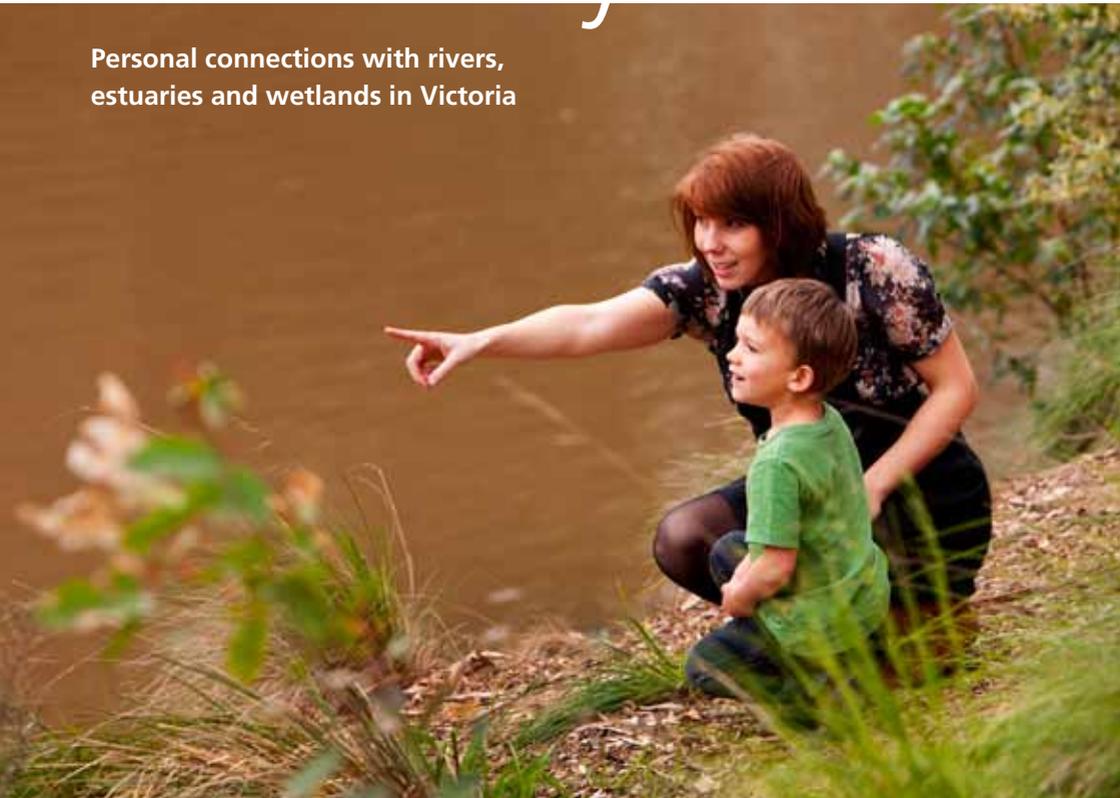


My Victorian Waterway

Personal connections with rivers,
estuaries and wetlands in Victoria



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Introduction



What do Victorians think about the state's rivers, estuaries and wetlands?

How do we use this vast network of waterways?

What do we know about waterway health issues?

And what, if anything, do we think we should do about them?

In 2009 the Department of Sustainability and Environment (DSE) undertook world-first research to investigate the social importance of our rivers, creeks, wetlands and estuaries (i.e. waterways).

The research, undertaken in partnership with Queensland University of Technology (QUT) and Victoria University, had clear aims to investigate:

- how Victorians use our waterways
- our values and aspirations for rivers, wetlands and estuaries
- our knowledge of what makes a waterway healthy
- what we Victorians do / are prepared to do to help manage for healthy waterways.

The research was not about assessing the economic benefits of waterways, which are significant and support a number of Victorian industries.

The research was considered vital to fill a gap in Victorian waterway health management, as DSE's Dr Jane Doolan explained.

"Victoria is considered a national leader in monitoring and managing the physical health of our waterways but not much had been done to understand the social importance of our rivers, lakes, estuaries and wetlands.

"The vision of the Victorian River Health Strategy holds that our rivers of the greatest value to the community will be protected as part of our natural heritage. It also states that our communities should appreciate the values of healthy rivers and understand their dependency on them. Yet while we had this clear vision, we realised we had little social data to let us know how we were travelling in meeting our goals."

