



3

Strategy approach



*Royal Spoonbill on Reedy Swamp.
Photographer: Keith Ward*

Strategy approach

Guide to the chapter

3.1 Vision

3.2 Current condition of waterways

- Rivers
- Wetlands
- Estuaries

3.3 The role for government in waterway management

3.4 Management objective

3.5 Management approach

- Recognising the importance of waterways with formal international, national and state significance
- Implementing and maintaining onground works and managing environmental water in priority waterways
- Fostering strong community partnerships
- Using regulation (legislation and statutory processes)

3.6 Implementing the approach: the Victorian Waterway Management Program

3.7 Guiding principles

3.8 Program logic and Strategy targets

- Program logic for the Victorian Waterway Management Program
- Strategy targets

3.1 Vision

The Victorian Government understands that waterways are important to the community and are a fundamental part of our common heritage.

Waterways have many environmental, social, cultural and economic values that underpin productive and liveable cities and regional towns.

Managing our waterways is a long-term task that requires an understanding that many of the things we value (for example, high quality drinking water and recreational fishing opportunities) depend on the environmental condition of waterways.

The vision for Victoria's waterways is:

Victoria's rivers, estuaries and wetlands are healthy and well-managed; supporting environmental, social, cultural and economic values that are able to be enjoyed by all communities.



Looking out over the Morass. Photographer: Simon Dillinger

3.2 Current condition of waterways

The condition of waterways in Victoria is periodically assessed by the Department of Environment and Primary Industries (DEPI) using the Index of Stream Condition, Index of Wetland Condition and the pilot Index of Estuary Condition (see Section 17.3.4). These resource condition assessment programs collect detailed information about water quality, water regimes, physical form, vegetation and aquatic life and combine this information to score the overall health of a section of waterway (from very poor to excellent).

These assessment programs provide the most comprehensive, statewide information available on waterway condition in Victoria. The information from these assessment programs is also used by other organisations that have environmental reporting obligations. This includes the Victorian Catchment Management Council (who report on catchment condition every five years) and the Commissioner for Environmental Sustainability (who prepares the State of the Environment of Victoria reports). It is important to note that these organisations do not collect their own, independent sources of data on waterway condition.

The Victorian Catchment Management Council (VCMC) released their fourth assessment of the condition and management of land and water resources in Victoria in late 2012. The report highlighted that there is limited ongoing monitoring, reporting and evaluation of the condition of land and water resources on a systematic, statewide basis.¹ An exception to this is waterway condition assessment programs run by the DEPI. The Index of Stream Condition (ISC) program is described by the VCMC as a generally consistent, integrated method for reporting on the condition of rivers in Victoria.

For more information and copies of reports go to: www.depi.vic.gov.au/water/water-resource-reporting then follow the links to the Index of Condition System.

3.2.1 Rivers

The ISC was first used to benchmark the condition of Victoria's rivers in 1999. It provided a broad classification of the condition of Victorian rivers. In general, it showed that river basins in the east of the State were in better condition than those in the west. The second and third ISC assessments (representing 26,000 km of major rivers and tributaries) were conducted in 2004 and 2010 respectively. The second ISC found that no major changes had occurred to the condition of Victoria's major rivers and tributaries since the first assessment in 1999. While no general improvement was detected, overall deterioration in stream condition appeared to have been controlled. The third ISC assessment showed that condition remains better in the east of the state than the west (see Figure 3.1).

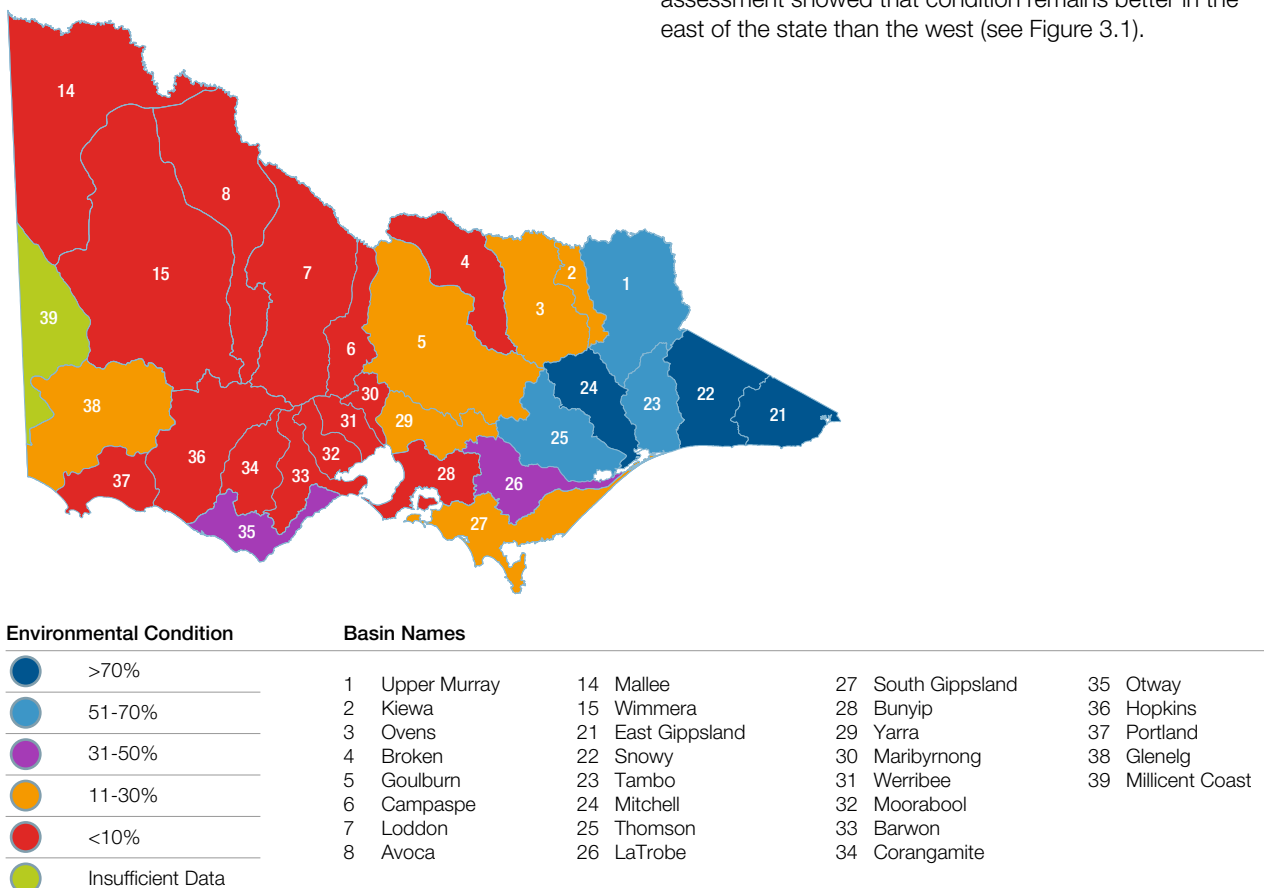


Figure 3.1: Percentage length of rivers in each basin with good or excellent condition in 2010.

Two basins in the east had more than 70% of their length in good or excellent condition including the East Gippsland and Mitchell basins (the Snowy basin had 69.7% of its length in good or excellent condition). However, the majority of river basins in Victoria had less than 10% of their river length in good or excellent condition (15 basins in total). These river basins are mostly located in the western part of Victoria and have generally been extensively cleared for agriculture.

Overall, river condition has remained relatively stable since the last ISC assessment. This is an encouraging result, given that the data collected in the third assessment period (2004-2010) coincided with the end of the severe Millennium drought in south-eastern Australia. Management activities (including fencing, revegetation, weed control and environmental watering) undertaken by the waterway managers in each region have likely played an important role in minimising the impacts of the drought and should assist with future improvement in condition. The major floods that occurred across most of Victoria in 2010/11 provided a critical opportunity for waterways to recover after the drought by increasing environmental water availability, re-connecting isolated pools and wetlands and triggering breeding events for many native fish and birds.

3.2.2 Wetlands

The health of Victoria's wetlands is assessed using the Index of Wetland Condition (IWC). In 2009/2010, the IWC was used to benchmark the condition of almost 600 high value wetlands. The assessment found that 24% of high value wetlands were in excellent condition, 32% in good condition, 30% in moderate condition and 13% were in poor condition and 1% in very poor condition. Overall, a higher proportion (65%) of wetlands on public land were in good or excellent condition than on private land (39%) (see Figure 3.2).

3.2.3 Estuaries

A pilot program, the Index of Estuary Condition (IEC), has recently been undertaken to trial methods for assessing the health of Victoria's estuaries. This preliminary program showed that estuaries were least modified in area's of West Gippsland and far east Gippsland. There were substantial modifications to some estuaries in western Victoria and Port Phillip Bay. Water quality data for Victorian estuaries was patchy, with no clear patterns across the state. There was also no clear pattern of bank erosion in estuaries across the state, although the central coastal region tended to have slightly worse bank condition.

It is clear from these assessments that there is still much work to be done to maintain or improve waterway condition across Victoria. This requires a strategic and co-ordinated program, coupled with significant investment in waterway management activities.

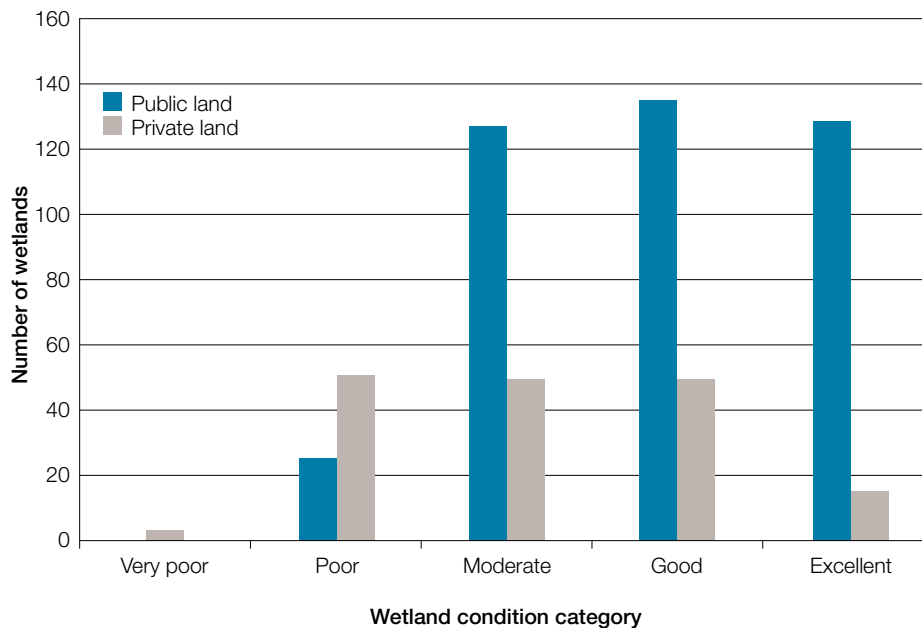


Figure 3.2: The condition of wetlands on public and private land in 2009/10.

3.3 The role for government in waterway management

Waterways provide a wide range of public goods and benefits for people and communities (for example, high quality drinking water, opportunities for fishing and swimming, or scenic places where people can observe wildlife and connect with nature).

However, public benefits can be affected by the actions of individuals, industry and government. This raises the question of who is responsible for maintaining public benefits? The answer requires consideration of some basic economic theory and the role of government regulation or intervention in a market economy.

Market failure in delivering public goods and benefits

In a free market, prices of goods and services provide signals to consumers and producers that should lead to an optimal allocation of resources that satisfies all parties. However, free markets can sometimes fail at providing socially optimal outputs of goods and services. Market failure can occur when an individual or business does not have to account for the full benefits and costs of their actions and they make decisions that are optimal for their purposes, but not optimal from a societal point of view.

The most common example is a business producing a good or service that does not have to pay the costs associated with pollution (instead these costs are spread across society). This is known as a negative externality. Market failure is also common in relation to the provision of public

goods or benefits, such as maintaining the condition of waterways or protecting biodiversity. This is because private firms generally can't make money from supplying public goods since they cannot exclude people from accessing the benefits without paying for them.

Where there are market failures in delivering public goods and benefits, this can be a trigger for government intervention. Government intervention to improve waterway condition is generally only warranted where the benefits of the intervention exceed the costs.

Types of tools to address market failure

There are a wide range of tools and approaches that can be used to address market failure in delivering public goods and benefits. These include direct government investment, market based instruments (for example, grants, subsidies, trading and auctions), information provision (research and development, or extension) and regulation. Different tools are appropriate for different situations depending on the mix between public and private benefits². For example, government should not invest heavily in information provision and extension activities for landholders if it requires landholders to undertake costly actions because they would be unlikely to implement those actions. In such a case, a more appropriate intervention by government might be a positive incentive (for example, a financial incentive to encourage behaviour change such as funding for fencing). Section 4.2.4 provides an overview of the main tools and approaches that can be used in waterway management and the general circumstances in which they should be applied.



Ramsar site; Kerang Wetlands. Courtesy DEPI

3.4 Management objective

Many of the values* provided by waterways rely on the environmental condition of those waterways. When environmental condition is degraded, some of these values may be diminished or lost. This means that communities are less able to enjoy and use waterways and, in some cases, significant social and economic costs can be incurred. For example, a reduction in waterway condition (such as from algal blooms) can reduce recreation and tourism opportunities while also affecting rare or threatened native species.

The environmental condition of waterways is determined by key drivers such as habitat, water quality, water regimes and connectivity (see Figure 3.3). Broader catchment condition, land use, natural events such as floods and bushfire, development and the potential impacts of climate change can all directly influence the environmental condition and values of waterways.

Waterway management needs to consider how all factors (both natural and anthropogenic) affect waterway condition and therefore the values of waterways. Waterway management activities will be targeted towards the key drivers of environmental condition that support the multiple values of waterways.

It is important to note that management activities will primarily focus on maintaining and improving the environmental condition of waterways to provide public benefits. Public benefits include environmental, social and cultural values, in addition to economic values where they are important to a region (for example, water sources for domestic use or production). Private individual benefits (for example, profits from grazing livestock in riparian areas) will be supported where they do not significantly compromise the public benefits.

*Key term – Values

'Values' of waterways include environmental, social, cultural and economic values. An agreed list of values for consideration in regional waterway management programs has been determined by the waterway managers and an expert panel (see Appendix 4.1 for the list of these values). Data on the values contained in each major waterway will come from the Victorian Government, regional agencies and local knowledge (see Chapter 4, Box 4.1).

Policy 3.1

The management objective is to maintain or improve the environmental condition of waterways to support environmental, social, cultural and economic values.

Management activities will focus on maintaining or improving the environmental condition of priority waterways to provide public benefits.

