

THE source

Issue 40 • December 2006 • melbournewater.com.au/thesource

MEETING THE DEMANDS OF A DRY FUTURE

Contents

Cover The view from Bulla on Melbourne's north-western outskirts (picture by Rohan Young)

Above Getting Tarago Reservoir back into the system (see Page 6-7)

Below right Best Friend Eric Mitchell (see Page 10)

The Source is a magazine by Melbourne Water. This publication may be of assistance to you but Melbourne Water and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

ISSN 1443-704X

Editor
Tony Heselev (tonyheselev@melbournewater.com.au)

Photography Noel Butcher, Foons Photographics, Ginny Peckinpugh, Bruce Turner, Rohan Young

Design Stuart Pettigrew Design

Melbourne Water,
100 Wellington Parade,
East Melbourne 3002.
Telephone 131 722 or
(03) 9235 7100.

Printed on paper manufactured at the Burnie mill in Tasmania, which has ISO14001 environmental system certification. Water at the mill is recycled and reused. The paper is acid free, has neutral pH and is made of pulp from plantation timbers and pre-consumer waste.



© Copyright 2006 Melbourne Water Corporation. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, photocopied or otherwise dealt with without the prior written permission of Melbourne Water Corporation.

4 Recycling era Upgrades provide new opportunities

6 Tarago time What's involved to reconnect storage

8 Rural landmark Frontage program continues to grow

10 Peer praise Community achievers earn just recognition

12 Under pressure How water retailers manage restrictions

14 People person 'Common ground' the environmental answer

15 Last word Tracking tank leaks Young minds meet

There is no single solution to the problem of water scarcity, according to a strategy that spells out how we will meet our future water needs.

Water conservation and alternative sources underpin the Victorian Government's plans to meet water needs for the next 50 years.

The final Central Region Sustainable Water Strategy outlines initiatives to meet projected demand, and to provide environmental flows.

It says water scarcity in the Central Region – an arc around Melbourne from Geelong through Ballarat and east to Westernport – is being driven by population growth and climate change.

The strategy describes ways to secure water supplies, including efficiency, recycling and reuse, interconnections and augmentations.

Specific examples include:

- Moving to business case development for the Eastern Water Recycling Proposal, which could free up 139 billion litres of water for Melbourne and Gippsland (see report, Page 5)
- Revising water conservation targets that reduce per capita consumption by 30 per cent compared with 1990 levels by 2020
- Initiating a feasibility study of stormwater harvesting and reuse at Dights Falls on the Yarra River in Collingwood



- Requiring all new residential developments to include water-sensitive design
 - Further investigating the feasibility of desalination technology.
- Professor Peter Cullen, a member of the Federal Government's National Water Commission and chair of the independent panel that heard and reviewed public submissions to the strategy, described it as a model for Australia.

Water pressure: Population growth and climate change are driving water scarcity in and around Melbourne

"I think the strategy is very good in that it recognises that water planning cannot be disconnected from urban planning," he said.

"In the past we built suburbs and then built bigger and bigger dams to catch up with demand. Clearly that's no longer appropriate."

Creating more interconnections

between water supply infrastructure, allowing water to be moved around the system, is another key element of the strategy.

For example, it confirms Government plans to connect Ballarat to the Goulburn system with a new pipeline. This will enable Ballarat and Bendigo to share water infrastructure.

The strategy also sets out plans to protect the health of rivers and creeks by recognising legal water rights for the environment.



www.dse.vic.gov.au/water

Dry run a stark reality

The extreme drought that greater Melbourne is experiencing is quite unprecedented in its duration and severity, according to Bruce Rhodes, Melbourne Water's Manager of Urban Water Planning.

"For the past 10 years, streamflows to the reservoirs have been below average," he said.

"And this year we have seen record low inflows for winter and spring, with spring rainfall across the catchments only about half the long-term average."

For spring, when storages usually recover, rainfall in the catchments was 53 per cent of the weighted average of the past 30 years.

The best spring month was November, with 69 per cent of the average rainfall, with October the worst spring month, recording only one-third of the average rainfall.

Professor Peter Cullen said there had been a step-change in national rainfall patterns in this decade compared with last.