Data from this research aimed to fill that gap providing:

1. a better understanding of community expectations, attitudes and behaviours towards waterway management specifically and water resource management more broadly
2. data to inform waterway managers' development of priorities for action (social and environmental) and to guide evaluation of community engagement activities
3. a benchmark to assess and evaluate the long term effectiveness of river health community education and engagement activities against defined targets over time.

In September 2009, the *My Victorian Waterway* online survey went live and several thousand paper-based surveys were sent to riparian (or waterfront) land managers. The 15 minute survey included questions to gauge respondents' knowledge and understanding of what makes a waterway healthy.

The response was overwhelming.

A total of 7140 surveys were completed, with sizeable representation from every catchment across Victoria. The response made it the most comprehensive study of its type in Australia and one of the largest projects of its type in the world.

The Victorians who took part in the survey were a representative sample of gender, employment, education, urban and rural dwellers, and a wide variety of commercial and recreational users of waterways. The large sample size provided an excellent data set for benchmarking and future evaluations.

The study has also gathered a wealth of qualitative information about attitudes, knowledge and behaviour relating to waterway use in Victoria. The stories told by participants paint a clear picture of the great importance of waterways for all Victorians.

The data gained from the *My Victorian Waterway* survey is now being used to shape state waterway health policy – particularly in developing better engagement with waterway communities. Social scientists are also working with catchment management authorities (CMAs) and Melbourne Water to interpret local findings, to help guide priorities for waterway health works and engagement.





How Victorians use rivers, wetlands and estuaries

How do Victorians use their waterways?

The state has over 85,000 kilometres of rivers, 13,000 natural wetlands and over 120 estuaries and this survey shows that Victorians are visiting them every day to engage in a wide variety of recreational and commercial activities.

The most frequently mentioned use of waterways in the survey is for simply enjoying the scenery, followed by enjoyment of native animals, plants and birds, and for recreational activities such as walking, hiking, cycling, picnics and barbecues. More than a third of the respondents said they use waterways for fishing, reflecting the estimated 720,000 recreational fishers in Victoria.

"My family has been farming the area – both sides of creek – for 44 years and land is still as good as it was then." – Moe farmer about Narracan Creek

"On one early morning walk along the Merri Creek I saw a Sacred Kingfisher." – Melbourne northern suburbs resident

"I've just assisted in planting 20,000 trees along a waterway that runs into Wimmera River." – Elmhurst resident

"Platypus sampling and monitoring has made me very interested in the health of this waterway." – North Geelong resident about Werribee River

92% of people surveyed visit waterways to enjoy the scenery

85% to enjoy native animals, plants and birds

76% to walk, hike or cycle

69% for picnics and barbecues

37% to plant native trees and clear weeds

36% to fish

31% go boating (motorised)

19% go kayaking, canoeing, sailing

21% for stock and irrigation

28% to visit cultural and historical sites

In total, over 90% of Victorians use waterways for beside-water recreational use (such as hiking, walking, picnics and barbecues). Although people across Victoria are engaging in a diverse range of recreation activities, 64% of these activities are taking place within a public park.

Interestingly, women are more likely to use waterways for beside-water activities (such as cycling, hiking, picnics and barbecues) while men use waterways for more 'on' and 'in' water activities.

Waterways have an impact on economic matters both for communities and for individuals. Many Victorians derive their personal income from waterways or rely on access to water from nearby waterways for domestic use. Just over 20% of respondents use waterways for stock and irrigation (mostly in rural areas), 18% work in a business on or beside a waterway, while 25% access water from nearby rivers for gardens, lawns and household use.

Figure 1: How Victorians use rivers, wetlands and estuaries



Victorians' aspirations and values for rivers, wetlands and estuaries

"The Barwon estuary is as much a part of our lives as breathing."

– Geelong resident

"Watching dolphins, water rats or jelly fish in the Yarra made me realise how fascinating the river is."

– Melbourne resident about the Yarra River

99% of Victorians have high aspirations for local rivers and waterways

97% regard river health as a critical issue for Victoria

92% think it's important that waterways get enough water to stay healthy even if they personally have to cut back on water use

90% of respondents provided information about the waterway they felt connected to. Only 8% of these respondents named iconic waterways such as the River Murray and Yarra River in this way. Overall, people are most connected to their local waterway.