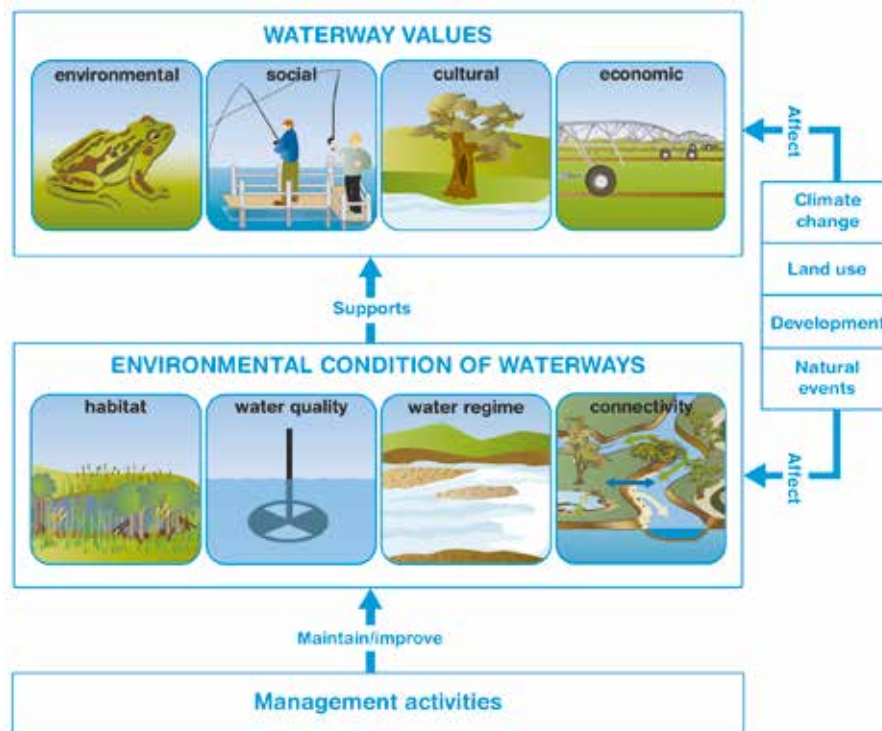


Figure 3.3: The drivers of environmental condition that support the values of waterways.

3.5 Management approach

Policy 3.2

The approach for managing waterways involves four key elements:

- recognising the importance of waterways with formal international, national and state significance
- implementing and maintaining onground works and managing environmental water in priority waterways
- fostering strong community partnerships
- using regulation (legislation and statutory processes).

Managing the serious risks to public infrastructure from waterway processes will be considered as part of implementing the management approach.

3.5.1 Recognising the importance of waterways with formal international, national and state significance

There is a small number of Victorian waterways that have been formally listed or are otherwise recognised as significant for their high conservation, recreation and/or cultural value. These include Ramsar wetlands, Heritage Rivers, waterways in National Parks and more (see Appendix 4.1). Formal recognition can occur at international, national and state level and may result from the passing of legislation, international agreements or state policy decisions.

Waterways with formally recognised significance are important to all Victorians, but also to all Australians and the broader global community. They will be protected by upholding any obligations that may exist under legislation and implementing government approved recommendations for their management.

Waterways with formally recognised significance will be identified as high value waterways in regional priority setting processes (see Section 4.2.3) and their management addressed through regional waterway management programs (see Section 4.2). Ongoing works will be targeted at maintaining or improving the environmental condition of these significant sites. Programs to promote awareness of these important waterways, and to foster community work in these areas, will also be undertaken.



*The Mitchell River is a designated Heritage River.
Photographer: Cuc Chong*

3.5.2 Implementing and maintaining onground works and managing environmental water in priority waterways

In addition to sites of international, national and state significance, there are also waterways that are regionally important for their high values. Although not formally listed or recognised through international, national or state processes, these waterways should also be considered for management activities to maintain or improve their environmental condition. These waterways will be identified as high value in regional priority setting processes and their management addressed through regional waterway management programs (see Section 4.2).

Regional waterway management programs will co-ordinate onground works and environmental water management for priority waterways. Ongoing works include activities such as riparian fencing and revegetation, erosion control, provision of fish passage and instream habitat improvements. Maintenance activities are also critical to ensure that investment in past onground works is protected. This is because physical works such as fencing or fish ladders can have their function impaired over time if they are not regularly maintained. The management of environmental water includes the delivery of specific environmental water entitlements to priority watering sites, development of local management plans for small stream diversions, operating agreements or passing flows through water storages (see Chapter 8).

Regional waterway management programs will also give consideration to managing the serious risks to public infrastructure from waterway processes (for example, floods, erosion and avulsion). The construction and function of public infrastructure, such as bridges, roads, weirs, pipelines and cables, is vitally important to communities. However, this infrastructure can have negative effects on waterways and must therefore be built and managed by the owner in a way that reduces these effects. Standards for the engineering design of public infrastructure are already in place to ensure any new structures are resilient to an acceptable level of risk from waterway processes. It is critical that these standards are enforced and regularly reviewed.

Additionally, public infrastructure can be affected by waterway processes. The protection of public infrastructure has long been a function of waterway management activities. Ongoing actions (for example, erosion control) to manage the serious risks to public infrastructure will be considered in regard to their costs and benefits in the development of regional waterway management programs (see Section 4.2.3). By identifying the risks to public infrastructure and managing them before they become severe, the long-term economic costs to the community will be reduced. More detailed management arrangements for new and existing structures in waterways are outlined in Section 18.6.

This Strategy provides policy direction to guide regional decisions about the use and integration of onground works and environmental water management. Ongoing works can be undertaken by communities in any waterway across Victoria, but limited Government funding means that State investment must be targeted towards priority management activities that are undertaken to a pre-defined standard.

A regional priority setting process for waterways is necessary to ensure that available funding is spent in the most effective way (see Section 4.2.3). Government may not initiate or fund work on sites of local priority if the work does not align with priorities identified in regional waterway planning processes. However, it is recognised that these sites may be targeted by local community groups and can attract other sources of funding such as local government or Australian Government grants and private or philanthropic donations. These groups will be supported by the provision of information to build local capacity.

3.5.3 Fostering strong community partnerships

Waterway management is an ongoing task that requires both long-term commitment and a true partnership between Government and communities. Individual landholders and businesses are relied on to manage their own actions and enterprises in ways that meet their 'duty of care' and recognise their role as stewards of land and water resources. Good land management is also vital to ensure that the condition of waterways downstream is not affected.

Strong management partnerships are also vital, particularly for the management of riparian land adjacent to farming land. Government can provide assistance to landholders to undertake management activities to improve waterway condition, such as fencing and offstream watering points for livestock. Government and regional agencies work closely with all landholders that have waterways on, or adjacent to, their property by providing advice, assistance and funding.

Victorian Traditional Owners are important partners to the Victorian Government in waterway management due to their long connection to the land and water. They have a vast knowledge of native plants and animals and can make a valuable contribution to integrated catchment management. This is recognised by the Victorian Government through formal agreements with Traditional Owner groups and joint or co-operative management arrangements for some areas. Further detail regarding Victorian Traditional Owner and Aboriginal involvement in waterway management is provided in Chapter 6.

All individuals across Victoria can be actively involved in improving waterway condition by participating in community groups and networks, such as Waterwatch, Landcare, EstuaryWatch and 'Friends of' groups. These groups often take part in habitat restoration or monitoring activities to help inform decision making and waterway management. They also provide an opportunity for interested community members to increase their knowledge about waterways and be actively involved in improving the environmental condition of areas that are of high local importance to them or their group.

Government funding cannot address all of the waterway management issues in every waterway across Victoria. Therefore, community groups are vital for undertaking work in areas that are a local priority and for attracting additional sources of funding for waterway management activities. Government provides support to these groups through actions such as the funding of Landcare and Waterwatch facilitators. Waterway managers (that is, catchment management authorities and Melbourne Water in the metropolitan region) also include education and awareness activities as an integral part of their regional waterway management programs.

All community members can participate in regional waterway management planning through input during the development of regional waterway management programs. These regional planning processes provide a mechanism for setting practical management objectives for waterways and making decisions and trade-offs about the types of values to be maintained or improved. To facilitate this involvement, waterway managers run community engagement sessions and public consultation periods during the development of regional waterway management programs. Further detail about community involvement in waterway management is outlined in Chapters 4 and 5.

3.5.4 Using regulation (legislation and statutory processes)

Regulatory approaches are commonly implemented through provisions in legislation, statutory processes or, in some instances, through the planning system.

Legislation

Controls over the use and management of land, water and biodiversity are already in place. These controls are generally in the form of legislation. There are many pieces of legislation that exist at both the Commonwealth and State level that are relevant to waterway management (see Appendix 3.1). Fulfilling the obligations of this legislation is a vital component of waterway management (for example, issuing works on waterways licenses in accordance with the *Water Act 1989*). This legislation also sets out important management frameworks, such as the water entitlement and allocation framework under the *Water Act 1989*. A review of the *Water Act 1989* is currently underway to streamline Victoria's water legislation (see Section 1.2.1).

Pollution control

The control of point source pollutants is achieved primarily through a range of regulatory mechanisms. The Environment Protection Authority (EPA) Victoria uses mechanisms provided under the *Environment Protection Act 1970* to prevent direct discharges of pollutants to waterways or limit discharges to levels that will ensure the environment is protected. The EPA Victoria uses a combination of works approvals and licences, issuing of notices and formal enforcement to achieve the levels of protection required by the *State Environmental Protection Policy (Waters of Victoria)*.

However, the control of more diffuse source pollutants is not always directly regulated and is an increasing challenge for management. Some regulatory frameworks and activities do exist for controlling diffuse pollution sources. These often involve more collaborative and co-regulatory approaches (for example, frameworks for managing stormwater and/or on-site domestic waste water systems and the role of local government). The EPA Victoria also works together with other agencies and industry bodies to identify water quality issues, prioritise high risk areas and help solve causal problems. Integrated catchment management and its role in identifying and creating joint action is the key to helping control many of the more diffuse pollution sources affecting Victoria's waterways.

Native vegetation regulations

In September 2012, the Victorian Government announced a review of Victoria's native vegetation permitted clearing regulations. The aim of the review was to improve and strengthen the regulatory system to deliver better outcomes for the environment and the community. In May 2013, the Victorian Government finalised and released the reform package, which aims to ensure impacts on biodiversity are appropriately considered when decisions regarding land use change and development are made.

These new regulations provide greater focus on managing risks and impacts to important biodiversity assets, while lowering costs to the community and providing more certainty for landholders. Changes resulting from these reforms do not affect the consideration of land and water protection within planning schemes or any waterways identified specifically in planning schemes, such as those covered by Environmental Significance Overlays.

Planning system

Planning refers to decisions that set out the way land may be used or developed.

Planning schemes are administered by local councils and contain the Victoria Planning Provisions and local planning policy. Zones, overlays and other provisions guide how land can be used and developed. Each municipality has a planning scheme that indicates if a planning permit is required to change the use of the land, construct a building or make other changes to the land. Every planning scheme in Victoria contains the same policy framework; the *State Planning Policy Framework*. This covers strategic issues of State importance, including clauses on environmental and landscape values, environmental risks and natural resource management. In relation to waterway management, most of these provisions help ensure planning is co-ordinated with the activities of waterway managers and other relevant agencies.

In 2012, the Victorian Government released guidelines for *Planning permit applications in open, potable water supply catchment areas*. The purpose of the guidelines is to assist water corporations and other referral and responsible authorities in their assessment of planning permit applications for use and development of land within all open, drinking water supply catchments in Victoria.

Planning controls are also used to help ensure that new infrastructure is located and developed with due consideration of physical hazards such as flood and bushfire risk. Within a planning scheme, overlays can be used to show land that has particular values such as significant environmental features or land subject to threats such as flooding. The overlay information will indicate if a planning permit is required.

Waterway managers are also designated referral authorities in relation to planning applications and planning scheme amendments that affect floodplains and land subject to inundation (including coastal locations). They also undertake flood studies to support strategic planning.



*Planning controls guide how land can be used and developed.
Courtesy Melbourne Water*

3.6 Implementing the approach: the Victorian Waterway Management Program

In Victoria, there are ten catchment management regions (see Figure 3.4) and each has a catchment management authority to co-ordinate integrated management of land, water and biodiversity.

Catchment management authorities also have specific responsibilities for waterway management (under the *Water Act 1989*), except in the Port Phillip and Westernport region where Melbourne Water have the waterway management responsibilities.



Figure 3.4: The ten catchment management regions in Victoria.

The management approach for waterways described in Section 3.5 will be implemented through the 'Victorian Waterway Management Program'. The Department of Environment and Primary Industries (DEPI) is primarily responsible for oversight of the Program and establishing the state policy framework for waterway management. Regional implementation of the Program is led by the waterway managers (that is, nine catchment management authorities and Melbourne Water in the metropolitan region).

This Program is based on an eight-year adaptive management cycle, where learning occurs at all stages and is used to update and improve the program in subsequent cycles (see Figure 3.5) (see also Chapter 17). The exception is Melbourne Water, which operates on the five-year cycle regulated by the Essential Services Commission (see Section 18.2.2 for more information on management arrangements). The Victorian Waterway Management Program involves the following stages and components:

- **Strategy and planning** – statewide policy framework and targets, planning for waterway management through regional Waterway Strategies with priorities and regional targets.
- **Implementation and monitoring** – Government and other investment in regional priorities, implementation of priority management activities, monitoring of management activities (intervention monitoring) and long-term resource condition assessment.
- **Evaluation and reporting** – management reporting, resource condition reporting, program evaluation and improvement.

Community participation and research and innovation occur across all parts of the Program.

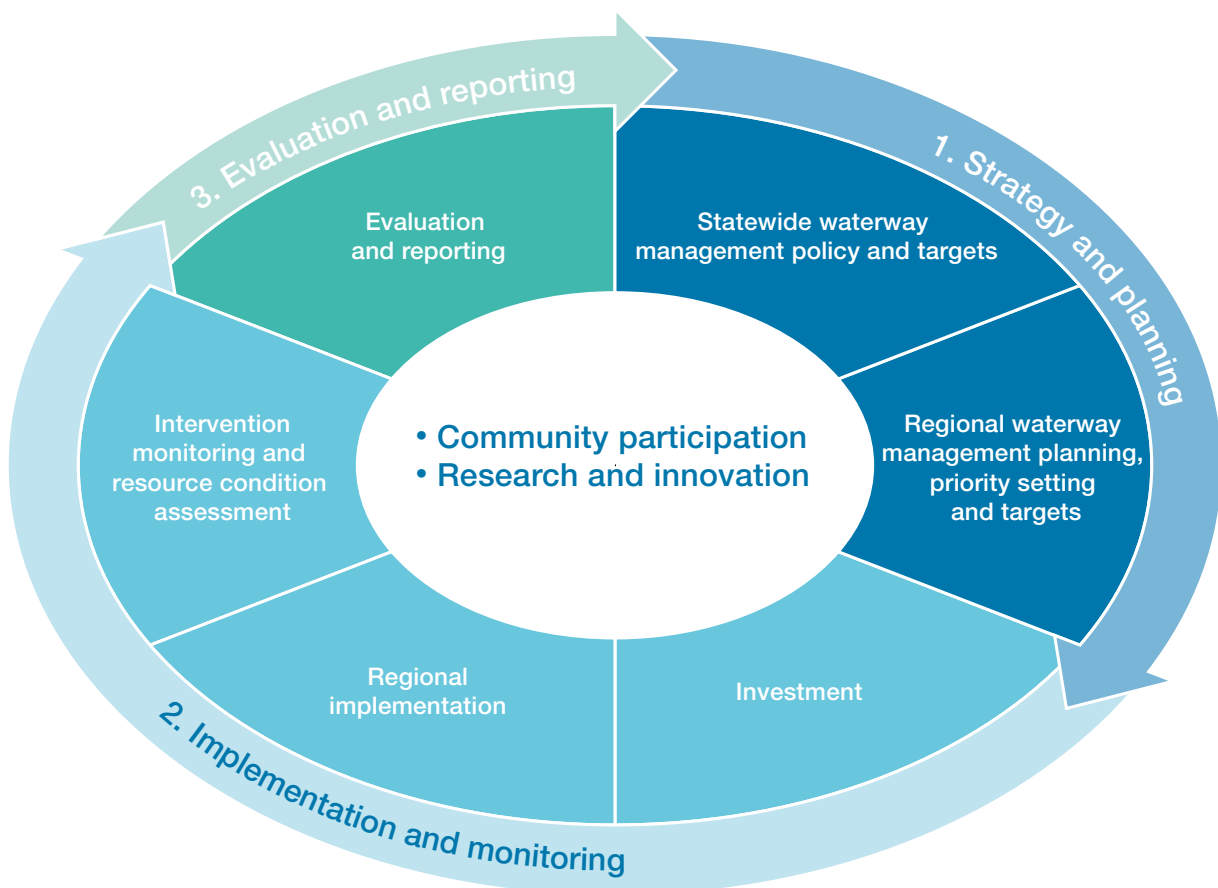


Figure 3.5: The eight-year adaptive management cycle of the Victorian Waterway Management Program.