The Central Region Sustainable Water Strategy says the continuation of low inflows to reservoirs is "emerging as a real possibility".

It states that the dry conditions of the past decade are more severe than anything experienced over the past 100 years.

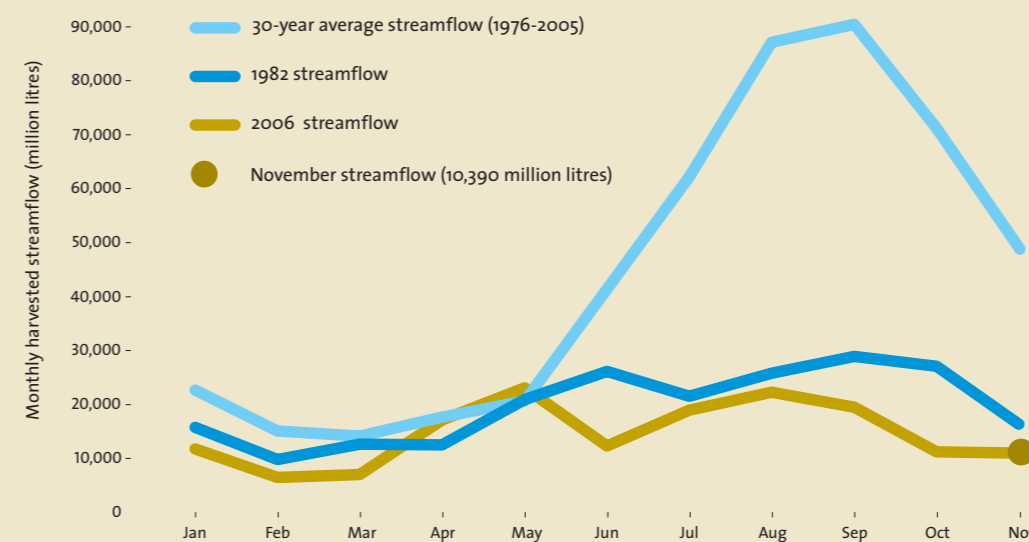
At 4 December 2006, Melbourne's water storages are 41 per cent full, with the biggest reservoir, the Thomson, holding 27 per cent of its capacity.

Stage 2 water restrictions were introduced in Melbourne on 1 November. Melbourne is one of about 314 Victorian cities and towns (of about 400) subject to restrictions. Some 111 of these are on Stage 4 restrictions.



melbournewater.com.au

Streamflows into the harvesting reservoirs



The harvesting reservoirs are Thomson, Upper Yarra, Maroondah and O'Shannassy

Danger signs loom in the catchments

A likely combination of high temperatures, low humidity, strong winds and dry mountain ash forests is posing a potentially severe bushfire risk this summer.

A desperately needed drop of rain in early November did not help water yield but at least provided some temporary comfort for concerned fire crews by dampening forests.

Frank Lawless, Melbourne Water's catchment team leader, said: "Lower temperatures and some rain in early November provided a welcome reprieve, but after such a dry winter and spring, the return of hot, dry weather will rapidly escalate the fire risk."

Forecasts issued by the Bureau of Meteorology and National Climate Centre indicate dry and warm conditions in the December quarter, with an increased risk of lightning strikes.

The fire season began early, with Melbourne Water taking on 56 summer firefighters (six more than last season) to supplement its permanent 27-strong team at Wallaby Creek, Healesville, Warburton and the Thomson Reservoir. The summer firefighters were employed progressively from 6 November, three weeks earlier than last year.

Melbourne Water is also recruiting a fire support team of 25 people from around the organisation as a backup resource. They will attend a five-day firefighting training course this month.

Melbourne Water's lease of a medium-sized water-bombing helicopter, which is on standby for the catchments, began on 8 November, six weeks earlier than last year.

Among the fire protection measures to be introduced this summer are the installation of 41 more water tanks in the catchments, and 19 wooden bridges will be replaced with concrete bridges.

Last summer there were 42 days of high to extreme fire danger in the catchments, with six days of total fire ban. There were 14 fires in the catchments (of which six were caused by lightning strikes), but they burnt less than one hectare.