Aspirations

Waterways are the lifeblood of Victoria. Rivers, wetlands and estuaries are entwined among us in the rural and urban landscape, sustaining our families, towns and businesses and, ultimately, our security, lifestyle and wellbeing.

It is reassuring then to know that 99% of Victorians have high aspirations for our waterways. Most participants (98%) agree that it is important for waterways to be as healthy as possible so they continue to provide for our needs, and an overwhelming majority of respondents (96%) agree they have a personal responsibility to do the right thing for waterways and want healthy waterways in their areas (99%).

Interestingly, the more frequently someone uses a waterway for recreation, the higher their aspirations for waterway health tend to be. Additionally, women are more likely than men to reflect concerns about the long-term future of healthy waterways and people aged 20 – 44 years have significantly higher waterway health aspirations than all other age groups.

Local connections

The vast majority of Victorians (83%) feel most personally connected to a waterway that is local to them, usually the stretch of river or creek closest to where they live.

Our 'iconic waterways' – such as the Snowy, Yarra and Murray rivers – are not the 'most popular'. In fact, according to this survey, there is no outstanding 'most popular' waterway. The Murray and Yarra rivers are the most frequently named waterways – yet only 8% of respondents name them as places they feel most connected to.

There are a couple of 'standout' waterways that gain more of a mention than others. Recreational fishers, for instance, mention the Gippsland Lakes and other lakes more frequently than other recreational users. And the Merri Creek, in Melbourne's north is Victoria's most popular urban creek.

Importantly, almost every major river, stream and estuary in Victoria is mentioned by someone in the survey as being important to them. Respondents enjoy waterways in some of the most urban landscapes in Victoria as well as in some of the most remote locations.

Rivers will not take care of themselves.

There is an overwhelming belief that rivers need to be managed if we are to meet our aspirations. Only 10% of respondents believe that the environment will take care of itself without our interference and 29% think that nature alone, will keep our waterways healthy.

Experience is a great teacher

Most respondents state that their views about the health of all Victorian waterways have been influenced by their experience of their closest waterway. Most people (74%) who have seen waterway-health work undertaken on their closest creek favourably judge the necessity and quality of the work.

We want to do the right thing

More than 90% of respondents think it's important that waterways get enough water to stay healthy, even if they personally have to cut back on water use and most (88%) would appreciate 'tips' on how to keep waterways healthy.



What Victorians know about waterway health

"My children play there, so its health is important to the family." – Ivanhoe resident about Darebin Creek in Melbourne's northern suburbs

"Seen fish. Good sign." – Lorne resident about Hendersons Creek and St George River

"Tree planting and fencing off waterway from stock (led to a) large increase in birds and insects, and waterholes during summer remain full of water. It's beautiful to look at and a haven for wild life." – Bannockburn resident about Bruces Creek

"I don't hear frogs anymore." – Wangaratta resident about One Mile Creek Wangaratta

The survey shows that Victorians do have good general knowledge about what makes a waterway healthy.

Around 62% of respondents rate themselves as having good or excellent knowledge about river health issues.

However, analysis of survey answers shows that 67% of respondents have good or excellent knowledge – 5% more than the self reported figure (see table over the page).

67% of people surveyed have a good or excellent knowledge of what makes a waterway healthy. Only 1% have little or no knowledge

86% agree carp are unhealthy

77% agree algal blooms are a sign of an unhealthy waterway

72% agree fencing to keep stock out improves water quality

65% agree giving waterways their own water allocation will improve their health

62% understand that stormwater from cities and towns decreases water quality in waterways

Table - Comparing actual to self-reported knowledge

	Self-reported	Actual
Low knowledge:	2%	0%
Little knowledge:	8%	1%
Unsure of knowledge:	28%	31%
Good knowledge:	38%	54%
High (excellent) knowledge:	24%	14%

The survey questions that explore respondents' actual awareness of waterway health cover the five broad technical areas used as indicators to measure river health in the Victorian Index of Stream Condition (ISC):

- Hydrology – including the depth and speed of flow, water allocations and whether a wetland is healthy even if dry
- Streamside zone – including stock grazing, native vegetation and fencing
- Physical form – including bank erosion and the presence of water reeds and logs
- Water quality – including stormwater, water colour and algal blooms
- Aquatic life – including carp, native fish and the diversity of insects.