3.7 Guiding principles

Achieving the vision for Victoria's waterways requires long-term commitment from the Victorian Government and communities, coupled with effective investment in regional waterway management programs across the state. The management approach for working towards this vision is guided by the following principles:

- **Partnership approach** – waterway management will continue to be a partnership between government, industry and the community.
- **Community involvement** – communities will have the opportunity to be involved in waterway management and this participation can help foster increased stewardship of waterways.
- **Integrated catchment management** – integrated management of waterways will occur within a broader framework of integrated catchment management. Management will recognise the importance of waterways as a connection between catchments, groundwater, coasts and the receiving marine environment and the strong influence of land use and catchment condition on waterway condition.
- **Appropriate tools** – the full complement of tools and approaches will be considered to improve waterway condition including; direct Government investment in onground works, grant and incentive programs, management agreements, market-based instruments, information and extension programs and regulation.
- **Value for money** – Government will direct investment to regional priority management activities that provide the most efficient and effective long-term improvements in waterway condition and the greatest community gain.
- **Regional Waterway Strategies** – facilitate regional decision-making with community input and use a risk-based approach to identify high value waterways and priority management activities. They will:
 - consider environmental, social, cultural and economic values of waterways
 - be holistic and integrate onground works with environmental water management
 - ensure efficient and effective management of environmental water
 - include maintenance as a vital activity to secure both past and future investment in onground works
 - be flexible in response to seasonal climatic variation and plan for the potential impacts of climate change.
- **Evidence-based decision-making** – best available knowledge will underpin decision making, policy and waterway management programs.
- **Adaptive management** – policy and programs are part of a broader framework of adaptive management (supported by effective monitoring, reporting, evaluation and research) to ensure continuous improvement.



Using partnership approaches to improve waterway health. Courtesy Melbourne Water

3.8 Program logic and Strategy targets

3.8.1 Program logic for the Victorian Waterway Management Program

Program logic is an approach to planning (commonly used in natural resource management) that uses a diagram to demonstrate the rationale for a program and express how change is expected to occur³.

The simplified program logic for the Victorian Waterway Management Program is illustrated in Figure 3.6. It describes how each year, specific management activities (outputs) are delivered by regional agencies across Victoria in order to achieve particular management outcomes. Over the eight-year planning period, these outputs and outcomes collectively contribute to either maintaining or improving the environmental condition of waterways. For a small number of near natural waterways that are in excellent condition,

aiming to maintain their current condition is an appropriate goal. For some waterways where there are significant threats to waterway condition it may not be possible to improve their condition, even with a significant program of management activities. However, for the majority of waterways where management activities are undertaken the aim will be to improve their environmental condition. In the long-term, this will ensure that Victoria's waterways can continue to support environmental, social, cultural and economic values.

A more detailed version of this program logic and additional explanatory information is provided in Appendix 3.2. The specific wording of outputs is taken from the agreed list of 'standard outputs' used by the DEPI and waterway managers to describe the management activities undertaken in regional waterway programs.

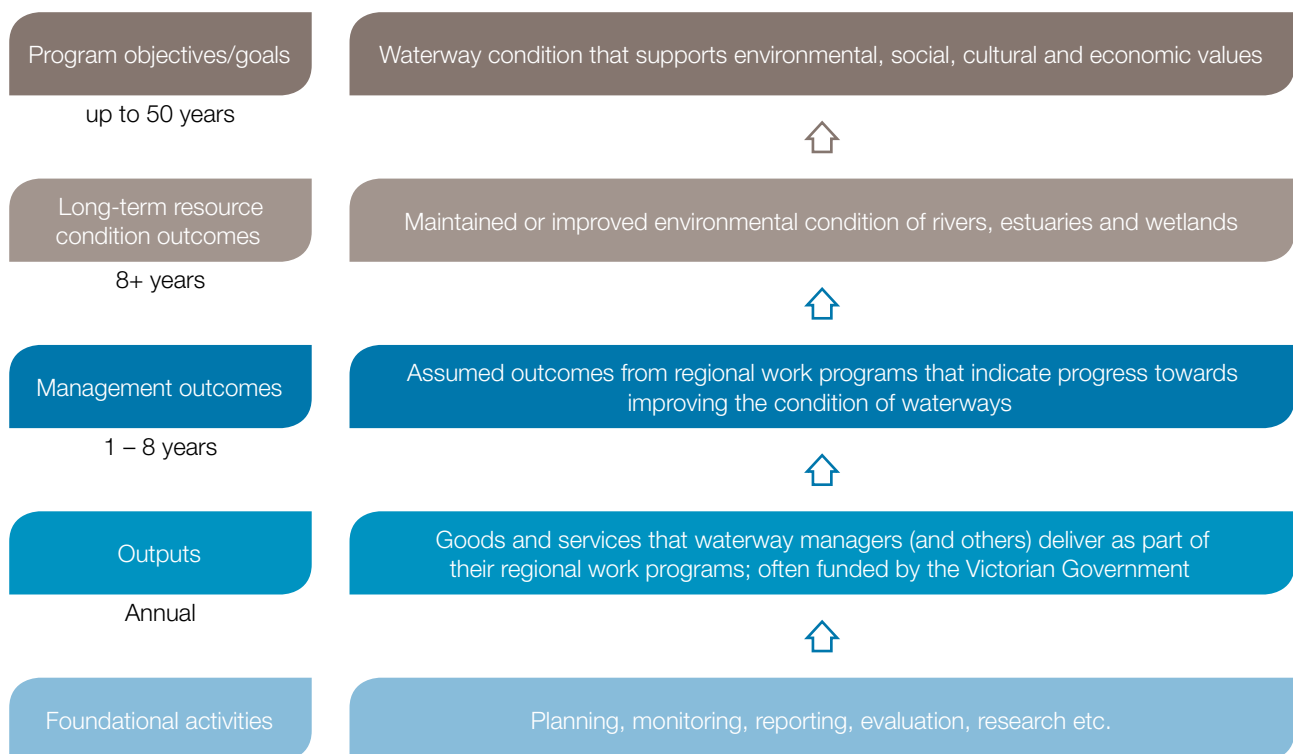


Figure 3.6: The simplified program logic for the Victorian Waterway Management Program.

3.8.2 Strategy targets

The latest assessment of catchment condition by the VCMC was hindered by the fact that there are generally no explicit, long-term targets for resource condition¹. The VCMC attributed this to a lack of clarity (and knowledge) about the quality of land and water resources required to maintain and enhance long-term land productivity while also conserving the environment.

This same issue (in the specific context of waterways) was discussed by the Expert Scientific Panel advising on the development of this Strategy (see Section 1.3 and Appendix 1.1). Following the public consultation on the *Draft Victorian Waterway Management Strategy*, the Panel was asked to provide advice about the current state of scientific knowledge regarding prediction of changes in waterway condition as a result of management activities (see Box 3.1)

Targets for this Strategy were developed based on the program logic structure and limited by available sources of data that can be used to confidently report against each one. Targets are set at the long-term resource condition outcome and management outcome level.

Box 3.1: Ability to predict future waterway condition

The Expert Scientific Panel advised in early 2013 that we currently do not have all the information required to accurately predict specific (quantitative) changes in waterway condition at the statewide level as a result of management activities. Current knowledge is only likely to be sufficient to support general, descriptive (qualitative) predictions about the directional changes in condition (for example, declining, maintaining or improving) that are expected as a result of regional work programs across Victoria. The focus for improving knowledge to enable quantitative assessments of condition change should be at the regional level. The use of evidence-based models, research and monitoring will ensure that knowledge and confidence about predicting the effect of management activities is improved over the next eight years.

Long-term resource condition outcome targets

Given the difficulties with setting accurate, quantitative targets for waterway condition at the state level, directional statements have been used to set aspirational targets for waterway condition in this Strategy. These directional statements provide guidance for regional waterway programs to aim for maintaining or improving the environmental condition of waterways. The information sources that will be used to report on these targets are the ISC, IWC and the pilot IEC.

This category of targets is therefore limited to 'priority/high value' waterways because these are the waterways that will be assessed as part of the Index of Condition programs (see Section 17.3.4) and therefore have data to enable assessment of whether condition has been maintained or improved over the life of the Strategy (compared to the last assessments undertaken). Priority river reaches will be defined in the regional Waterway Strategies and condition data is available for all of these waterways. High value wetlands are defined as wetlands with baseline information on condition collected in the 2009/2010 IWC assessment (which focused on wetlands of formally recognised significance). High value estuaries are defined as those with formally recognised significance that also have baseline information on condition collected as part of the pilot IEC program.

Management outcome targets

At the management outcome level, 10 categories of outcomes were selected based on availability of data for reporting and the outcomes towards which the majority of Victorian Government funding for waterway management is directed. The targets for management outcomes are aspirational estimates and were developed by summarising regional estimates of what would be required to maintain or improve the condition of priority/high value waterways over the next four and eight years, based on the assumptions of 1) no extreme events such as flood or bushfire, 2) not being limited to existing State funding and 3) using the achievements of the past decade as a guide to what is reasonably likely to be achieved (given time required for activities, capacity to implement etc.).

These aspirational targets reflect the wide range of fund sources that contribute to waterway management activities. This includes local, regional, State and Commonwealth funds as well as funding and in-kind contributions from landholders, community organisations and individuals. The targets may not necessarily be achieved if funding or priorities of investors change as the Strategy is implemented over the next eight years. For example, the priorities for the Commonwealth Caring for our Country program (2013-2018) are targeted to coastal areas and the western portion of Victoria, but may change in future programs.

At the output level (for example, fences constructed and waterway structures established) targets will be developed and outlined as part of the regional Waterway Strategies. This is because regional waterway managers deliver these activities according to the priorities within their region.

The Strategy targets are outlined in Figure 3.7.

Progress against the targets will be publicly reported through the Report Card series and the three Index of Condition reports (see Section 17.4 for further detail on reporting and evaluation).

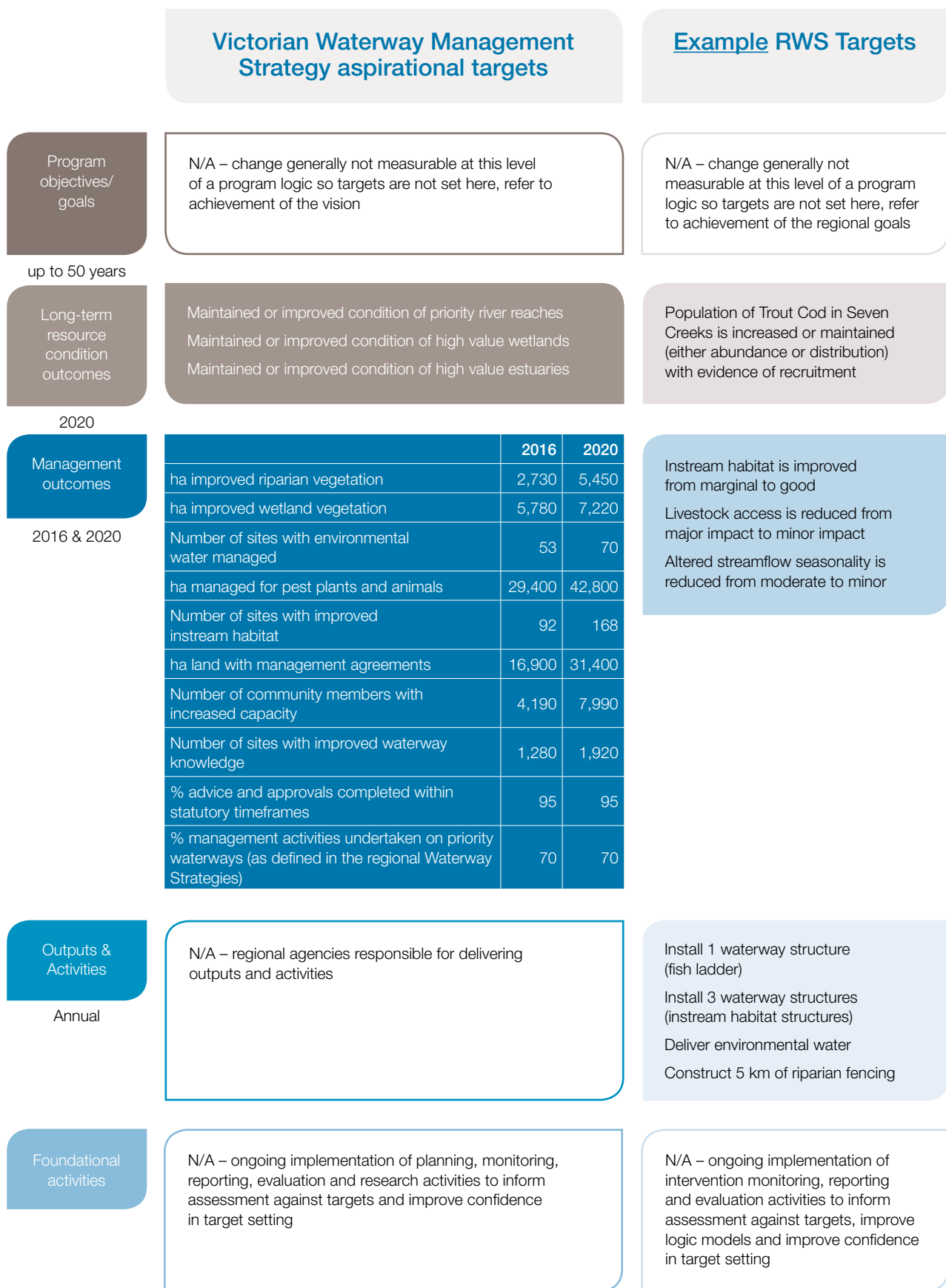


Figure 3.7: Aspirational Strategy targets within the context of the program logic.



4

Regional waterway management



Ovens River. Photographer Jarod Lyon

Regional waterway management

Guide to the chapter

4.1 The regional planning process for waterway management

4.2 Regional Waterway Strategies

- Overview
- Managing waterways with formally recognised significance
- Regional priority setting
- Tools and approaches for waterway management
- Implementing the seasonally adaptive approach
- Target setting
- A process to change management objectives

What are the issues with existing arrangements?

The current regional River Health Strategies have passed their intended lifespan. They did not cover estuaries and wetlands, which have now been incorporated into the Victorian Waterway Management Program. There is scope to improve the integrated waterway management planning framework by drawing on the experience gained during the implementation of the regional River Health Strategies. Implementation of regional waterway management programs requires a more flexible approach to ensure that the management activities undertaken are appropriate given the prevailing climatic conditions in a given year.

What improvements does the Strategy make?

The Strategy will:

- improve the integrated waterway management planning framework
- incorporate estuaries and wetlands in regional waterway planning arrangements
- improve the regional priority setting process
- incorporate increased flexibility for waterway managers to respond to varying climatic conditions
- better integrate environmental water management with other waterway management activities.

4.1 The regional planning process for waterway management

Regional planning processes for waterway management were established through the regional River Health Strategies (RRHSs).