Bushfires leave soot and ash, which can be washed from the catchments into the reservoirs. Fires can also destroy the mountain ash trees, and the saplings that grow afterwards are particularly thirsty, soaking up 50 per cent more water.

Melbourne Water's philosophy is to 'get in and get the fire out' as quickly as possible in the catchments. It can mount an initial attack with firefighters, bulldozers and tankers, and provide resources for subsequent shifts.

Melbourne Water has a partnership agreement with the Department of Sustainability and Environment and the Country Fire Authority, and works closely with them to manage the risk of bushfires in the catchments.



www.dse.vic.gov.au/fires

The Eastern Treatment Plant is entering a new era that will accelerate opportunities for large-scale water recycling. **Leith Young** reports

Since it opened in 1975, the Eastern Treatment Plant at Bangholme has played a critical public health role of treating and disposing of much of Melbourne's sewage.

At the time it was built, it was seen as state of the art technology; a world leader in sewage treatment.

Now upgrades and technological advances will see the plant enter another era – being able to turn treated effluent into a valuable and reusable water resource.

A \$300 million upgrade to tertiary treatment announced by the Victorian Government in October will pave the way for expanded recycling.

Once complete, in 2012, the plant will have the capacity to treat effluent to high quality (Class A) recycled water for industry, agriculture, new housing estates and outdoor use.

Tertiary treatment processes are based on filtering water and disinfecting it using ultraviolet light.

The processes and technology to be used at the Eastern Treatment Plant will be determined partly by the requirements of the end users of the recycled water and by technology trials planned for next year.

Under its EPA Victoria licence, the Eastern Treatment Plant processes about 370 million litres of sewage a day, and discharges the treated

effluent into Bass Strait at Boags Rocks near Gunnamatta Beach on the Mornington Peninsula.

Research has shown changes to marine flora on the rock platform and intertidal zones. Local communities, including surfers, have expressed concerns about issues such as colour, odour, litter and health risks from swimming at nearby beaches.

In recent years, with the extended drought and low rainfall, discussions have focused on effluent recycling. Treated effluent is increasingly regarded as a resource rather than a waste product, and more people have asked why it is discharged to the sea when it might be recycled for industry or agriculture.

As a result, major projects to enhance the plant's operations have begun, are planned or are being investigated.

At present, sewage entering the plant is treated by activated sludge secondary processing to Class C standard, disinfected with chlorine and discharged via the 56-kilometre South East Outfall pipeline.

Next year, the first stage of an \$84 million ammonia reduction upgrade will be complete. It follows a 1999 CSIRO study which found that algae, bull kelp and other flora had disappeared from the intertidal rock platforms at Boags Rocks and been replaced by other algae. One possible factor was the effluent toxicity from freshwater and ammonia.

Plant is now being seen in the context of securing water supplies on a regional level.

"The Central Region Sustainable Water Strategy identifies it, and effluent recycling has wide support."

In the past year, Melbourne Water commissioned a wide range of detailed scientific studies to examine possible impacts at the outfall.

The studies covered future scenarios, including the likely impact of upgraded treatment and outfall location, effluent flows, aesthetic impacts (such as colour, odour and litter), ecotoxicity (toxic effects on the ecosystem) and health risk assessment for recreational users.

Down to business case for major recycling proposal

The Eastern Water Recycling Proposal is technically feasible, according to a two-year study completed recently.

Now the Victorian Government wants to see how the numbers stack up.

Under the proposal, drinking water in Latrobe Valley industries would be replaced with high quality treated effluent.

This would free up 139 billion litres of drinking water for urban areas across Gippsland and Melbourne, and for environmental flows for rivers and the Gippsland Lakes.

Water would be sourced from an upgraded Eastern Treatment Plant, and diversion of the plant's flows would reduce the discharge from the plant's outfall by about 80 per cent.

Feasibility study project director Brian Bayley said the study had assessed the project in broad economic, social, environmental and technical terms.

The \$18.5 million business case would confirm costs, energy use, financial feasibility, the quality of water needed by industry, and further explore environmental risks.

"By far the most important aspect of the business case will be to reach agreement with customers to take the water," Mr Bayley said.