Now we know what we don't know

The survey shows most people (86%) understand that the presence of carp in a waterway is not a sign of good health (as they can cause damage to riverbanks and compete with native fish for food and habitat). Similarly, 77% know that algal blooms are unhealthy (as they reduce dissolved oxygen in waterways for plant and fish life). More than 90% of those surveyed know that planting native plants along a waterway's bank improves the health of the waterway (by providing shade, reducing summer water temperatures and helping to maintain bank stability). And 72% of respondents understand that fencing waterways improves waterway health by restricting stock access.





Groups of people with the best waterway knowledge include women; recreational fishers; first generation farmers; tourism operators; people who belong to a group with an environmental focus (such as Landcare, Bushcare, Coastcare or Waterwatch); people who conduct their recreational waterway activities in a public park; and (unsurprisingly) natural resource management professionals.

However, there are a few areas in which Victorians have less knowledge.

The survey reveals there are some common facts that Victorians do not know about waterways, such as:

- Rivers naturally erode and often change course across floodplains
- Seeing insects around a river or creek is a good indication the waterway is healthy
- Urban stormwater flushes pollution into waterways and reduces water-quality
- Damming impacts waterway health by altering natural flow regimes and sometimes preventing fish migration and breeding.

"I have seen many different parts of this river - remote and not remote-through camping, four-wheel driving, excursions and site seeing, and can see what it could have been...If we can get the Snowy to flow again it will improve the health of all connecting waterways." – Goongerah resident about the Snowy River

"Fence off all river frontages – it's not rocket science." – Canambo waterfront landholder about the Broken River

How Victorians contribute to waterway health

The *My Victorian Waterway* survey examines the behaviours and efforts of all of the respondents regarding waterway health.

Most of the people who responded to the survey (86%) have provided written comments on the protection of their local waterway, including comments about their own behaviour.

Respondents were asked whether they:

- seek information about waterway health issues
- attend events
- belong to Landcare or other similar groups
- participate in local projects, and/or
- encourage others to change their behaviour.

"The Ovens and King rivers have maintained their usefulness, beauty and charm due to ongoing care and management." – Linton resident

Waterway health behaviour of all survey respondents

- 65%** of respondents have tried to get information on a topic that they believe is relevant to protecting waterway health
- 36%** regularly take part in local projects to help protect waterways, such as writing a letter, attending a meeting, making a complaint or planting trees
- 26%** are consistently involved in Landcare, Waterwatch, Bushcare or similar organisations. (Almost 13% regularly take part in Waterwatch)
- 31%** have tried to encourage someone else to change an activity or practice that they believe is harmful to waterways



Tales from the riverbank

People who live on, work on or manage waterfront property in Victoria – in both urban and rural areas – arguably have greater potential to impact waterway health than any other group of people.

The survey data was specifically analysed to learn more about this group, which represents 42% of respondents.

This group of respondents – the people who live on, work or manage waterfront properties – were also asked about their willingness to attend to waterway health on their property, as well as being asked about their financial, resource, time and energy capacity to do so.

Behaviour of people who live on, work on or manage waterfront properties

- 74%** of respondents in this group consistently remove harmful pests and weeds from the waterways on their land
- 66%** consistently (often or very often) try to restore waterway health
- 63%** prevent stock from accessing the banks of waterways and 23% remove willows
- 67%** maintained on-ground works done in partnership with their CMA (sometimes or consistently) while 33% did not maintain the works
- 53%** consistently planted native vegetation along the watercourses on their land
- 29%** actively sought advice on managing the waterways on their property.

Responses to these questions reveal the possible barriers preventing the people in this important group from engaging in the most appropriate waterway health behaviour. For example, 35% of respondents in this group state they never have the financial capacity to “do the right thing for waterways”, and only 26% say they consistently have the capacity.

Another barrier appears to be perceptions of responsibility. One-third of the people in this group (33%) do not maintain the on-ground works that have been done on their property in partnership with their catchment management authority or Melbourne Water. Despite this, 88% of waterfront land managers say they have actively restored waterway health on their property at some time.