The RRHSs were umbrella documents that co-ordinated all other river-related action plans and were developed by waterway managers (that is, catchment management authorities and Melbourne Water in the metropolitan region) between 2004 and 2006. The RRHS development process provided a mechanism for setting objectives for waterways in consultation with the community and balancing the environmental, social and economic values of waterways. A list of priority management activities was then developed to guide investment in waterway management in the region over a six-year period. The RRHSs were the cornerstone of the regional planning framework for waterway management, but have now passed their intended lifespan and will be replaced by statutory plans under the *Water Act 1989*, called regional Waterway Strategies (RWSs). The RWSs are the new centre-piece of an integrated waterway management planning framework for rivers, estuaries and wetlands (Figure 4.1). For some issues (for example, environmental water management) the RWSs will be supported by management plans that provide more detailed information on objectives, management activities and targets. The process for environmental water planning is outlined in Chapter 8.

The RWSs will be developed in accordance with regional decisions about water allocation and water recovery targets that have been made through the current regional Sustainable Water Strategies (SWSs). Each regional SWS sets out a long-term regional plan to secure water for local growth, while maintaining the balance of the area's water system and safeguarding the future of its waterways and groundwater.

The Regional Catchment Strategies (RCSs) are the primary integrated strategies for managing land, water and biodiversity in Victoria. The RCSs identify priority areas and a program of measures to protect and manage those places. The long-term objectives and priorities in the RCS that relate to waterways will be implemented through the RWSs.

There are many other strategies and plans that do not have waterway management as their primary focus, but need to be considered in regional waterway management planning. These include state strategies (such as the Victorian Coastal Strategy), plans for the management of public land (such as forests and parks plans, fire plans and regional coastal plans) and other relevant longer-term strategies such as regional growth plans.

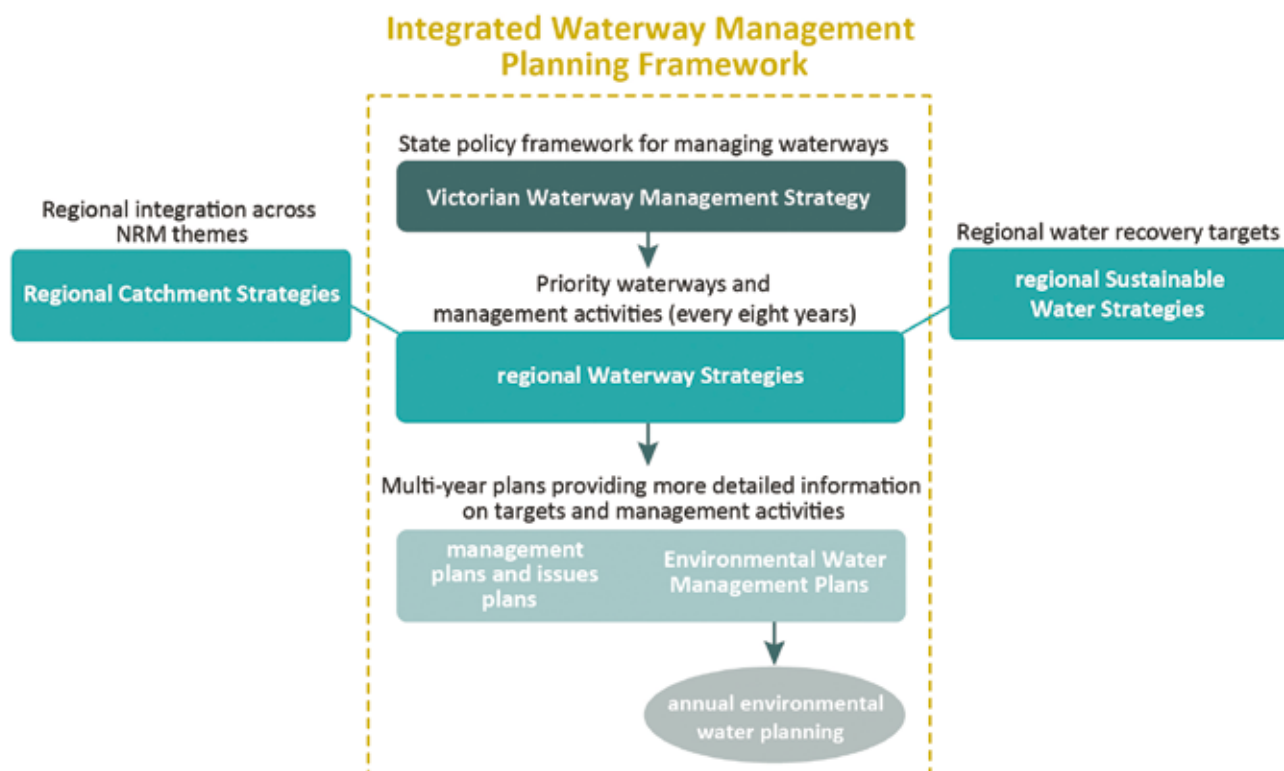


Figure 4.1: The Integrated Waterway Management Planning Framework.

4.2 Regional Waterway Strategies

4.2.1 Overview

The RWSs will provide a single planning document for river, estuary and wetland management in each region and will drive implementation of the management approach outlined in Chapter 3. The RWSs will be developed by waterway managers in partnership with other regional agencies and boards involved in natural resource management, plus Traditional Owners, regional communities and other key stakeholders. For coastal regions, the RWSs will include the management of estuary condition (see Section 13.3), highlighting the importance of estuaries as the link between catchments, coasts and the marine environment.

The RWSs will outline regional goals for waterway management that align with the objectives for waterways described in the RCSs. High value waterways will be identified and, from those, a subset of priority waterways will be determined for the eight-year planning period. A strategic regional work program of management activities for priority waterways will be developed and guide investment over an eight-year period (five-year period for Melbourne Water).

The regional work program will consider the full range of tools and approaches available for waterway management, including market-based instruments, government investment in onground works or environmental water management, research and community awareness raising or information provision and regulation (see Section 4.2.4).

The RWSs will also identify regional priorities for environmental water management over the eight-year planning period, together with the complementary management activities required at those sites. This information will be used as a key input to environmental water planning arrangements (see Section 8.4).

The regional work program will provide clear direction to guide investment in waterway management by the Victorian Government.

These work priorities will also provide guidance to local governments, the Australian Government and private or philanthropic donors about where investment is required in the region over an eight-year period. This provides investors with confidence that their annual funding of management activities is linked to a longer-term, strategic plan.

The required content of the RWSs is outlined in the *Regional Waterway Strategy Guidelines* published by the Department of Sustainability and Environment in December 2012. Additional direction is provided through a series of guidance notes on key topics, developed in partnership with the waterway managers.

Principles for identifying high value waterways

High value waterways are not just those with environmental values, they also include waterways that are important for their high social, cultural or economic values.

Waterways will be considered high value if they have one, or more, of the following characteristics (from Appendix 4.1):

- formally recognised significance
- presence of highly threatened or rare species and communities
- high naturalness values (for example, aquatic invertebrate communities or riparian vegetation) or special waterway features (for example, drought refuges or important bird habitat)
- high social, cultural or economic values (for example, recreational fishing, Aboriginal cultural heritage, urban or rural water sources).



Environmental water release to Glenelg River. Courtesy Glenelg Hopkins CMA

Policy 4.1

The regional Waterway Strategies will build on the success of the regional River Health Strategies by:

- expanding their scope to include wetlands and estuaries (where applicable)
- integrating environmental water management with other waterway management activities.

The regional Waterway Strategies will:

- identify high value waterways (based on environmental, social, cultural and economic values)
- determine priority waterways for the eight-year planning period

- include a regional work program of management activities for priority waterways (including environmental water management)
- guide investment into multi-year projects and annual work programs
- be developed in consultation with regional agencies and boards, Traditional Owners, the regional community and other key stakeholders
- seek comments on a draft strategy during a public consultation period of at least one month
- be endorsed by the Minister for Water and the Minister for Environment and Climate Change.

Action 4.1: Develop regional Waterway Strategies in accordance with guidelines published by the (then) Department of Sustainability and Environment in December 2012.

Who: **Waterway managers**, regional agencies and boards, in consultation with Traditional Owners, the regional community and other key stakeholders.

Timeframe: 2014

4.2.2 Managing waterways with formally recognised significance

There are some waterways of particularly high value that are formally recognised for their significance (see Section 3.5.1 and Appendix 4.1). Special provisions are already in place to protect many of these waterways. These provisions range from international conventions and partnerships, to statutory protection under state and federal legislation and special listings in reports and policy documents by state and federal agencies.

Policy 4.2

Waterways with formally recognised significance will continue to be managed to maintain or improve their condition.

The regional Waterway Strategies will consider all waterways with formally recognised significance as high value waterways.

Existing management plans or legislation to protect those waterways will be supported and the regional Waterway Strategies will identify any additional priority management activities that need to be undertaken or new management plans to be developed.



Edithvale - Seaford Wetlands. Courtesy DEPI

4.2.3 Regional priority setting

The asset-based approach

Threat-based approaches to natural resource management, such as investing in management of poor water quality or salinity over large geographic areas, have diminished across Australia over the past decade. Instead, asset-based approaches have become the primary framework for managing the natural environment, where planning focuses on important natural 'assets', rather than on threat-based issues. An asset is a spatially defined, biophysical component of the environment (for example, a river, estuary or wetland) that has particular values associated with it. The values associated with these assets can be classified as environmental, social, cultural or economic. The asset-based approach facilitates development of integrated work programs that can address multiple threats to the values of an asset. Asset-based approaches also direct public investment in natural resource management towards high value areas (rather than large areas in poor condition) and provide the basis for identifying priorities for investment. The focus on priority areas means that environmental condition may not improve, or might decline, in some other areas.

Regional priority setting for waterways

Priority setting is a core activity in planning. A transparent process for setting priorities using the asset-based approach requires detailed information on assets, their values, threats to values and levels of risk. This approach has previously been implemented at the regional level in Victoria through the development of the RRHSs.

The regional priority setting approach for the RRHSs involved assessment of information on the environmental, social and economic values of rivers, threats to these values, and the level of risk to the values. This information was then used to identify the high value rivers in a region and make decisions about which of those rivers were a priority for management activities over the life of the RRHSs.

This regional priority setting process will now be applied to rivers, estuaries and wetlands and will underpin the development of the RWSs. The environmental, social, cultural and economic values of waterways (and threats to those values) are a key consideration in this process. Supporting work has been undertaken by the Victorian Government and waterway managers to develop a transparent and consistent method for collecting data about values and threats and giving each a simple score. This information is housed in a central database, which also determines risk levels. Waterway managers use this information to assist with the regional priority setting process (see Box 4.1). Appendices 4.1 and 4.2 show the values and threats with consistent, statewide data that are included in the database and are therefore considered in the regional priority setting process.



Threatened species, Barred galaxias. Photographer: T.A. Raadik

Box 4.1 Consistent data to support the regional priority setting process

The regional priority setting process relies on information about values, threats and risks. It is vital that this information is collected and described in a consistent way and, where possible, that the information is based on real data (for example, data collected from onground monitoring activities). A database has been developed to house this information and support the regional priority setting process. The Aquatic Value Identification and Risk Assessment (AVIRA) database contains information about the values and threats associated with selected river, estuary and wetland assets. These selected assets are sections of rivers, estuaries or wetlands that are assessed as part of the Index of Stream Condition, Index of Wetland Condition or pilot Index of Estuary Condition programs (see Section 17.3.4) and therefore have detailed information available about environmental values and threats. Other types of values (for example, social values) require information to be collected at the regional level by waterway managers and entered into the database.

To ensure that all information is collected and entered into the database in a consistent manner, a process for collecting and scoring all values was developed by the (then) Department of Sustainability and Environment, in partnership with the waterway managers. All value and threat information is converted to a score between 0 and 5 (except for values that can only be yes or no, such as formally recognised significance). An example of the data sources and scoring rules for the values 'Heritage Rivers' and 'Non-motor boating' is shown to the right:

Value – Heritage Rivers (environmental)

Score	Descriptor
Yes	Asset forms part of a Heritage River
No	Asset does not form part of a Heritage River

Data source: *Rivers and Streams Special Investigation: Final Recommendations* (Land Conservation Council 1991)

Value – Non-motor boating (social)

Score	Descriptor
5	Waterway used for annual (or more frequent) non-motor boating event
4	Waterway is popular for non-motor boating
3	Waterway is occasionally used for non-motor boating
1	Not known to be used for non-motor boating
0	Not suitable for non-motor boating

Data source: Peak body (for example, Canoeing Victoria or Rowing Victoria), *My Victorian Waterway* survey, local knowledge

The database also includes a standardised risk assessment procedure that provides an automated assessment of the level of risk to all values present in a waterway. This assessment is based on evidence of associations between values and threats and also incorporates a level of confidence in each of those associations. The database also provides a suggested category of management response. For example, a waterway with high values and low threats would have a very low risk level and the suggested management response would be to maintain waterway condition (see Figure 4.2).

Once priority waterways are determined for the eight-year planning period, management activities are selected for those waterways. Depending on the level of risk, management activities will focus on protecting the current environmental condition of a waterway or aim to reduce threats and improve condition over time. Logic models (see Section 17.2.1) will be used to help select appropriate management activities, based on the best available knowledge.

Where multiple values exist, it will often be possible to identify management activities that will be beneficial for all values (for example, reducing threats to waterway condition will often protect environmental and social values). Where values potentially conflict (for example, managing threatened native fish and recreational fishing for salmonids within a single waterway) the RWS development process provides the mechanism for regional decision making about which values will be managed for (with reference to the regional goals and consultation with stakeholders).

Undertaking management activities on non-priority waterways

The majority of Victorian Government investment in regional waterway management is directed to management activities on priority waterways. However, there are also circumstances when investment can occur on non-priority waterways for example, it may be necessary to undertake work in upstream areas to reduce threats to downstream priority waterways (such as, erosion control works in highly modified waterways to protect downstream wetlands). Investment may also be required to protect public infrastructure or to support dedicated community groups who are actively working to improve the environmental condition of their local waterway. Finally, existing regulatory controls apply across all waterways in Victoria and work that is required to comply with any legal or statutory requirements must be undertaken.

Waterways that are not a priority in the RWSs may still be a priority for local communities, who can apply for grants from local government, the Australian Government and private or philanthropic donors to undertake management activities.

Managing serious risks to public infrastructure from waterway processes

In addition to maintaining or improving waterway condition, the protection of public infrastructure from waterway processes (see Box 4.2) is an important consideration in waterway management.

Managing risks to public infrastructure is primarily the responsibility of the owner of that public infrastructure (asset owner). New public infrastructure must be built to an appropriate standard to minimise these risks. Further information on responsibility for managing new and existing structures in waterways is provided in Section 18.6.

Management activities required to manage the serious risks to public infrastructure from waterway processes should be negotiated by asset owners, waterway managers and relevant beneficiaries of the public infrastructure. Waterway managers often have a detailed understanding of the location and rates of erosion, flooding, avulsion and other waterway processes that may threaten public infrastructure. The development of the RWSs provides a clear opportunity for stakeholders to have these discussions and determine management activities that the waterway manager or other regional agencies should undertake over the eight-year planning period. State funding for actions to manage serious risks to public infrastructure is discussed in Section 18.4.1.

The level of protection required for public infrastructure should be discussed by asset owners and waterway managers and informed by an assessment of risk that considers available information on:

- waterway processes affecting the infrastructure
- the value of the infrastructure
- the consequences to the community if the infrastructure is lost or damaged
- the likelihood of loss or damage and the costs of the work required (including both financial and environmental costs).

Box 4.2: Public infrastructure at risk from waterway processes

Public infrastructure is defined here as structures, facilities, buildings or areas of land that are used for public or community purposes and are located in, across or adjacent to waterways. Common examples include weirs, dams, bridges, roads, communication cables, levees, public buildings and sports fields. Public infrastructure is distinguished from private assets (such as private land or buildings).