The potential customers – Latrobe Valley power generators and the Australian Paper Mills – currently use 115 billion litres of water a year, and have a combined entitlement to 139 billion litres.

The water, sourced from the Latrobe River, is equivalent to about one-quarter of all water used in Melbourne, and about 12 times the residential water use in West Gippsland.

Graeme York, Chief Executive Officer of International Power Hazelwood, said he supported the principle of using high quality recycled water, and looked forward to working closely with the Government on the business case.

Key recycled water issues for the Latrobe Valley power industry involve quality, cost, reliability of supply, and occupational, health and environmental performance.

Expanding horizon



Flock it in: Ever-present water at the Eastern Treatment Plant attracts some 177 species of birds. Upgrades of the plant will significantly improve effluent quality, enabling large-scale recycling, and reducing the discharge at Boags Rocks near Gunnamatta Beach by about 80 per cent



The upgrade, which will reduce ammonia at the outfall by 75 per cent, adds aeration to the secondary processing. It is a complex project involving modifications to existing tanks and building new ones.

Peter Bishop, from Melbourne Water's Strategic Projects Planning Group, says the ammonia upgrade will be fully operational by 2010.

"At that point, ammonia levels will be very low, and the reduced toxicity may result in ecological changes at the rock platform and intertidal areas," he says.

Consistent with its EPA Victoria licence, Melbourne Water has continued to monitor, assess and investigate the likely impacts at the outfall of planned changes and mooted recycling schemes, including the Eastern Water Recycling proposal (see report, right).

"Melbourne Water has been working towards improving the quality of the discharge to Bass Strait since it received the findings of a targeted CSIRO study in 1999," Mr Bishop said.

"The CSIRO report also identified distinct benefits from effluent recycling to reduce the volume discharged to Bass Strait.

"The recycling concept has gained momentum due to continuing shortages in rainfall catchment water. Finding water for Melbourne has become very important, and the Eastern Treatment

The findings, reported to EPA Victoria in September, are published on Melbourne Water's website (see link below).

Almost 21 billion litres (or about 7 per cent) of treated effluent from the Eastern Treatment Plant was recycled in 2005/06. Some 30 customers along the outfall pipeline use the treated effluent for horticulture, agriculture, open space irrigation and on vineyards.

Last year, Melbourne Water, in partnership with TopAq, began the Eastern Irrigation Scheme. The \$25 million project uses a new ultrafiltration treatment plant at Bangholme, which can treat effluent to Class A recycled water, suitable for direct use on vegetable and salad crops.

It supplies more than five billion litres of Class A recycled water a year to vegetable growers in the Cranbourne and Five Ways region.



melbournewater.com.au > sewerage > Eastern Treatment Plant > tertiary upgrade



www.dse.vic.gov.au > water > Central Region Sustainable Water Strategy > background reports



Making the connection

An extra 15 billion litres of water is welcome indeed, but as **Paul Cunningham** reports, there's much more to reconnecting the Tarago Reservoir than opening a pipe valve.

Plans to reconnect Tarago Reservoir to the metropolitan water supply system have reached an important stage as Melbourne Water finalises the location of a new water treatment plant in West Gippsland.

The Tarago Reservoir will be reconnected to Melbourne's water supply by 2010 to help protect metropolitan and regional water supplies from the impact of climate change and meet expected growth in demand.

If streamflow remains at current low levels, the reservoir will be able to supply an extra 15 billion litres of drinking water a year.

If streamflows recover to pre-drought levels, the yield could increase to 21 billion litres, boosting overall metropolitan and regional capacity by 3.7 per cent.

The new water treatment plant is central to reconnection plans because

New source: Tarago will boost greater Melbourne's supply but a water treatment plant is needed because farming and timber harvesting occur in the open catchment

farming, timber harvesting and other activities occur in the open catchment.

The Tarago Reservoir, 100 kilometres east of Melbourne, is fed by the Tarago River, part of the Bunyip-Tarago River system flowing to Western Port.

Since its construction in 1968, the reservoir has experienced occasional quality issues, with water affected by colour and turbidity after heavy rain.

The water storage also has a history of algal blooms linked to phosphorus and nitrogen run-off from agricultural activities.