The buck stops where?

Most Victorians surveyed believe that everyone must play a role in keeping waterways healthy, with catchment management authorities, Melbourne Water, industries and businesses that directly use waterways sharing the most responsibility. More than half (58%) of respondents believe that government should have more responsibility than users.

Among those who think that users should have more responsibility for waterway health, 60% think that industries such as tourism, commercial fisheries, mining, farmers or public land managers should take a lot of responsibility.

More than a third of all respondents (36%) believe that they personally should take a lot of responsibility.





The impact of volunteer environment groups

A key finding of the *My Victorian Waterway* survey is the impact volunteer environment groups such as Landcare, Waterwatch, EstuaryWatch and Coastcare have on people's knowledge of waterway health and their behaviour.

For example, modelling of survey data shows that people who live on, manage or work on waterfront properties (including tourism) or people with a membership in Landcare, Waterwatch or similar group have markedly better waterway behaviour than those who do not.

Significantly, the survey reveals that even waterfront land managers who are not involved in these volunteer environment groups trust information from their peers who are members of these groups.

Respondents in volunteer environment groups are also more likely than those in a service club, fishing or boating club, hunting, sporting, religious or craft group to engage in behaviour that encourages healthy waterways.

About 15% of people surveyed plant native trees and remove weeds and demonstrate good waterway health behaviour in other ways. Analysis of this group reveals that over 10% belong to Waterwatch, just under two-thirds belong to Landcare and about one-third to Bushcare, Coastcare or another conservation group (some belong to more than one group).

Interestingly, about a quarter of all people surveyed say they have at some time encouraged their children to take part in Waterwatch.

"Over the past 15 years I've noticed the work of farmer Landcare members. Many miles of streams now have beautiful trees and are fenced off to stock." – Southeast Gippsland resident on Bellview Creek and nearby Little Bass and Bass Rivers

"I've enjoyed doing walks along the creek with Landcare and seeing the difference between sections that have been fenced off and rehabilitated and those sections where livestock are allowed access to the creek." – Beechworth resident about Reedy Creek in the Goulburn Broken catchment

How can we best protect our waterways?

The majority of survey respondents (86%) have provided comments on what they believe should be done to protect the health of their local waterways.

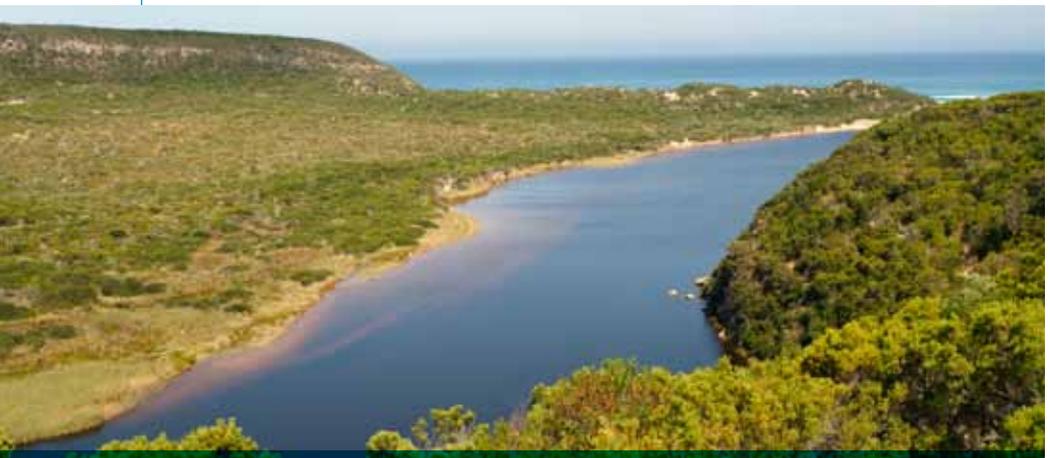
Many practical suggestions and comments were provided, which may provide government and catchment management authorities with useful data on how to improve their community engagement programs to make a greater impact on improving waterway health.

The survey asked:

What are the two most important things that could be done to protect the waterway most important to you in the next couple of years?