Waterway processes that can pose risks to public infrastructure include erosion, sedimentation, floods and avulsion (when a river suddenly changes its course).

Action 4.2: Develop principles for managing serious risks to public infrastructure from waterway processes.

Who: Department of Environment and Primary Industries, waterway managers, floodplain managers, asset owners. **Timeframe:** late 2013

Policy 4.3

Waterway managers and asset owners will share information to assess risks to public infrastructure from waterway processes.

Management activities required to manage serious risks to public infrastructure from waterway processes should be negotiated by asset owners, waterway managers and relevant beneficiaries of the public infrastructure.

Management of serious risks to public infrastructure from waterway processes will be undertaken in accordance with the directions outlined in the Victorian Government response to the Environment and Natural Resources Committee Inquiry into Flood Mitigation Infrastructure in Victoria (where relevant).

Community input

Community input is a critical part of the regional priority setting process and there are multiple opportunities for this to occur. Local communities are an important source of information about many of the social values that waterways provide. Waterway managers involve communities in developing management objectives for waterways in the region during the development of the RWSs. The feasibility of many management activities depends on consultation with and agreement of local landholders. Regional communities also have the opportunity to comment on the overall regional waterway program when the draft RWSs are released for public consultation.

Policy 4.4

The regional priority setting process underpinning development of the regional Waterway Strategies must:

- develop regional goals for waterway management
- identify high value waterways (based on environmental, social, cultural and economic values)
- filter the high value waterways and select those that align with the regional goals
- identify threats to the values of those waterways and assess the level of risk
- determine priority waterways for the eight-year planning period
- identify high level management activities and assess their feasibility and cost effectiveness
- select priority management activities to form a regional work program for the eight-year planning period.

Principles for undertaking management activities on non-priority waterways

In some cases, management activities may be undertaken on non-priority waterways if:

- they are a source of threats to other priority waterways (for example, downstream priority waterways)
- they provide important connectivity between priority waterways
- there is a serious risk to public infrastructure from waterway processes or an opportunity to reduce risks associated with extreme events (such as floods)
- there is strong community commitment to improving the condition of their local waterway
- work is required to meet statutory or regulatory obligations.

Action 4.3: A transparent and consistent regional priority setting process will be run, in consultation with the community, to underpin development of the regional Waterway Strategies.

Who: Waterway managers, regional communities.

Timeframe: late 2013

A simple summary of the regional priority setting process described in Section 4.2.3 is shown in Figure 4.2.

	Low risk to values	High risk to values
Priority waterways	Management activities to maintain waterway condition	Management activities to reduce threats to waterway condition
Other waterways	Not a priority within the eight-year planning period	Management activities only if they: <ul style="list-style-type: none">• reduce threat to high value waterways• provide connectivity• protect public infrastructure or reduce risks from extreme events• maintain or strengthen community commitment to improving the condition of local waterways• are required to meet statutory or regulatory obligations.

Figure 4.2: Summary outcomes of the regional priority setting process.

4.2.4 Tools and approaches for waterway management

Section 3.3 outlined the role for government in waterway management and identified a range of tools and approaches available to address market failures in providing public goods and benefits, such as healthy waterways. This 'tool-kit' includes:

- market-based instruments
- direct government investment in onground works or environmental water management
- research
- information provision
- community awareness raising
- regulation.

Further detail on each, and the general circumstances in which they should be applied, are provided below.

In most cases, decisions about which of these tools to use are made at the regional level. The selected approach should address the underlying reasons why the market is failing to provide improved waterway condition and consider local circumstances. The choice of tool will depend on the relative levels of private net benefits and public net benefits¹. As a general rule, incentives and market-based instruments are the preferred tools for encouraging behaviour change rather than more interventionist approaches, such as regulation. Regulatory approaches can stifle innovation and may also lead to unnecessary costs for landholders.

Market-based instruments

Market-based instruments use grants or subsidies, trading mechanisms or market-type processes (such as, auctions or tenders) to encourage landholders to change their behaviour to achieve improved waterway condition.

Simple price signals can be achieved by providing subsidies, such as fixed grants, to landholders to undertake management activities such as fencing, riparian revegetation or control of invasive weeds. For example, the waterway managers provide cash incentives to landholders to undertake works to prevent or repair degradation along waterways. The provision of grants to landholders is a positive incentive to encourage landholders to change the way they manage their land and water resources. Positive incentives should be used when the public net benefits of land use change are high, and should not be used if landholders would adopt the land use changes without the grant incentives¹.

Market-type processes (such as auctions or tenders) are an increasingly common tool. One popular program in Victoria is Wetland Tender that is run in several regions. Through this program, financial payments are offered to landholders to protect or improve wetland condition using a competitive tender process. Landholders list the management activities they would undertake and the payment they would require and these bids are collectively assessed and payments offered to the bids that represent the best investment (that is, highest benefits at least cost). This approach provides a highly efficient way to achieve the required outcomes at a minimum cost. Market-type processes can also be used when there is not a clear understanding of the price landholders would require to undertake works (so the provision of fixed grants is difficult and may lead to over-payment of landholders).



Landholders can receive grants to undertake waterway management activities such as revegetation of riparian land. Courtesy DEPI

Government investment in onground works or environmental water management

In some cases, improved waterway condition can only be achieved by direct government investment. This may occur when the outcome is largely a public good, when it is difficult or uneconomic for the private sector to supply the service, or when there is expected to be significant public benefits.

The majority of management activities to improve waterway condition in Victoria are undertaken through direct government investment. Waterway managers receive funding from State and federal governments to undertake these activities and deliver improved waterway condition (see Section 18.4).

Government may also set aside funds to purchase land that is offered for sale to protect high value waterways, or to mitigate the impacts of flooding or sea level rise.

Research

Research is required when there is a lack of information about the key factors that affect waterway condition, or the relationships between management activities and improved waterway condition. Once this information is known, it can then be used to provide information to landholders (extension activities) or to improve management practices.

Information provision (extension) and community awareness raising

In some circumstances, supplying information, guidance and advice about waterway management issues or good management practices will encourage landholders to make positive behaviour changes. For example, a landholder may

wish to adopt low-impact farming practices but be unsure about the available methods or likely effects on productivity. Similarly communities may require information to better understand how their actions can affect waterway condition.

Extension should not be used on its own if the practices are not in the landholders best interest, because they would be unlikely to adopt them¹. (For example, high cost to landholder)

Regulation (legislation and statutory processes)

Regulatory approaches apply mandatory standards to individuals, communities and industry and are commonly implemented through legislation, statutory processes or, in some instances, the planning system. There may be fines or other penalties when these regulations are breached.

Regulation can be an inefficient way to change behaviour because uniform standards may hinder innovation and costs to individuals may be high. Regulatory approaches should generally be a last resort for improving waterway condition.

Policy 4.5

Regional waterway management programs will consider the full range of tools and approaches available to maintain or improve the environmental condition of waterways and use the most appropriate tool or approach for the situation.



Tatong community members attend a field day on the Hollands Creek as part of information and awareness raising sessions. Courtesy Wayne Tennant, Goulburn Broken CMA

4.2.5 Implementing the seasonally adaptive approach

Regional waterway management programs need to account for Victoria's variable climate, where waterways undergo short or long periods of drought and also periods of high rainfall and floods. This range in conditions, from drought to flood, is part of the natural climatic variability experienced in Victoria. Rather than relying only on emergency management during these extremes of climatic conditions, we need a flexible management approach allowing annual implementation of management activities to be adapted to reflect the prevailing conditions.

The *Northern Region Sustainable Water Strategy*² established the 'seasonally adaptive approach' as a flexible way to manage rivers and wetlands. The seasonally adaptive approach takes into account recent climate history, climate outlook and available environmental water. In drought periods, the focus is on avoiding catastrophic events (such as major fish death events) and protecting drought refuges so that plants and animals can survive and begin recolonisation when conditions improve. In wet periods, the focus is on providing a water regime to restore values that were not maintained in drier periods, such as major bird breeding events.

Developing an eight-year regional work program through the RWSs provides certainty about the priorities for waterway management in a region. However, there also needs to be flexibility to adapt the types of activities undertaken in a given year to reflect the prevailing climatic conditions. Some priority management activities outlined in regional work programs may be inappropriate to implement during certain climatic conditions (for example, riparian revegetation during drought).

Annual implementation of the regional work program should be flexible so that the most appropriate activities for the current climatic conditions are undertaken. This may involve undertaking specific activities in some years but not others, or using a different approach to achieve the same goal. Funding towards research and monitoring to address these critical knowledge gaps has already begun. Drought and flood response planning activities should occur regularly to ensure that waterway managers are prepared for climatic extremes at all times.

Policy 4.6

The seasonally adaptive approach provides a flexible framework for managing waterways that takes into account variable climatic conditions.

The seasonally adaptive approach will be implemented through annual works and watering plans.

This will involve:

- recognising the long-term objectives and outcomes outlined in the regional Waterway Strategies and regional Sustainable Water Strategies
- setting short-term management aims through annual planning processes that reflect whether the current conditions are drought, dry, average or wet
- adapting management activities to prevailing climate conditions in any year
- monitoring and drought, flood or bushfire response planning in all years
- improving community awareness of the need to adapt management actions depending on current climatic conditions.



The Murray River near Barmah Township. Photographer: Keith Ward

4.2.6 Target setting

The priority management activities outlined in the RWSs will address the risks identified in the regional priority setting process (see Section 4.2.3).

Targets in the RWSs will be set at three levels to align with the program logic (see Section 3.8.1 and Figure 3.6). Long-term resource condition outcome targets describe the desired environmental condition or desired state for specific values (generally to be achieved beyond the eight-year planning cycle). Management outcome targets describe the desired change expected as a result of the management activities (for example, the level of threat reduction required within the eight-year planning cycle). Output targets describe the quantity of management activity required to achieve the management outcome and long-term resource condition targets. As knowledge of the quantity of management activity required to achieve change in waterway condition is unknown or incomplete (see Chapter 3, Box 3.1), output targets may often be estimates.

Logic models will be used to describe the known, or assumed, relationships between outputs, management outcomes and long-term resource condition outcomes (see Section 17.3.3) and will assist waterway managers in selecting appropriate management activities and setting targets for the RWSs.

Policy 4.7

Targets in regional Waterway Strategies will reflect the program logic of the Victorian Waterway Management Program and be set at three levels; long-term resource condition outcomes, management outcomes, and outputs.



Land use change requires careful management to ensure waterway values are protected. Courtesy DEPI

4.2.7 A process to change management objectives

The potential impacts of climate change and future land use change present major challenges to natural resource managers because they affect the environmental condition and values of ecosystems but are generally difficult to control. Some values may not persist into the future. In particular, values may change as the local climate or pattern of land use changes (for example, movement of populations of some species and communities). In some cases, values may be lost altogether. With limited funding and major challenges (such as, the potential impacts of climate change and population growth) natural resource managers need to be prepared to accept that some changes to the environmental condition of waterways may occur.

Climate change

We know that climate change has the potential to affect environmental condition and the values that waterways support. There are many predictions about the effects of climate change, ranging from relatively low climate change effects to a continuation of the low streamflows seen during the extended drought between 1997 and 2009. The reality could lie anywhere between these two. Currently, there is still uncertainty in the predictions and it is sensible to take a precautionary approach and plan for a range of plausible future scenarios.

A 2012 report by the CSIRO³ stated that policy makers can be very confident that ecological change in Australia in response to climate change is unavoidable and will be widespread and substantial. Management should therefore move from trying to preserve the current biodiversity states towards managing inevitable change in order to minimise the loss of values. The report states that the community should be involved in revising objectives and developing scientific knowledge should be considered.

Land use change

Consistent with Victoria's responsive rural sector, land use change is dynamic and evolves to meet different economic circumstances and other factors such as changing climatic patterns. Increased agricultural activity can in some cases increase demand for water, fertiliser and land; all of which require careful management to ensure waterway values are protected.

Growth of key regional urban centres and expansion of rural residential living also poses the need to respond to the consequences of such significant land use change in these areas. In particular, planning should ensure high quality waste treatment and management of stormwater runoff as vegetated areas are replaced with more impervious surfaces such as roads and buildings (see Chapter 14).

Management objectives in a changing environment

The RWSs require a process to change management objectives when there is real and defensible information to indicate that it is necessary. It is important to emphasise that this does not imply that Victoria is 'giving up' on valuable river, estuary or wetlands systems. Instead, management will be conducted with the recognition that not every value within every system can be maintained given the potential impacts of climate change and land use change.

Knowledge needs to be improved and the condition of waterways closely monitored to assess if, at the end of each eight-year planning period, management objectives for a waterway have been met. If the objectives have not been met and the scientific evidence exists to show that the values either have been, or most likely will be, lost some decades into the future, then the management objectives may need to be changed in consultation with the community. This should occur as part of the development of the RWS every eight years. Figure 4.3 outlines a clear and transparent process for considering whether objectives should be changed.

Policy 4.8

Should it become apparent with defensible scientific evidence that environmental objectives can no longer be met (as a result of irreversible changes in climate, water availability, land use or population) amendment of the objectives will be formally considered as part of the development of regional Waterway Strategies in consultation with the community.

Knowledge will be progressively improved to underpin informed reviews of management objectives at the end of each eight-year planning period.

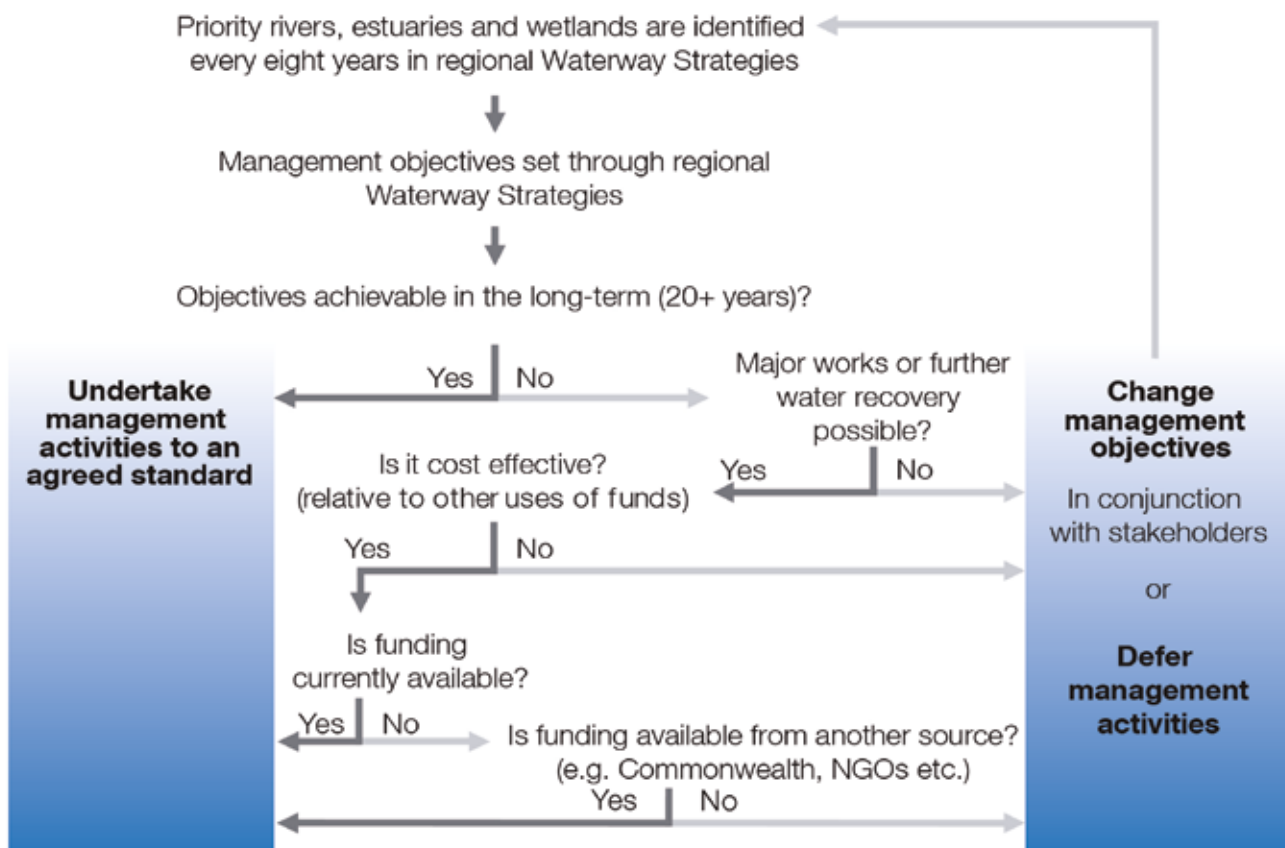


Figure 4.3: Process to change regional waterway management objectives in an eight-year planning period.