About one-quarter of the 11,400-hectare Tarago catchment supports agricultural activities, and the quality of water supplied to residents in the Mornington Peninsula and Westernport regions was variable.

Melbourne Water took over management of the reservoir in 1991, and in 1994 replaced the Peninsula and Westernport supply from Tarago with high quality water from Cardinia Reservoir.

Tarago Reservoir currently supplies local towns, such as Neerim South, Rokeby and Warragul, with water treated to a high standard by Gippsland Water.

Melbourne Water's Caroline Hussey said reconnecting Tarago had always been part of the long-term plans for boosting greater Melbourne's supply.

"But there's more to reconnecting Tarago than reopening the Tarago-Westernport pipeline," she said.

"Since 1997 we have been working with local farmers, Landcare groups, Baw Baw Shire Council and government agencies to improve river health and develop catchment management practices to improve water quality.

"Improving the quality of the water entering the reservoir will help ensure that the new water treatment plant will consistently perform to the highest standards.

"Now we are talking to local farmers and the community about potential sites for the treatment plant, with a decision expected early next year."

There are five potential locations, each with varying advantages and disadvantages.

Ms Hussey, who is Strategy and Planning team leader (Water and Public Health), said a preferred site would be downstream from Rokeby.

This site would avoid the need for a new pipeline across the river and disruption to Gippsland Water's local supply arrangements. It would also have the correct elevation to minimise energy use and greenhouse gas emissions associated with pumping water.

The water treatment plant will use a variety of techniques to purify the water including dissolved air flotation, filtration, and ultraviolet light and chlorine disinfection.

Other key elements of Melbourne Water's Tarago Project are:

- Continued implementation of the Tarago Reservoir Catchment Management Plan
- Improving river health
- An environmental flow study of the Tarago River.

The Tarago Reservoir Catchment Management Plan, released in 2003, is designed to protect and improve water quality from the forested and agricultural lands in the reservoir catchment.

Putting the plan into action involves local catchment landholders and the Neerim and District Landcare Group working with Melbourne Water, the Department of Primary Industries, Baw Baw Shire Council, and other agencies.

Ten working groups have been set up for issues such as land and stream frontages, roadside and stormwater

'We are working closely with the local community on the water treatment plant project'

management, domestic wastewater management, forest management, planning scheme improvements and land-based recreation.

Kathy Junor is the facilitator of the Neerim and District Landcare Group's Tarago catchment sustainable farm program. She helps farmers develop 'whole of farm' management plans, replant rivers and riverbanks, and monitor water quality improvements.

The program is supported by a national Landcare grant of \$60,500 a year over three years. Melbourne Water is providing an additional \$180,000 a year for the next three years to extend this program.

"My role is to build relations with farmers whose properties lie within the reservoir catchment, and to help

them adopt farming practices that improve water quality," Ms Junor said.

"Farmers have been keen to take up financial incentives for on-ground works, such as managing soil erosion sites, replanting and fencing off gullies, removing weeds and planting native species.

"We're also working with the Department of Primary Industries to help farmers develop nutrient management plans."

As part of the catchment management plan's working group on planning controls, Melbourne Water and Baw Baw Shire Council have reviewed local planning provisions.

The review is a first step towards clarifying development controls designed to protect water quality in the reservoir catchment area.

The environmental flow study for the Tarago River will help determine the timing and volume of environmental flows required to achieve a healthy river ecosystem able to support fish, vegetation, macroinvertebrates, and rare species such as the Warragul burrowing crayfish, *Engaeus sternalis*.

The study is overseen by the Department of Sustainability and Environment, Melbourne Water, Southern Rural Water, Gippsland Water and a community advisory group.

Melbourne Water is also working to improve the health of the Tarago River downstream from the reservoir.

Risks to river health include loss of riverbank vegetation, bank erosion, livestock access, weeds, water quality and barriers to movement of fish and other aquatic life.

Melbourne Water provides funding and support to local landowners through the Stream Frontage Management Program (see Growing partnership, Page 8-9).

Since 1997, the program has helped Tarago catchment landholders control weeds, build fences to restrict livestock access, and revegetate riverbanks on their own land.

