good condition. Others, such as irrigation or power boating, have less stringent requirements.

While some uses of rivers have little impact, some, by their nature, change the characteristics of rivers themselves. Activities such as water extraction, grazing or cropping on the river bank, desnagging, and the disposal of wastewater all degrade various aspects of river condition.

As the condition of the natural infrastructure underpinning our regional economies declines, various values or services can no longer be provided. Those with the requirements for highest quality water, such as clean drinking water, are lost first, those with less stringent requirements, however, are also gradually affected. Even irrigation water can be unusable if the quality is too poor.

As river condition deteriorates there will be costs. Some of these will be economic costs. For example, poor land management can result in deterioration in water quality and hence high costs for water treatment. Poor water quality, in turn, can trigger algal blooms leading to costs associated with providing alternative water supplies, cessation of irrigation, closure of recreational lakes, and loss of recreational and tourism revenue. Accelerated erosion of riverbeds and banks may cause loss of valuable land and other assets like roads and bridges.

Other costs will not be able to be measured in economic terms. Extraction of water, for example, may cause a reduction in the diversity and abundance of aquatic species or even local extinctions.

#### **Box 1.1      Indicative Economic Values and Costs of Healthy Rivers**

Many aspects of regional economies are premised on healthy rivers. Rivers in good environmental condition can provide economic benefits. For example:

- The Shepparton Irrigation Region has a clean food industry, which in 1998 generated around \$765 million of export income.
- It has been estimated that healthy waterways generate \$10-20 million per year in the Upper Goulburn region in terms of tourism and recreation.
- A minimum of \$400 million is spent annually on freshwater recreational fishing.
- Victoria's rivers support an aquaculture industry worth \$12 million, producing 80% of Australia's trout production and employing approximately 200 people.
- In 1990, the value of river-based recreation for the Ovens and King catchments was estimated at \$1.1 million per year.
- A comparison of water treatment costs between Ballarat and Bendigo in 1998 showed that the cost of water treatment is lower where water quality is better. In Ballarat, which has good quality water, water treatment costs were approximately \$9 million less in capital works, and operating costs were around \$700 000 per year lower than in Bendigo, which has poorer quality water.

But a decline in river health can have significant costs for the regional economy. For example:

- Recent estimates of the costs of algal blooms show that:
  - the total impacts of algal blooms and poor water quality in the Corangamite region are estimated to range between \$6 million and \$9 million per year;
  - a bloom in Lake Boga in 1995 cost \$1.7 million to the regional economy in lost tourism and recreation; and
  - an algal bloom in Kow Swamp lasting one month would cost \$4.4 million in lost agricultural production.
- River erosion can result in the loss of valuable land and public assets, such as bridges and roads, particularly during floods. The estimated cost of repairs of river-related damage from the 1998 East Gippsland floods was in the order of \$30 million.

The interdependence between river condition and human use means that the management of our rivers is not an easy task. It requires striking a delicate balance between using our rivers and maintaining their environmental condition. This requires the community to fully understand the potential impacts of management actions on river condition and to make transparent decisions about what purposes they want their rivers to serve, what consequent environmental condition they are prepared to accept and what the implications of that level of environmental condition are for other uses.

One of the basic tenets that must be understood is that, whilst it may be possible to minimise the impact of some river uses, there will still be an ultimate trade-off between that use and the environmental condition of the river.

In making these decisions about the future of our rivers, the community must balance environmental, social and economic needs in a responsible and open way, maintaining future options wherever possible.

Past decisions on water resource and river management did not reflect this balanced approach to decision-making. Communities often didn't value the environmental or recreational benefits provided by rivers until they were under threat. In addition, the knowledge on which decisions were based was often lacking, particularly of the linkages between land and water management in the catchment and river condition and the underlying geomorphic processes. The current condition of Victorian rivers shows this legacy. Only 22% of Victoria's major rivers and tributaries are in good or excellent condition. Thirty-four percent are in poor or very poor condition and 44% are moderately impacted.