5

Community participation

*Promoting understanding of waterways.
Courtesy Melbourne Water*

Community participation

Guide to the chapter

- 5.1 Communities caring for Victoria's waterways**
- 5.2 Principles for community participation**
- 5.3 Community participation in planning**
- 5.4 Community participation in onground work**
- 5.5 Community participation in monitoring**
- 5.6 Social research to inform waterway policy and management**
- 5.7 Promoting improved understanding of waterways**

What are the issues with existing arrangements?

Community participation in waterway management requires more explicit communication about the purpose and objectives of community involvement in planning, onground work or monitoring activities.

Community-based action to improve the health of catchments and waterways requires continued support from Government to maintain the decades of benefits provided through programs such as Landcare and Waterwatch.

What improvements does the Strategy make?

For community participation the Strategy will:

- adopt the International Association of Public Participation Spectrum as a transparent framework to help the Victorian Government and waterway managers clearly define and communicate the public's role in policy development and management activities for waterways
- use social research to shape the development of policy and delivery of programs by investigating the barriers to, and drivers of, positive waterway behaviour by individuals and communities
- continue building capacity within Victorian communities so that they can keep caring for waterways and their catchments through programs such as Waterwatch, EstuaryWatch and Landcare.

5.1 Communities caring for Victoria's waterways

Rivers, estuaries and wetlands are important to everyone in the community and are a fundamental part of our common heritage. All Victorians, from our cities to the regions, have a stake in how healthy our waterways are and may want opportunities to be involved in their management.

In 2010, more than 7,000 Victorians took part in the *My Victorian Waterway* survey, which found that 99 per cent of respondents had high aspirations for our waterways. Nearly all participants (98 per cent) agreed that it is important for waterways to be as healthy as possible so they continue to provide for our needs. Ninety-nine per cent want healthy waterways in their areas. An overwhelming majority of respondents (96 per cent) stated that they have a personal responsibility to do the right thing for waterways and 83 per cent felt most personally connected to a local waterway, usually the stretch of river or creek closest to where they live (see Chapter 2, Box 2.1).

Victoria has a strong history of community-based natural resource management, particularly through the Landcare movement and programs such as Waterwatch. There are more than 750 Landcare community groups and networks, and more than 500 other community-based natural resource management groups in Victoria. These volunteers undertake activities such as engaging people and building partnerships, doing onground works, monitoring and sharing knowledge. These community participation programs also provide important opportunities for the Victorian Government and regional agencies to deliver education and awareness raising programs about sustainable waterway management and behaviours. Established community networks also deliver their own education and awareness raising activities and try to influence their peers to improve the management of land and water resources. These community-based organisations are often engaged in waterway activities through the waterway managers in each region (that is, catchment management authorities and Melbourne Water in the metropolitan region).

The *My Victorian Waterway* survey showed that people who live on, manage or work on waterfront properties with a membership in Landcare, Waterwatch or similar group have markedly better waterway behaviour than those who do not. Community participation is therefore critical for successful programs to improve waterway health.

Communities are increasingly working in partnership with government to undertake strategic planning, engagement activities and onground works that are co-ordinated, completed to a high standard and consider landscape-scale issues such as connectivity. Government support for individuals and groups undertaking this work is a highly cost effective way to improve the environmental condition of catchments and waterways, relative to the amount of public funds invested.

This is due to low co-ordination and administration costs, provision of volunteer labour and significant landholder contributions (both financial and in-kind) to projects¹.

Over the past decade, the role of local communities in waterway management has evolved to become a strong partnership with government and regional agencies. Through regional waterway planning processes (see Section 4.1), local communities are directly involved in planning for waterway management, as well as implementation of onground works, and monitoring or awareness raising activities.

In November 2012, the Victorian Government launched *Environmental Partnerships*², which is a pathway for action by government, communities and business in Victoria to maintain a healthy environment. Through strong environmental partnerships the Victorian Government aims to encourage a new sense of environmental citizenship, where communities take a more active and shared responsibility in efforts to support our environment. The Environment Protection Authority (EPA) Victoria has also released their *Environmental Citizenship Strategy*³ with a vision that 'communities are actively protecting their local environments across Victoria. In partnership with the EPA Victoria they report pollution, collect data and evidence, co-create solutions to problems and improve the environment'.

The task ahead for Government is to continue building capacity within Victorian communities so that they can keep caring for waterways and catchments. This support is particularly important in areas where communities may be facing difficult circumstances such as drought, economic hardship or major land use or demographic change. In addition to the environmental outcomes achieved through community-based natural resource management, there are also significant social and economic benefits for the individuals and communities involved, particularly for remote or isolated communities. For example, community-based natural resource management programs can provide free access to educational opportunities, social activities and engagement, and improved connections to local places and communities.



Waterwatch volunteers undertake important monitoring activities contributing to improved waterway health. Courtesy DEPI

5.2 Principles for community participation

Local communities and the general public should be able to participate and have their voice heard with respect to decisions and actions that might affect them.

It should be clear from the outset how community input will influence the decisions that are being made by Government and waterway managers. The International Association for Public Participation (IAP2) is a global organisation that advocates for best practice in public participation processes and has developed the IAP2 Public Participation Spectrum that helps decision makers select and communicate different levels of community participation (see Appendix 1.2). The IAP2 Public Participation Spectrum recognises that the nature of community participation in initiatives varies legitimately depending on the goals, time frames, resources and levels of concern in decisions to be made. This transparent framework helps community engagement practitioners clearly define and communicate the community's role in each initiative and, more importantly, sets out the promise being made to the community at each participation level.

Policy 5.1

The Victorian Government will continue to support community participation in planning, implementation and monitoring activities for waterway management programs.

Community participation in waterway management programs and activities will:

- *be inclusive* – all individuals and stakeholder groups will have reasonable and meaningful opportunities to participate
- *seek out affected and interested communities* – public participation activities will make additional efforts to facilitate the involvement of those potentially affected by, or interested in, a decision or activity
- *strive for balanced representation* – working groups, committees and other forums will seek to include relevant stakeholders with a wide range of views
- *have clear objectives* – the objectives of participation will be clearly articulated to the communities being engaged.



Training EstuaryWatch participants to monitor water quality on the Aire River. Courtesy DEPI

5.3 Community participation in planning

Planning for waterway management occurs at State, regional and local levels. At the State level, the Department of Environment and Primary Industries is responsible for developing policy on waterway management.

Regional agencies and boards, Traditional Owners, the community and other stakeholders play an important role in contributing to state planning and have all been involved in the development of this Strategy. The IAP2 Public Participation Spectrum was used to clearly define the level and objectives of stakeholder involvement. While four dedicated committees provided detailed input during the early development of this Strategy (see Section 1.3), every Victorian was given the opportunity to participate in the development of this Strategy during the six-week public consultation period in late 2012 that invited formal feedback on the draft policies and actions. During this time, regional information sessions were also held at 10 locations across Victoria to explain the draft policy directions and provide an opportunity for questions and discussion with state and regional agencies involved in waterway management.

A public report *Community feedback: Draft Victorian Waterway Management Strategy* was released by the (then) Department of Sustainability and Environment in March 2013 that outlined the key themes from the public consultation period and proposed changes for the development of the final Strategy.

At the regional and local levels, waterway managers work closely with local communities and community-based organisations when planning regional waterway management programs. Regional planning for waterway management is largely undertaken through the development of regional Waterway Strategies (RWSs) (see Chapter 4). This process provides the community with opportunities to participate in decision-making about the management of waterways in their region and to provide information about some values of waterways to inform regional priority setting (see Section 4.2.3). More detailed local planning occurs as part of implementing the RWSs. Waterway managers engage with local communities, community-based organisations or landholders, on a site-specific basis, as part of their action planning prior to undertaking onground works and management activities. Local knowledge from communities is vital to support this more detailed planning process.

Policy 5.2

Communities will have opportunities to be engaged in waterway management planning at State, regional and local levels.



Collecting and identifying water bugs as part of Waterwatch activities to monitor river condition. Courtesy DEPI

5.4 Community participation in onground work

Local communities in Victoria are strongly involved in ‘hands on’ work to improve catchment and waterway health. Landholders, particularly farmers, have a long history of looking after land and water resources by controlling weeds and invasive species, planting trees and fencing riparian land.

The *My Victorian Waterway* survey showed that 88 per cent of respondents who live, work or manage waterway frontage, actively work to restore or protect waterway health (66 per cent said they did this consistently). Ninety per cent of these respondents said they had removed harmful weeds and pests and 75 per cent had planted native vegetation along waterways.

Community-based natural resource management groups are also highly active across Victoria. Victoria has a long and successful history of community involvement in groups such as Waterwatch, EstuaryWatch, Landcare groups and networks, ‘Friends of’ groups, Coastcare, recreational and industry associations, conservation management networks and volunteer committees of management. Landcare Networks co-ordinate the actions of multiple community groups and include ‘Friends of’ groups, Waterwatch, EstuaryWatch, Coastcare, and conservation management networks working together to achieve more strategic and landscape-scale outcomes. From occasional tree-planting and weeding days, through to delivering complex, landscape-scale programs, these groups provide a broad range of skills, resources and aspirations to help protect and restore Victoria’s waterways. These community groups are a vital partner to government and regional agencies for achieving improvements in waterway health across the state. The Victorian Government provides important support to these groups by establishing co-ordinators (for Landcare, Waterwatch and EstuaryWatch) in the catchment management authority regions, who act as a link between the community participants and the regional agencies responsible for land and water management.

Communities and landholders are also involved in waterway management activities as part of implementing the RWSs. Each RWS will contain a regional work program of priority management activities for the region. Implementation will often require waterway managers and other regional agencies to engage and work with local communities. In particular, the protection and improvement of priority riparian land can only successfully be achieved with active partnerships between the community, riparian landholders and the Victorian Government.

Regional agencies also provide funding to landholders and community-based natural resource management groups to undertake management activities through market-based instruments (for example, programs such as Wetland Tender, see Section 4.2.4).

Other opportunities for community-based projects to improve catchment and waterway health include the *Inspiring Environmental Solutions* program run by the EPA Victoria. Under the *Environment Protection Act 1970*, companies or individuals found guilty of environmental pollution may be directed by a court to fund a community-based environmental project instead of, or in addition to, paying a fine. This provides funding for the *Inspiring Environmental Solutions* program. Recently funded projects include the Darebin Creek Pilot Raingarden Project and the Yarra Platypus Count.

Policy 5.3

The Victorian Government will continue to promote local action by supporting the work of individuals, community-based natural resource management groups and other volunteer groups to maintain or improve the environmental condition of catchments and waterways.



Community planting day on Morwell River. Courtesy West Gippsland CMA

5.5 Community participation in monitoring

Many community members are actively involved in monitoring waterways through the Waterwatch and EstuaryWatch programs. These community monitoring programs are supported by the Victorian Government through the establishment of regional co-ordinators, development and maintenance of databases, purchase of equipment and hosting of capacity building events. The waterway managers play a vital role in running these programs and facilitating the participation of interested community members.

The Waterwatch and EstuaryWatch community monitoring programs are also part of the broader waterway monitoring framework in Victoria (see Section 17.3) and can provide credible data to assist in waterway management (see Box 5.1). For example, in the Corangamite CMA region, Waterwatch and EstuaryWatch volunteers have played an active role in assisting with monitoring of estuary condition following estuary openings, early detection of blue-green algae outbreaks in the lower Barwon River and assessing the effect of management activities undertaken in waterways in the region.

Waterwatch, EstuaryWatch and Landcare volunteers also act as trusted conduits of information to waterway frontage landholders. Community involvement in resource monitoring therefore has multiple benefits such as:

- enhancing community knowledge regarding waterway health and related issues
- multiplying the spatial coverage and sampling frequency of formal data collection (where community collected data quality meets certain standards)
- providing an 'early warning system' for waterway management issues (such as algal blooms and weed invasion) through frequent surveillance and knowledge of local waterways.

Other innovative community monitoring programs are currently underway in Victoria (see Case study 5.1)

Policy 5.4

The Victorian Government will continue to support community-based waterway monitoring through regional delivery of the Waterwatch and EstuaryWatch programs.

Community monitoring will be aligned with waterway management programs so that the data collected can increasingly be used to inform the management of waterways and will be publicly available.

Box 5.1: Victoria's community waterway monitors

Waterwatch

For more than 20 years, Waterwatch has been the key community engagement program connecting local communities with river and wetland health and sustainable water management issues. Through Waterwatch, groups and individuals are supported and encouraged to become actively involved in local waterway monitoring, onground activities and awareness raising. In September 2013, there were 534 volunteers monitoring 1470 sites across Victoria. A network of Waterwatch co-ordinators supports local communities across Victoria. They provide water quality and biological monitoring training and support Waterwatch volunteers and a range of community groups. Over the last five years, the program has focused on improving the quality and usability of data collected. Volunteer monitors have expanded their monitoring capacity beyond water-quality testing, carrying out a range of onground activities of state and national importance, including:

- acid sulfate soil sampling at 130 sites across northern Victoria on behalf of the Murray-Darling Basin Authority
- monitoring before and after onground management activities to collect data to help demonstrate the outcomes achieved from investment, including the outcomes of environmental watering
- monitoring drought refuges
- post-bushfire water quality monitoring.

Waterwatch volunteer monitors contributed to the 2010 Index of Stream Condition, by collecting monthly water quality data at 264 sites. This illustrates the high level of quality assurance and confidence that the Victorian Government has in the Waterwatch data.

The program has a Waterwatch Data Management System to make over 20 years of water quality data publicly available to communities. The data can be viewed at:

www.vic.waterwatch.org.au

EstuaryWatch

In 2006, Corangamite CMA and the Western Coastal Board set up EstuaryWatch, a community estuary monitoring program aiming to help local communities learn more about the unique structures, functions and health of individual local estuaries and gather information to inform estuary management. The success of the Corangamite program sparked the expansion of the program in 2009, with EstuaryWatch information sessions and monitoring now occurring across the Victorian coast. Additionally, community water quality data collected by EstuaryWatch participants is now being incorporated into the Estuary Entrance Management Support System (EEMSS) which is used to make decisions regarding artificial estuary openings (see Chapter 13). In September 2013, there were 96 volunteers monitoring 17 estuaries.