In addition, Melbourne Water supports river health through major streamside rehabilitation capital works.

A total of \$1 million has been set aside over five years for capital projects



along rivers and creeks of the Tarago catchment. Current projects include construction of a fish ladder, and removal of willows and replanting along several kilometres of stream frontage.



melbournewater.com.au >
current projects > Tarago

Rural landholders and Landcare groups have now worked for 10 years with Melbourne Water to protect and revive priority rivers and creeks. **Vin Maskell** reports

Nora Peters is standing by a bend of Toolern Creek, just outside Melton. There is no water in this tributary of the Werribee River, but there is life.

"Can you hear that?" she asks. "It's a willy-wagtail." She looks across the creek and points: "There!"

Ms Peters and her husband Peter Gregory, both driving instructors, have been revitalising their 22-hectare property since they left the city 20 years ago.

Toolern Creek, 400 metres from their brick veneer home, has been the

focus of their recent efforts, thanks to Melbourne Water's Stream Frontage Management Program.

With funding from the program, they have been able to fence off 300 metres of the creek, remove weeds and plant thousands of seedlings. They have now fenced off a total of 1000 metres of creek frontage.

The creek was a sorry sight when they moved there. "It was a mess," says Mr Gregory. "Full grown boxthorn and cactus and rabbits were everywhere. We had a huge bonfire years ago to burn the boxthorn."

The couple linked up with their local shire and Landcare group and set about rejuvenating their property, including the creek.

Then, Mr Gregory saw an item in 2004 in a Melton newspaper about the Stream Frontage Management Program.

mainly to help landholders establish projects."

After a successful beginning in 1996/97, it was clear that the program was engaging landholders and delivering cost-effective on-ground works.

The key was providing up-front and continuing funding together with removing the need for written reporting (assessment and auditing is carried out onsite with the landholder).

It was also clear that the program could help protect high quality rivers and creeks and address degradation. A considerable increase in funding in 2001/02 expanded the program to Melbourne Water's rural districts.

Ms Smith says the breadth of frontage management issues faced by rural landholders across the Port Phillip and Westernport region varies widely,

Growing partnership



A lot to be proud of: Toolern Vale couple **Nora Peters** and **Peter Gregory** surrounded by trees planted as part of the Stream Frontage Management Program

Rejuvenating stream frontages				
Year	Grants	Fencing (m)	Plants	\$
1996/97	25	15,444	35,146	49,449
1997/98	76	29,163	64,595	285,050
1998/99	118	41,384	39,550	285,014
1999/00	150	59,235	60,500	448,398
2000/01	178	44,937	48,820	307,644
2001/02	339	100,021	112,125	1,065,689
2002/03	348	78,452	122,680	866,833
2003/04	331	74,938	132,245	791,700
2004/05	355	54,928	130,665	707,634
2005/06	398	65,139	122,850	906,214
Totals	2318	563,641	869,176	5,713,625

This gave the couple the incentive to complete the fencing of the creek and continue planting.

The program helps private landowners manage their stream frontage land (freehold or licensed Crown land water frontages) by providing grants for works including fencing, off-stream stock watering, weed control and revegetation.

Since the program's inception, landholders along priority rivers and creeks have received more than \$5.7 million in grants from Melbourne Water.

The funding has been used to erect more than 560 kilometres of fencing and plant almost 870,000 trees and shrubs.

Melbourne Water's Jan Smith said: "The program started small, targeting degraded streams in the Westernport catchment. The initial concept was

and so too does the funding package offered to landholders.

For example, landholders with bush blocks within forested areas of the upper Yarra River's tributaries, such as Watson's Creek, may not need fencing but may need help to tackle environmental weeds such as honeysuckle and ivy.

Just downstream, their neighbours may be grazing cattle, horses or goats and may require fencing to exclude their stock, usually accompanied by blackberry control.

Graziers in historically cleared catchments of the Lang Lang and Little Lang Lang Rivers east of Western Port may have their weeds under control, but may ask for help with fencing to control stock and with revegetation to help re-establish native plants.