We have lost aquatic species and communities in many areas. In others, poor water quality is already having considerable impact on regional economic productivity. New tourism and recreation industries and new export markets based on accredited green production are at risk from degrading river condition.

In the past twenty years, communities have become increasingly aware of the problems. Community values have changed and there is now a general appreciation of all the values that rivers provide. Our knowledge of catchments and river systems has also improved. In this period, there has been a major turnaround in the management of catchments and rivers. There has been a significant investment by governments and communities in integrated catchment management at the regional level. Currently, the Victorian Government is investing \$21.5 million per year in managing rivers and floodplains, and in excess of \$150 million per year in general catchment management activities. Our regional communities have decision-making structures in place that are capable of tackling hard decisions and we are starting to see the benefits of this in a number of areas.

Whilst this is an excellent base from which to start a difficult task, there are still a number of problems with the current arrangements for managing our rivers. These problems include that:

- there are no clear principles guiding communities in their decisions on river protection and restoration;
- there are no clear, shared objectives for rivers and river reaches;
- there are no clear criteria for setting priorities for river protection and restoration; and
- there is no clear policy direction on some specific activities impacting on river health, such as environmental flows.

As a result:

- the current management effort may be fragmented;
- the management of all activities affecting rivers is not well integrated;
- the multiple benefits of river restoration activities are not well recognised;
- long term regional priorities are not clearly identified;
- there is no common understanding of which areas should be protected and which should be restored;
- outcomes of investment into river protection and restoration may be not maximised;
- there may be perceived uncertainty for water users which can affect potential investment in regions;
- inappropriate development may be occurring in some areas; and
- the needs of downstream ecosystems such as estuaries and terminal lakes are not fully integrated into decision-making.

The challenge is to improve the current pattern of river condition to one which will provide for the needs and aspirations of all Victorians now and in the future, whilst promoting sustainable regional development. This requires a management framework for the State that will ensure that responsible community decisions are made about how we use and manage our rivers.

The need for this management framework is urgent. Victoria's rivers are still degrading. Some are adapting to changes made years ago. Others are being affected by current activities. The pressures for those activities which could potentially cause further damage are increasing. Demand for water is growing with increased urban growth and increased export markets for irrigated agricultural produce. The prosperity of regional Victoria depends to a large extent on agricultural production – long-term production targets of \$12 billion of food and fibre exports by 2010 have been set. The key is to set the achievement of these targets within a context of ecologically sustainable water resource management.

### 1.1 PURPOSE OF THE VICTORIAN RIVER HEALTH STRATEGY

The Victorian River Health Strategy (VRHS) provides the framework in which the Government in partnership with the community will make these decisions on the management and restoration of Victoria's rivers. It provides:

- a common vision for the management of rivers in Victoria;
- statewide targets for river restoration;
- a planning framework which:
  - is based on community decision-making within an integrated catchment management (ICM) context,
  - balances environmental, economic and social needs,
  - integrates the management of all activities impacting on rivers, and
  - is based on the best available scientific understanding of river functioning and is responsive to new knowledge;
- criteria for priority setting for investment in river protection and restoration;
- an overview of government policy relating to the management of activities affecting river health, including environmental flows and water allocation; and
- the institutional arrangements for the management of river health in Victoria.

The objective for the Victorian River Health Strategy is to achieve:

healthy rivers, streams and floodplains which meet the environmental, economic, recreational and cultural needs of current and future generations.

### 1.2 POLICY CONTEXT FOR THE VRHS

The Victorian Government is committed to the concept of Ecologically Sustainable Development (ESD). The aim is to build the principles of ESD into the process of decision-making across the whole of Government. This means:

*using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased (Commonwealth of Australia 1992).*

In addition, Victoria is a signatory to the 1994 Agreement on Water Reform by the Council of Australian Governments (COAG). The agreement requires considerable reform of the institutional arrangements, pricing mechanisms and policies for the management of water resources. This reform is based on the principles of ESD and requires Governments to provide environmental flows, manage water quality and improve the health of stressed rivers. Other relevant Commonwealth initiatives to which Victoria has committed include the National Action Plan for Salinity and Water Quality and the Murray-Darling Basin (MDB) Integrated Catchment Management Policy. Both of these initiatives aim to achieve healthy rivers, ecosystems and catchments.