“Restore the riparian zone and revegetate banks.” – Cressy resident about Woody Yallock Creek

“Educate landholders/farmers on best practice for their farms and use of waterways.” – Colac resident about Barwon River





“Farm and Landcare practices show what can be achieved if funds are available.”

–Metung resident about Gippsland Lakes

“Carp removal; litter removal.”

– Barangarook West resident about Lake Colac

“Better manage irrigation and carp. Restrict property chemicals runoff.”

– Bairnsdale resident about the Mitchell River near Bairnsdale

“Tree planting and removal of willows from creek. Fencing stock from creek.” – Campbells Creek resident about Campbells Creek

“Outflow from homes along the creek could be monitored and grey water emptying directly into the creek should be disallowed.” –Belgrave resident about Monbulk Creek near Selby

“Remove all car bodies, concrete slabs, bath tubs, beds, bottles, cans, plastic, dead animals. Heavier penalties for dumpers.”

– Charlton resident about Avoca River

Respondents with the best knowledge of waterway health and the best waterway health behaviour (14%) suggest the following common themes for protecting river health:

- invite people to see best practice, such as examples of riverbank restoration or native revegetation
- reward those who comply with best practice
- remove weeds and willows
- maintain environmental flows
- monitor pollution levels and stop pollutants from farms and industry
- stop illegal irrigation
- fence along river banks
- plant more native trees and vegetation.

Tell us about something that happened

The respondents who nominated a waterway important to them were asked a follow up question about what shaped their views of waterway health.

Tell us about something that happened on this waterway (the one you nominated as important to you) that has shaped your views about its health.

Responses include:

"While camping there, I saw cattle accessing the river and there were cow pats everywhere. There were also trail bikes riding through the riparian vegetation." – Melbourne resident about Lower Ovens River

"Farmers working with Landcare (replanting) sunny side of creek with red gums and natives." – Birches Creek resident about Birches Creek downstream from Newlyn Reservoir

"Installation of a reed bed to treat stormwater before entering a local creek. This was needed to treat run off from old ineffective septic tanks." Tallarook resident about Tallarook Creek, tributary of Goulburn River near Seymour

"Observation of works down on creeks feeding into the Yarra. Swimming in the Yarra." – Kinglake resident about the Yarra River from Collingwood to Warrandyte





“Landcare monitoring program of water health. Discovery of streamside tips still used for domestic and farm rubbish!” – Cheshunt resident about the King River

The respondents with the best knowledge of waterway health and the best behaviour have both positive and negative things to say about what they’ve seen or experienced on their waterway that shaped their views about its health.

The positives include:

- seeing the benefits of instigating best practice and the improvements over time
- seeing others change their behaviour by seeing best practice
- increase in health and diversity of aquatic animals, fish, birds and plants
- community involvement in projects to restore health
- seeing government respond to requests for work to be done.

While the negative responses include:

- sewage in river from treatment plants and consequent damage

- seeing industries and farmers engage in worst practice
- flooding bringing unwanted weeds
- the impact on native animals, birds, fish and plants when habitat is damaged by man or acts of nature.

“Camping on the banks of the Ovens and Murray all my life and watching the fish stocks decline and the water levels drop and the bank erosion increase.” – Croydon resident about River Murray around Bundalong

“Many years camping, swimming, and watching the development and decline of native vegetation... More emphasis should be on regeneration.” – Riddells Creek resident about Deep Creek

“Give people in rural areas rebates on water tanks and water saving devices as well.” – Ballarat resident about Pikes Creek

Fish and fishers



"The fish are back!" – Ballarat resident about Yarrowee Creek

"About 10 years ago we caught lots of carp and hardly any cod, now it's the reverse." – Red Hill South resident about the River Murray near Nyah

"As a teenager I could easily catch redfin and trout, and see a platypus. There were very few willows and the water was clearer. Now, 30 years later, we have thick willows and gorse, very few fish except schools of large carp." – Birregurra resident about Birregurra Creek

"Fishing good, little litter in stream, fresh smell, clear water, plenty of streamside vegetation." – Glenelg catchment waterfront resident about Glenelg River

"Viewed algae build up in shallows. Water depth decreased over 10 years of camping there. No decent size cod available to catch anymore. The fish are all too small." – Seymour resident about the River Murray at Cobram

There are approximately 720,000 recreational fishers across Victoria, and more than a third (36%) of the respondents to the *My Victorian Waterway* survey say that they go fishing.