Along Deep Creek, in the upper Maribyrnong River catchment to

Melbourne's north-west, landholders often have rocky escarpments next to their local waterway. Such areas are unproductive and can be a danger to stock, so many landholders choose to fence these out entirely, creating very large riparian conservation areas.

Weeds such as gorse and tiger pear may have become rampant in inaccessible areas but with Stream Frontage Management Program grants, landholders use professional weed controllers to work within the fenced frontage.

The program aims to encourage landholders to undertake projects in manageable stages.

It recognises that many landholders have often already worked to rejuvenate their waterway, with or without assistance from other grants or local Landcare groups. For these landholders, the program may help to extend or speed up their plans.

A Mornington Peninsula landholder tackling a serious infestation of hawthorn said recently: "I would eventually have got it done but with Melbourne Water's assistance I am years ahead."

Ms Smith, Melbourne Water's program leader of rural grants, says: "Environmental improvement projects are a long-term affair because waterways are naturally dynamic and prone to disturbance.

"Most landholders understand this and show an enormous commitment over many years, plugging away even when unplanned disasters – droughts, floods, unwanted stock excursions into the riparian area, or damage by rabbits, wallabies and wombats – set them back."

Nora Peters and Peter Gregory can relate to that. They've worked hard and overcome more than a few obstacles. In early 2005, for example,

there was a fire in a neighbour's paddock, a mini-tornado and then the storm in February sent basalt boulders tumbling through the creek as the waters rushed by the top of the steep banks.

While they are quick to acknowledge that much still needs to be done at their property, they have a lot to be proud of.

Ms Peters, a keen amateur photographer, has recorded 75 species of birds along the creek since last April. These include the white plumed honeyeater, the red rumped parrot, the black shouldered kite and her favourite, a female brown falcon she refers to as 'Her Ladyship'.

The couple is happy to point out that "we're not getting any younger" and say they may be able to pass on their knowledge to others.

What advice, then, do they have? "Make a small start, even if it's just half a dozen trees," Ms Peters says. "Then enjoy the satisfaction of seeing them grow."

And of watching the birds arrive.



Phone (03) 9235 2231 or visit:

melbournewater.com.au >
[rivers and creeks](#) >
[community and councils](#)

Braeside Park pioneer **Eric Mitchell** is rewarded for exceptional and long-standing dedication by his peers from 'Friends' groups.

Community stalwart Eric Mitchell was quite grumpy about winning a Best Friends Award for 2006.

"I got something back for everyone else's hard work," he says.

But Mr Mitchell, 78, was indeed a worthy winner of the award, one of three presented recently at the

works to improve the park's wetlands, including viewing platforms and extensive plantings.

A colleague, Bev Bancroft, said Mr Mitchell was a quiet man who always knew the right way of doing things. "He is a good teacher who is effective but undemonstrative," she said.

that get involved in Waterwatch and tree plantings.

The site was formerly a sewage treatment plant, and was used for grazing and market gardens. It was also a horse training centre, and it is believed that Phar Lap was once stabled there.

local council, and on advisory boards for Melbourne Water and Parks Victoria.

Now he is chair of two school councils, a guide at Melbourne Zoo, and an advocate at homes for aged and disabled people.

He recalls how Melbourne Water's predecessor, the Melbourne and Metropolitan Board of Works, presented its plans for the site to the community at public meetings. He answered a local newspaper advertisement seeking volunteers to set up the Friends group.

Melbourne Water's work with the community and the importance of volunteers were central themes in an opening address by Chairman Cheryl Batagol at the Friends seminar.

She said there had been a fundamental change in the way Melbourne Water is working and thinking.

"The traditional culture and skills of the engineering organisation are quite different from the culture and skills of an organisation that wants to work together with others who are equally as passionate about the protection of rivers and creeks as we are, such as Friends and community groups, local government and the Catchment Management Authority," she said.

"Now we have a much stronger focus on the community, supporting community grants and programs such as Waterwatch, Frog Census and Stream Frontage Management. Community groups help us see the benefit of working more collaboratively."

The seminar included speakers from Friends groups, Melbourne Water and councils, panel discussions and case studies.