The VRHS provides the mechanism for implementing ESD as it relates to use and protection of our waterways and meeting COAG commitments. It fits into the broader government vision for the management of water in the State which is outlined in the recent report *The State of Water*. The VRHS will ensure that rivers are managed in accordance with other relevant Victorian Government policies. These include the Victorian catchment management arrangements including the Regional Catchment Strategies, the *State Environment Protection Policy (SEPP) (Waters of Victoria)*, the *Victorian Biodiversity Strategy*, the *Victorian Nutrient Management Strategy*, *Victoria's Salinity Management Framework* and the *Victorian Coastal Strategy*. Implementation of the VRHS within this broader policy context will ensure that our waterways will be sustainable – that they will continue to support the species, communities and ecological processes that are needed to ensure the survival of healthy rivers into the future.

#### Scope of the Victorian River Health Strategy

The VRHS focuses on the management and ecological condition of rivers and streams. Throughout the VRHS, the definition of a 'river' to be used is one which reflects its functioning as an ecosystem:

A river, stream or natural waterway includes:

- the channel;
- the riparian zone, which includes the area of land that adjoins, regularly influences, or is influenced by, the river, including the regularly wetted floodplain and any associated floodplain wetlands; and
- the estuary or terminal lake.

The VRHS covers activities in the catchment when they impact on the environmental condition of the river including the estuary and/or terminal lake.

Whilst the focus of the VRHS is on systems which include major rivers and streams and their terminal lakes/estuaries, it also applies to those systems where the major natural feature is a terminal lake fed by intermittent streams.

The VRHS covers those aspects of the management of estuaries, floodplains and terminal lakes which are impacted by management of the river/streams and catchment and which affect the health of the whole system. It does not deal with all issues affecting these systems. Specific issues relating to the management of wetlands and estuaries, such as coastal development, land management of individual wetlands or recreational use, are dealt with in other related strategies such as the *Victorian Coastal Strategy*, the *Victorian Biodiversity Strategy*, Coastal Action Plans and individual management plans.

### **1.3 STRUCTURE OF THE VRHS**

The VRHS describes the total picture for the management of rivers in Victoria. Throughout the VRHS, statements of policy principle are made which are either a change to or a clarification of what is occurring now. These are indicated in blue text and are boxed. Other actions that are activities required to ensure that the policy principles can be implemented, are indicated, together with the responsible agency, in black text and are boxed.

The VRHS is divided into five major sections.

#### **Section 1 - Strategy Background**

Provides the background and justification for the approach outlined in the VRHS. It gives a short overview of our current knowledge of river ecology, the impacts of various management actions, and describes some key concepts that are used within the VRHS. It also describes the current condition of rivers, and outlines some of the obvious issues that are likely to occur in the future and that therefore need to be addressed by the management framework.

#### **Section 2 - A Vision for Victoria's Rivers**

Outlines the vision for the management of rivers in Victoria, the broad conceptual basis for management and the statewide targets for river restoration.

#### **Section 3 - The Integrated Management Framework**

Describes the planning framework for the integrated management of rivers in Victoria.

#### **Section 4 - Specific Management Issues**

Outlines policy on the management of specific major issues affecting rivers. These include water allocation and the management of water quality, riparian land, and the river channel. In this section, the emphasis is on how the environment needs to be dealt with in community decision-making processes. In the past, economic and to a lesser extent social considerations have been the major focus of these decisions, and the ecological needs and requirements have not been well understood or incorporated into these decision-making processes.

#### **Section 5 - Management Arrangements**

Details the institutional arrangements for the management of rivers and covers issues such as capacity building, monitoring and accountability.