In total, 13% of fishers have excellent waterway knowledge. Significantly more recreational fishers than all other respondents have a greater understanding of the physical form of rivers and wetlands, aquatic life and some aspects of hydrology.

Additionally, around 16% of the recreational fishers surveyed said that they frequently did work to rehabilitate native habitat (such as removing weeds and planting native vegetation).

Almost a third of recreational fishers belong to a fishing club, 21% belong to Landcare, 17% to a conservation group, 15% per cent to a boating group, and 4% to Waterwatch.

The tale of the platypus



The disappearance or reappearance of the iconic platypus was identified by 305 urban and rural respondents as something that shaped their views about the health of their favourite waterway.

A Tarra Valley resident in West Gippsland referred to: *"the resident platypus at the bottom of our garden!"* (Tarra River)

A Bright resident wrote: *"The amazing times my husband and I have had early morning with a family of platypus and watching trout feeding."* (Ovens River)

In South East Gippsland, one Allambee waterfront landholder observed that since streams and dams have been protected from livestock, native plants have regenerated along the creeks that feed into the Tarwin River. *"We've seen the area return to pristine rainforest. Platypuses and eels have returned and can be viewed on a daily basis."*

In the Otway region, a Murghebolac resident wrote about being: *"delighted at common platypus sightings but anxious about oil patches on slow moving water in the Barwon River"*.

However other respondents tell a different story.

A regular local visitor to Fords Creek in the Goulburn-Broken catchment noted: *"Platypus gone. Carp arrived."*

While Moorabool riverfront farmer in central Victoria observed: *"a platypus trying to escape overland and dying."*

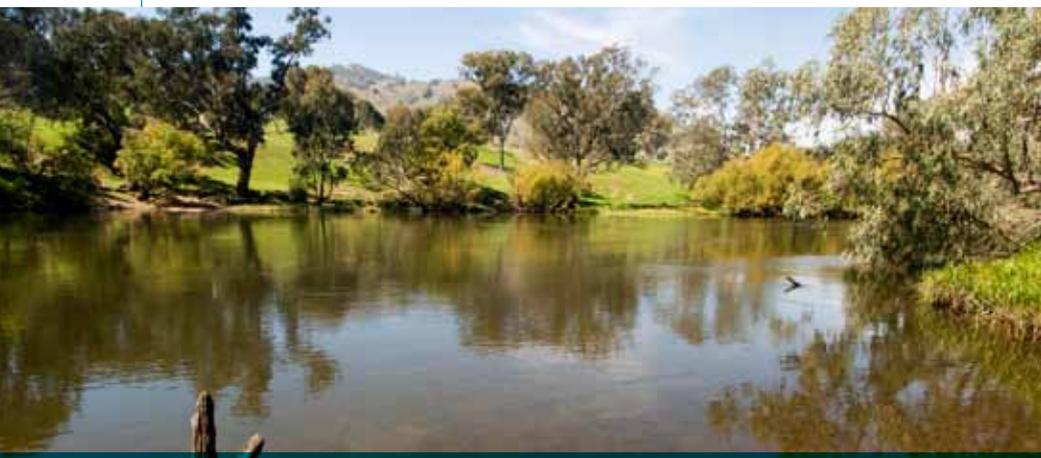
A West Gippsland farmer whose property borders Monkey Creek lamented: *"Stock have eaten most of the phragmites in the swamp on my place. I have fenced off areas to trees and shrubs and plan to fence off most of the swamp in the future with the help of the local CMA. Thirty years ago we had platypus, and the local blackfish seem to have disappeared too."*