Case study 5.1: Visual monitoring by communities

The Fluker Post Research Project (run by Victoria University) was established in 2008 as a community-based environmental monitoring tool. Wooden posts ('Fluker Posts') are installed at sites with the top of the post cut to 'cradle' any digital camera so that a photograph can be taken with the same perspective each time. Instructions on the Fluker Posts ask people to use their own camera to take a photo and then email it to FlukerPost@gmail.com. The image is then arranged in chronological order within a publicly accessible Picasa Web Album. This innovative project provides management agencies such as Parks Victoria and catchment management authorities with a means to engage with their communities and create historical records, in the form of a series of digital images, of particular environments. There are currently 80 Fluker Posts in the field with a total of over 1,200 images collected.

The pictures below are from Fluker Post BR1 at a river crossing in the Anakie Gorge in the Brisbane Ranges National Park. This community data shows the visual changes of the waterway as the site experiences dry periods, floods and changes in vegetation.



River crossing in a wet period. Courtesy Martin Fluker



River crossing in a dry period. Courtesy Martin Fluker

5.6 Social research to inform waterway policy and management

Social research about rivers, estuaries and wetlands can provide Government and natural resource managers with an improved understanding of community uses, expectations, attitudes and behaviours towards waterways. Social research can also identify the drivers and barriers of positive waterway behaviour (specifically with regard to community stewardship of waterways) and be used to inform policy development (see Section 17.5).

The *My Victorian Waterway* survey (see Chapter 2, Box 2.1) aimed to gather data in four areas.

1. How waterways are used by Victorian communities.
2. Community values and aspirations for their rivers, wetlands and estuaries.
3. Community knowledge about waterways and the issues that affect waterway health.
4. Trust in recommended waterway management practices.

The results helped shape the policy and actions contained in this Strategy and also provided:

- a better understanding of community expectations, attitudes and behaviours towards waterway management specifically and water resource management more broadly
- critical information for developing priorities for, and guiding evaluation of, community engagement activities
- a tool to assess the long-term effectiveness of community education and engagement activities.

The survey has also provided several key insights into the ways in which we should encourage community participation in waterway management and further detail of this can be found in the report *My Victorian Waterway*, online at:

www.water.vic.gov.au/environment/rivers/community-connections-to-local-waterways

In 2011, the Victorian Government conducted a social survey to assess the impact of investment in riparian works on landholder attitudes to riparian management⁴. The study found that the majority of landholders would consider future works on their properties and were willing to recommend the works to other landholders (see Chapter 9, Box 9.2). The report also highlighted several areas for improvement in the way that Government and waterway managers work with landholders to undertake riparian works. This provides valuable information to inform the design and delivery of future riparian works programs.

Policy 5.5

The Victorian Government will support social research to inform development of waterway policy and improve the Government's understanding of the drivers and barriers to positive waterway behaviour by communities. The Victorian Government will repeat the statewide *My Victorian Waterway* survey to:

- provide an improved understanding of community uses, expectations, attitudes and behaviours towards waterways
- provide information for the regional planning of waterway work programs
- help guide community engagement activities
- assess and evaluate effectiveness of waterway health community education and engagement activities.

Waterway managers will consider the findings from social research to help inform development and implementation of regional waterway management programs.

Action 5.1: Evaluate the use of information from the first *My Victorian Waterway* survey to inform the development of future social research into waterway management.

Who: Department of Environment and Primary Industries, waterway managers, Environment Protection Authority Victoria, Marine Safety Act waterway managers.

Timeframe: 2019

Action 5.2: Conduct the second *My Victorian Waterway* survey prior to the renewal of the *Victorian Waterway Management Strategy*.

Who: Department of Environment and Primary Industries, waterway managers.

Timeframe: 2020

5.7 Promoting improved understanding of waterways

Although local communities feel highly connected to their local waterways and are generally concerned about waterway health, the *My Victorian Waterway* survey showed that actual knowledge about waterway health issues is lacking in some areas. While the majority of respondents had good knowledge, less than 14 per cent of respondents had excellent knowledge. However, there is goodwill in the community, with 87 per cent of respondents saying that they have a commitment and 96 per cent a personal responsibility, to do the right thing for waterways. Therefore, increasing knowledge and community understanding about waterways and waterway health could result in a significant increase in community stewardship of waterways and more sustainable waterway behaviour.

Under the *Catchment and Land Protection Act 1994*, one of the functions of catchment management authorities is to promote community awareness and understanding of the importance of land and water resources, their sustainable use, conservation and improvement. Waterway managers therefore have a strong role to play in undertaking waterway awareness raising activities. Community-based natural

resource management programs such as Landcare Networks (and groups) can also play a role in educating their peers and the wider community, as well as promoting the importance of volunteerism. Waterway managers are also responsible for discussing good management practices with landholders and improving the capacity for those practices to be implemented.

Policy 5.6

Waterway managers will undertake community engagement activities and provide educational material to further improve community understanding of waterways and increase the capacity of landholders to implement improved management practices.

Waterway managers will continue to act as a communication link between local communities and other relevant stakeholder groups on waterway management issues.

Action 5.3: Develop information for the public about the importance of healthy waterways, good management practices and waterway management issues.

Who: Department of Environment and Primary Industries, waterway managers, Marine Safety Act waterway managers, Environment Protection Authority Victoria.

Timeframe: 2016



BugBlitz event raising awareness around waterway health. Courtesy West Gippsland CMA



6

Victorian Traditional Owner involvement in waterway management

Protecting culture: A local Traditional Owner inspects an artefact at Hume Weir. Photographer: Richard McTernan

Victorian Traditional Owner involvement in waterway management

Guide to the chapter

6.1 Connection to Country: the land and its waterways

- Values of waterways
- Aspirations related to waterway management

6.2 Current legislative and policy framework

- International
- National
- State
- Aboriginal cultural heritage and waterway management in Victoria

6.3 Future policy directions

- National trends in Indigenous engagement
- Water resource planning in the Murray-Darling Basin

6.4 Supporting partnerships in regional land and water management

- Joint and co-operative management agreements
- Regional Waterway Strategies

6.5 Improving capacity building opportunities

6.6 Access to waterways

What are the issues with existing arrangements?

Until recently, Victorian Traditional Owners have not been able to participate in waterway management at a level that appropriately reflects their rights and interests. While Australian governments have ratified and established a range of international, national and state policies in relation to the rights of Indigenous people, there is still much work to do with regard to the effective implementation of these policies. Victorian Traditional Owners have strong interests in healthy waterways and a right to be involved in regional waterway management on their Country. Future partnerships with Traditional Owners will be more successful if they are supported by improved engagement processes and the provision of specific capacity building opportunities.

What improvements does the Strategy make?

For Victorian Traditional Owner involvement in waterway management the Strategy will:

- recognise the ongoing connection to Country of Victoria's Traditional Owners
- ensure Victoria's Traditional Owners have specific opportunities to participate in regional planning processes for waterways
- promote and facilitate partnerships with government in regional land and waterway management through formal agreements
- provide capacity building opportunities.

6.1 Connection to Country: the land and its waterways

6.1.1 Values of waterways

For Traditional Owners, land and waterways (also known as 'Country') are a part of who they are, just as they are part of it¹. Traditional Aboriginal culture revolved around relationships to the land and water and these relationships held physical, social, environmental, spiritual and cultural significance. Today, the land and its waterways remain central to Traditional Owners' cultural identity and aspirations¹.

Traditional Owners have a distinct cultural perspective on water that relates to their identity and attachment to place, environmental knowledge, resource security and custodial responsibilities for managing Country². Water is the lifeblood for Country and waterways are the basis of many creation stories, such as the Murray Cod dreaming story that celebrates the creation of the Murray River¹. Waterways are also an historical and ongoing source of food, fibre and medicine and an important place to camp, hunt, fish, swim and connect with traditional culture and stories, to ensure that they are passed on to future generations. Totem species, which connect people to Country and are a critical part of cultural beliefs¹, may also depend on healthy waterways.

Many Aboriginal cultural sites such as middens, initiation grounds, tools, fish traps, scar trees or other artefacts are located on or near waterways. Some significant sites may have no observable features but are important for their intangible links to past places of spiritual or ceremonial significance, resources, trade, travel or stories³.

A 2013 analysis of data in the Victorian Aboriginal Heritage Register found that almost 30% of known Aboriginal cultural heritage places were within 100m of a waterway.

6.1.2 Aspirations related to waterway management

Aboriginal people view themselves as an integral part of water systems and Traditional Owners have strong cultural obligations to manage waterways in their own Country without affecting the ability of other communities to do the same³. Aspirations regarding waterway management span the full range of environmental, social, cultural and economic values that waterways provide. A recent summary of Aboriginal values and interests in the Murray-Darling Basin⁴ described how Aboriginal people seek:

- recognition of their cultural, social, environmental, spiritual and economic connections to land and water
- recognition and respect for their traditional knowledge, ongoing cultural practices and customary rights
- cultural flows; to ensure there is enough water for people to conduct their ceremonial business
- meaningful, active involvement in natural resource management and river operations
- proper resourcing to provide access to important places and help Traditional Owners be actively involved in caring for their Country.

Interviews with Traditional Owners in the Gippsland region⁵ highlighted a strong desire to improve future economic and social well-being and to protect the natural environment, which is a critical part of Aboriginal culture. Protecting and managing their cultural heritage sites is also a key aspiration.

Water can also be vital to support economic values and aspirations such as trading, hunting and gathering food that can reduce the need to purchase similar items. Water can also sustain businesses in industries such as aquaculture and horticulture, as well as ecotourism and cultural tourism.



Wadi Wadi Traditional Owner Cain Chaplin and film crew making a documentary about cultural flows. Courtesy Barmah-Millewa Collective.

6.2 Current legislative and policy framework

6.2.1 International

The Australian Government has ratified several international human rights instruments that recognise and protect Indigenous peoples' special connection to land and waters and provide for the right to practice, revitalise, teach and develop culture, customs and spiritual practices and to utilise natural resources⁶. They emphasise the importance of Indigenous peoples' traditional knowledge and involvement in environmental management and biodiversity conservation. These instruments oblige Australia (as far as possible and appropriate) to respect, preserve and maintain the knowledge, innovations and practices of Indigenous peoples relevant to the conservation and sustainable use of biological diversity. For example, Article 18 of the United Nations Declaration of Rights of Indigenous Peoples states that *"Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions"*. Article 32, Section 1 states that *"Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources"*⁶.

Apart from supporting the implementation of these instruments and being consistent with international agreements, the involvement of Traditional Owners in land and water management on their Country is also very likely to result in more comprehensive and inclusive solutions to waterway management issues⁷.

6.2.2 National

Native title, and connection to Country more broadly, reflects the strong spiritual and cultural connection of Traditional Owners to traditional lands and waterways. Native title rights are the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws. These rights are recognised and protected through the *Native Title Act 1993* (Cth).

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) provides for the listing of Aboriginal places that are of outstanding national heritage value. Once a national heritage place is listed there are special requirements to ensure the site is protected and conserved for future generations. Heritage places include landscapes, sites and areas that are particularly important to Aboriginal people as part of their customary beliefs and

traditions. Many of these heritage places are associated with waterways, such as the Budj Bim National Heritage Landscape at Lake Condah in Victoria's south-west. This site is home to one of Australia's largest aquaculture systems that is thousands of years old and provides evidence of a large, semi-permanent Aboriginal community systematically farming and smoking eels for food and trade. The Gunditjmara community are actively involved in the management of this landscape and waterways, including as owners of certain areas in their own right.

The National Water Initiative requires that state water entitlement and planning frameworks recognise Indigenous needs in relation to access and management. It requires water plans to incorporate Indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed. Water planning processes should include Indigenous representatives where possible and take account of the possible existence of native title rights to water. In June 2012, the National Water Commission released a position statement on Indigenous access to water resources directing governments to develop more effective strategies for incorporating Indigenous social, spiritual and customary objectives in water plans.

The *Water Act 2007* (Cth) requires the Basin Plan (see Section 1.2.3) to be developed having regard to the National Water Initiative and also social, cultural, Indigenous and other public benefit issues. The Basin Plan, finalised in late 2012, includes specific requirements for engagement with relevant Indigenous organisations, identification of objectives and outcomes based on Indigenous values and uses and having regard to Indigenous views on cultural flows.

The Australian Government has committed to halving the gap in employment outcomes between Indigenous and non-Indigenous Australians by 2018. Many Aboriginal and Torres Strait Islander people express a strong desire to be involved in managing natural and cultural landscapes, including employment and enterprise opportunities based around natural resource management and primary industries. In April 2010, the Natural Resource Management Ministerial Council and Primary Industries Ministerial Council endorsed the *Investment Action Plan and Investment Implementation Plan* as a roadmap for co-ordinated actions by Australian and State and Territory governments to increase the participation of Indigenous people in natural resource management and primary industries.

6.2.3 State

In partnership with the Department of Justice, the Department of Environment and Primary Industries (DEPI) plays an important role in settling native title claims, negotiating agreements relating to land, water and biodiversity outcomes and generally facilitating increased Traditional Owner access to land and natural resources. To date, four native title claims have been positively determined through the Federal Court under the *Native Title Act 1993* (Cth). The Victorian Government has established an alternative mechanism for negotiating comprehensive native title settlements, through the *Traditional Owner Settlement Act 2010*, that is designed to be quicker, more cost-effective and more equitable. Agreements under this State legislation can include:

- the hand back and joint management of parks and reserves (see Section 6.4.1) that are of significance to Traditional Owner groups (Land Agreement)
- a new simplified regime to guide consultation and negotiation with Traditional Owners for activities that have a substantial impact on their rights in relation to Crown land (Land Use Activity Agreement)
- increased access to, and sustainable use and management of natural resources (Natural Resource Agreement).

DEPI is also preparing an Aboriginal Inclusion Action Plan to guide its engagement with and inclusion of all Aboriginal Victorians.

Victorian water resource planning (through the regional Sustainable Water Strategies) includes specific engagement and consultation with Traditional Owners on all water plans. Governments across Australia (including Victoria) are in the early stages of formally recognising Traditional Owner relationships with water for spiritual, cultural and economic purposes. For example, recent changes to the *Water Act 1989* allow for members of a Traditional Owner group with a natural resource agreement to take and use water from a waterway or bore for traditional (non-commercial) purposes. However, the Victorian Government recognises that work needs to be undertaken to make it easier for Traditional Owners to access the water allocation framework.

The Victorian Government is enhancing capacity in Traditional Owner and Aboriginal communities to support them becoming more involved in water resource decisions and processes, as well as waterway management. Policies and actions are outlined in this strategy, in the regional Sustainable Water Strategies and the regional Waterway Strategies (see Section 6.4.2).

Aboriginal cultural values associated with waterways are explicitly recognised in this Strategy (see Section 3.4) and in regional waterway planning processes (see Section 4.2). Cultural values are also specifically referenced in the section on waterway management in the *Water Act 1989*.

Policy 6.1

The Department of Environment and Primary Industries and its regional service providers will include and engage with Victoria's Traditional Owners and Aboriginal people in its programs and related activities, consistent with policy direction set under the DEPI Aboriginal Inclusion Action Plan. This direction will align with the principles outlined in the *Victorian Aboriginal Affairs Framework 2013-2018*.

Action 6.1: Develop the Department of Environment and Primary Industries' Aboriginal Inclusion Action Plan.

Who: Department of Environment and Primary Industries.

Timeframe: late 2013



Midden Site. Courtesy West Gippsland CMA

6.2.4 Aboriginal cultural heritage and waterway management in Victoria

Many sites of cultural importance for Traditional Owners are located on or close to waterways. Traditional Owners are the custodians of their cultural heritage and the rightful decision makers for cultural heritage management. The *Aboriginal Heritage Act 2006* is the Victorian government's legislation for protecting Aboriginal cultural heritage. The Act established Cultural Heritage Management Plans and Cultural Heritage Permit processes to manage high impact activities that may harm Aboriginal cultural heritage. It also established the Victorian Aboriginal Heritage Council and Registered Aboriginal Parties to ensure that Traditional Owners throughout Victoria play a central role in the protection and management of their heritage.

Registered Aboriginal Parties (RAPs) are Traditional Owner organisations that manage their cultural heritage over a particular area of land and are appointed under the Act by the Victorian Aboriginal Heritage Council.

The Act was reviewed in 2012 and a response by the Victorian Government was released in June 2013. The Victorian Government also responded in mid 2013 to the findings of the Parliamentary Enquiry into the Establishment and Effectiveness of Registered Aboriginal Parties.

Under the Act, Aboriginal places and objects in Victoria, whether known or unknown, cannot be disturbed or destroyed. Cultural Heritage Management Plans are required for high impact activities proposed for listed areas of cultural heritage sensitivity, as defined in the *Aboriginal Heritage Regulations 2007*. Cultural Heritage Management Plans are a way of protecting and managing cultural heritage, while allowing for some development.

Outside the Act, places that are significant for their Aboriginal associations may also be protected by being recognised by local governments in Heritage Overlays as part of local planning schemes.

Waterway managers also consider Aboriginal cultural heritage values when planning waterway management programs in their region (see Section 6.4.2).

Policy 6.2

Waterway managers and other relevant state agencies will undertake their activities in a way that recognises and respects Aboriginal cultural heritage places and complies with national and State legislation.

6.3 Future policy directions

6.3.1 National trends in Indigenous engagement

While the level of recognition of Indigenous rights to access and use natural resources varies between jurisdictions across Australia, there is a general move towards explicit and comprehensive recognition of these rights. Examples of national trends in the way Indigenous Australians are engaging and being engaged in natural resource management include:

- the linking of Indigenous cultural and natural resource rights to the conservation and sustainable use of biodiversity
- a greater emphasis on the connection of particular Indigenous people (Traditional Owners) to particular areas (traditional Country) and recognition of area-based rights set out by formal agreements
- meaningful involvement of Traditional Owners in natural resource governance and use of traditional knowledge
- recognition that Traditional Owners' cultural connection to Country involves both a right to use resources and an obligation to manage them. The potential management outcomes therefore apply not only to particular resources that can be hunted or gathered, but also to other components of Country including the control of terrestrial and aquatic weeds and pests.

6.3.2 Water resource planning in the Murray-Darling Basin

The Basin Plan begins with a recognition and acknowledgement that the Traditional Owners and their Nations in the Murray-Darling Basin have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. It acknowledges the need for recognition of Traditional Owner knowledge and cultural values in natural resource management associated with the Basin. There are specific requirements in Chapter 10 of the Basin Plan that will have implications for future Indigenous involvement in development of water resource plans and how these plans consider Indigenous values, uses and views on cultural flows.



Courtesy DEPI. Photographer: David Hannah

6.4 Supporting partnerships in regional land and water management

Catchment management authorities (CMAs) are responsible for integrated planning and co-ordination of land, water and biodiversity management in each of the ten catchment regions in Victoria.

These regional agencies are therefore an important link for Traditional Owner involvement in regional land and water management. Partnerships between Traditional Owner groups and state or regional agencies can range from informal relationships initiated for individual projects through to formal agreements for land, land use activity or natural resources negotiated between the State and Traditional Owner groups (see Section 6.2.3).

6.4.1 Joint and co-operative management agreements

The Victorian Government is progressively strengthening partnerships with Traditional Owners through joint and co-operative management agreements over Crown land. These agreements recognise Traditional Owners' relationship to land, provide for certain rights on Crown land and for the establishment of Traditional Owner boards or councils whose purpose it is to prepare management plans and/or provide advice about the management of land within the agreement areas. Many of these areas contain waterways with significant environmental, social or cultural values. The Minister for Environment and Climate Change has established a Traditional Owner Land Management Board

in Gippsland, which will jointly manage areas including Gippsland Lakes Coastal Park, Lakes National Park, Mitchell River National Park and Lake Tyers State Park. Similarly, the Minister has agreed to establish a Traditional Owner Land Management Board for Barmah National Park, which will supplement existing co-operative management arrangements in respect of other Crown land areas within Yorta Yorta Country (see Case study 6.1).

The Minister in 2013 also entered into an agreement with the Dja Dja Wurrung to establish a Traditional Owner Land Management Board to jointly manage areas in their Country.

Joint and co-operative management agreements recognise the ongoing connection of Traditional Owners to Country and formalise their involvement in the management of their Country. This partnership approach aims to combine traditional ecological knowledge and cultural practices with contemporary land and water management to better protect natural and cultural values. The agreements also provide enhanced economic opportunities for Traditional Owners and a vehicle for their increased involvement in natural resource management.

6.4.2 Regional Waterway Strategies

Waterway managers (the CMAs and Melbourne Water in the metropolitan region, see Chapter 1, Box 1.2 and Section 18.2.2) are responsible for planning, implementing and monitoring waterway management activities. As outlined in Chapter 5, any individual has the opportunity to be involved in planning, management and monitoring in their region. This involvement is largely linked to the development and implementation of the regional Waterway Strategies (RWSs).

Waterway managers are responsible for leading the development of RWSs, which are the primary planning documents for waterway management in each region (see Section 4.2). In line with the principles for community participation outlined in Section 5.2, public participation activities must make additional efforts to facilitate the involvement of those potentially affected by, or interested in, a decision or activity. Given the strong aspirations and rights of Traditional Owners to be involved in waterway management on their traditional lands, they are considered critical partners in the development of the RWSs.

The RWSs identify high value waterways and then develop a regional work program of management activities for priority waterways over an eight-year period. Development of the RWSs is underpinned by a regional priority setting process that uses information about the environmental, social, cultural and economic values associated with waterways and the threats to those values (see Section 4.2.3). In the previous planning period, Aboriginal cultural heritage places were the only type of Aboriginal cultural value considered in this process. Further work is required to determine methods for identifying a wider range of Aboriginal values associated with waterways. These approaches will be informed by the findings of The National Cultural Flows Planning and Research Committee who are using case studies to identify Indigenous water values and uses.

Case study 6.1: Joint management of Barmah National Park

Barmah National Park, together with the adjacent Millewa forest in New South Wales, forms the largest River Red Gum forest in the world. The health and ecology of this iconic forest is intimately linked with the Murray River and its flooding regime and provides a diverse habitat for many species, especially waterbirds.

Traditional Owners have a long connection with the River Red Gum forest and Murray River in the Barmah area, with scarred trees, mounds, stone artefacts, middens and burial sites all found in the Barmah National Park.

In 2010, the State of Victoria entered into a Traditional Owner Land Management Agreement with the Yorta Yorta people, to establish a Traditional Owner board for Barmah National Park. The joint management of the iconic Barmah National Park by Traditional Owners and the State will integrate contemporary management practices with traditional culture and knowledge to ensure the natural and cultural values of the area are protected, while also providing tourism and educational experiences.

Traditional Owner organisations and natural resource management business enterprises may also be engaged in the implementation of management activities outlined in the RWSs. Traditional Owner businesses that collect seed and propagate tube stock, participate in pest plant and animal control programs and undertake riparian revegetation and fencing already work in partnership with waterway managers.

There are also considerable opportunities for waterway managers to work in partnership with Traditional Owners to improve waterway health through the implementation of the RWSs and Regional Catchment Strategies. For example, the North Central Catchment Management Authority has worked closely with the Barapa Barapa and the Dja Dja Wurrung people in setting up work crews that provide opportunities for Traditional Owners to work on Country, improve catchment and waterway health and protect cultural heritage.

Policy 6.3

Traditional Owner groups that have recognised native title rights or formal agreements with the State will be involved in the development of the regional Waterway Strategies. Where these groups have the capacity and desire to be engaged at a higher level, opportunities for collaboration will be provided.

Decisions on engaging other Traditional Owner groups will be made at the regional level by waterway managers. Decisions must reflect the existence of Traditional Owner Land Management Boards, Traditional Owner Corporations and Registered Aboriginal Parties.

Aboriginal values associated with waterways will be identified in the regional Waterway Strategies.

Waterway managers will seek to work with Traditional Owners to incorporate their traditional knowledge and values into the regional Waterway Strategies (where this is culturally appropriate, desired by Traditional Owners and consent is provided).

Action 6.2: Provide guidance to waterway managers regarding Traditional Owner engagement for the regional Waterway Strategies.

Who: Department of Environment and Primary Industries, waterway managers, Traditional Owners.

Timeframe: late 2013

Action 6.3: Investigate methods for identifying Aboriginal values associated with waterways and how they can be better incorporated in regional planning processes for waterways.

Who: Department of Environment and Primary Industries, waterway managers, Traditional Owners.

Timeframe: 2015

Action 6.4: Evaluate engagement of Traditional Owners in the development of the regional Waterway Strategies.

Who: Department of Environment and Primary Industries, waterway managers, Traditional Owners.

Timeframe: 2015

6.5 Improving capacity building opportunities

The Victorian Government recognises the strong aspirations of Traditional Owners and Aboriginal Victorians for an appropriate and meaningful role in natural resource management in Victoria.

However, a history of past injustice and inequality has meant that some Traditional Owners and Aboriginal Victorians are not as ready or able to participate in natural resource planning and management as other Victorians.

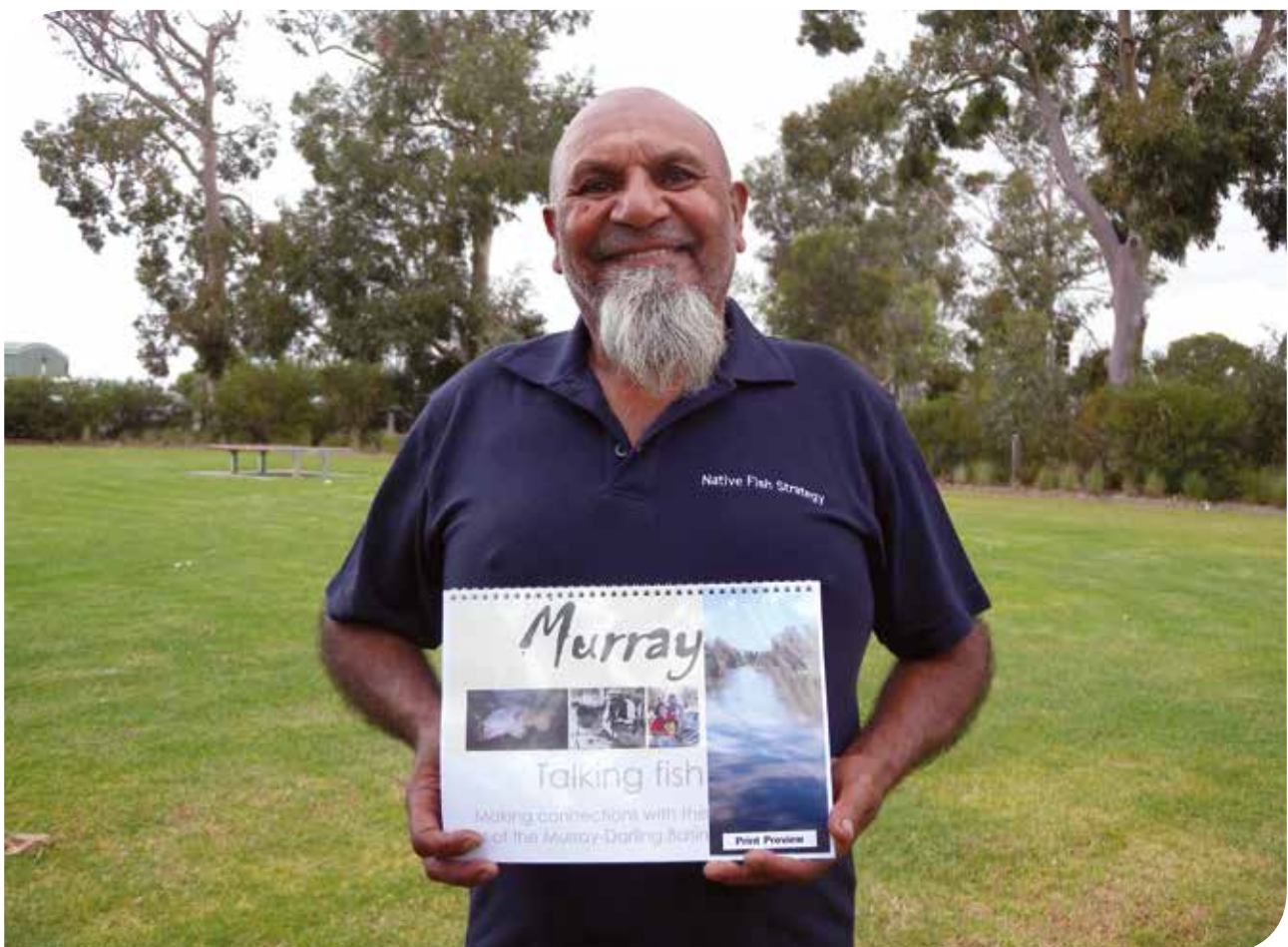
Areas where Traditional Owners are seeking increased participation include land and water management and involvement in government programs and initiatives. Consistent with emerging Commonwealth and State policy linking native title settlements with economic development outcomes for Traditional Owners, there is a strong aspiration to be able to use natural resources in a way that provides economic benefits for their communities.

Action 6.5: Education, training and capacity building for Traditional Owners and Aboriginal Victorians will be improved by inviting Traditional Owners and Aboriginal Victorians to nominate leaders or individuals with specific aptitude, knowledge or skills, for:

- a scholarship for the biennial Graduate Certificate of River Health offered by The University of Melbourne
- a position within the Department of Environment and Primary Industries Graduate Recruitment Program
- a scholarship for the Graduate Diploma of Natural and Cultural Resource Management offered by the Institute of Koorie Education, Deakin University.

Who: Department of Environment and Primary Industries, waterway managers, water corporations.

Timeframe: from 2012



Uncle Wally Cooper holds an oral history book including stories of his life on the river. Photographer: Fern Hames

6.6 Access to waterways

A key aspiration for Traditional Owners is to have access to waterways in their Country¹. Many Aboriginal cultural heritage places are located on or near waterways and access to these areas and their water is critical.

Waterways and riparian areas are important parts of the landscape for many cultural practices and values, such as fishing, collecting mussels, catching eels, hunting animals, collecting eggs, gathering various plants for food, medicine and basket weaving. Many of these practices are dependent on access to water and healthy waterways.

Waterways and riparian areas are also important as meeting places to come together as families and communities for cultural, social and recreational activities. Access to healthy waterways and riparian areas is vitally important for these activities to continue and for future generations to learn about their culture. Waterway managers may undertake management activities to improve access to waterways, but must also consider the potential negative effects on Aboriginal values that may arise by improving access for other users (for example, trail bike riding).

The *Traditional Owner Settlement Act 2010* provides rights for members of a Traditional Owner group with an agreement to access Crown land and use natural resources for traditional purposes including; hunting, fishing, camping and gathering in accordance with existing laws. These rights do not effect the access of existing users, such as recreational fishers. Currently, members of a Traditional Owner organisation with a native title determination and/or natural resource agreement can take and use water from a waterway or bore for traditional (non-commercial) purposes in accordance with a consent order given under the *Native Title Act 1993* (Cth) or an authorisation order given under the *Traditional Owner Settlement Act 2010*.

Policy 6.4

Government will facilitate Traditional Owner access to waterways and riparian areas on Crown land and use of natural resources in their Country through formal agreements.

Waterway managers will work with Traditional Owners where issues affect access to waterways and riparian areas and consider actions to remove impediments.