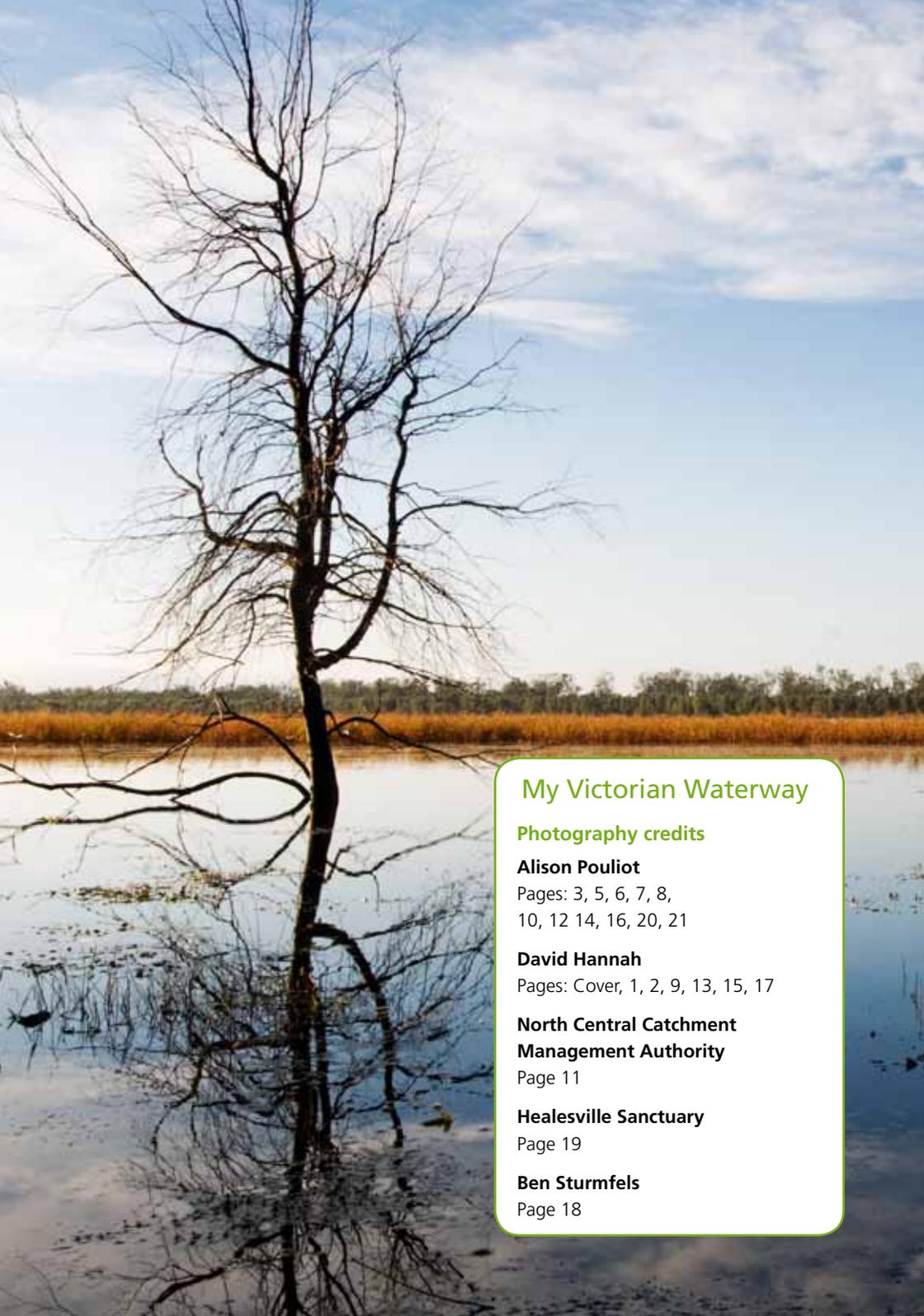
Using survey data to improve waterway management

It is clear from the *My Victorian Waterway* survey that many Victorians have a great affection for and strong local connections with the state's vast network of rivers, creeks, wetlands and estuaries. These aspirations and ties provide a firm foundation for ensuring the ongoing care of our waterways.

There is now a benchmark for community knowledge and aspirations relating to waterway health so any future surveys can be used to measure what changes over time.

The data, including specific regional information, will inform the future development of strategy and community education by waterway health managers across Victoria.





My Victorian Waterway

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**North Central Catchment
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Healesville Sanctuary

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The *My Victorian Waterway* survey was commissioned by the Department of Sustainability and Environment (DSE) and carried out in conjunction with catchment management authorities (CMAs) and Melbourne Water. The methodology and survey were developed and implemented by Associate Professor Dr Anne Pisarski from Queensland University of Technology and Professor John Cary from Victoria University.

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