The other Best Friend award winners were:

- *Doris Bevan, for her many years of voluntary work including weeding, seed collecting and propagation, setting up educational displays, and improving walking tracks with the Friends of Sassafra Creek and other local Friends groups.*

- *Bill Goodall, who has worked long and hard with his wife Shirley and other members of Friends of The Point to clear sand from the historic fortifications of Point Nepean.*



Mr Mitchell had two terms as president of the Friends of Braeside Park, for a total of eight years, and produced the group's monthly newsletter for 15 years.

Another colleague, Elsie Anderson said: "He included articles that stress the importance of making natural history available and interesting to people of all ages, especially family groups."

He regarded the job as a kind of duty. "You can't run a voluntary organisation if you don't communicate with people," he said.

Mr Mitchell has made a habit of serving the community, having worked on his

Reluctant hero



annual Victorian Environment Friends Network seminar hosted by Melbourne Water at the Western Treatment Plant.

The former Springvale mayor and schoolteacher played an important part in establishing the 300-hectare Braeside Park and its Friends group in the late 1980s.

He drove many successful grant applications. These led to the development of a community nursery – which produces about 15,000 indigenous seedlings a year to revegetate the park – and various

The park is visited by about 300,000 people a year and is home to about 150 species of birds. It features heathland, wetland and grassy woodland conservation areas, a visitor centre (which provides information about the park's wildlife and history), picnic areas, an adventure playground, and 12 kilometres of walking trails.

"You can see all aspects of nature here – from wetlands to open forests and bushland," Mr Mitchell said.

Braeside Park is a favourite for walking and birdwatching groups as well as school and other community groups

Larissa Brown, the winner of this year's Brian Robinson Foundation Fellowship, is only 25 but she is already developing a new generation of environmental leaders.

Larissa Brown doesn't believe in the Lagade about good things coming to those who wait.

A couple of years ago, Ms Brown was learning about environmental issues as she studied for her Bachelor of Science at Melbourne University, but she wasn't doing anything tangible about them.

She became tired of waiting until she knew enough, and determined to take action as soon as she could.

That resolve resulted in her setting up the Future Environmental Leaders course for high-achieving young people.

"From as early as I can remember I wanted to see a more sustainable world," she says. "There are so many pressing issues but very little changes, and I felt frustrated with the leadership of the environment movement and myself."

She was aware of excellent training opportunities available for future business and community leaders and set out to create the same opportunities for young people interested in environmental sustainability.

Her efforts have been recognised and supported by the Brian Robinson Foundation, which awards a fellowship each year to young people making a contribution to Victoria's sustainability. The foundation commemorates the vision, ideas and leadership of (former EPA Victoria Chairman) Brian Robinson.

Ms Brown's fellowship is for a six-month study tour of leadership programs and interviews with outstanding environmental achievers around the world.

The research will be used to improve the Future Environmental Leaders course, which is open to university students and recent graduates, and includes weekly workshops, a one-week 'retreat', mentoring and individual projects. Students pitch their projects to the media, do public speaking and gain the backing of organisations.

"I didn't have much experience as an educator, but knew something about being a student," she says.

"So I imagined what I wanted to learn and what teaching methods had

worked for me and then talked to educators, thinkers and eventually course participants to refine my ideas. Doing the course myself was also very helpful."

She turned conception into reality in only six months, with the idea 'taking off' after the Monash Environment

York, Ottawa, Chicago, San Francisco and Los Angeles.

"I have spoken with scientists, lawyers, economists, politicians and leaders from business, non-government organisations and think tanks," she says. "Everyone I have interviewed has had something special to offer. Being able

creative and innovative coaching and training with the latest research.

Ms Brown has designed the study tour to improve aspects of her Melbourne course, particularly the behaviour change projects, which are developed and run by students. Students communicate the results to encourage organisations to continue the projects.

Sustainability Victoria and Yarra Valley Water have supported student projects as part of partnerships that Ms Brown describes as models for the future.



Leading the way

Institute agreed to be the legal entity behind the course in 2004.

The course, which is free, was launched last year with 17 participants. This year, two groups of 15 were chosen from 130 applicants.

Applicants for the eight-hour a week course are generally final year law, business or science students or young people working for corporate or environmental organisations.

Ms Brown, who left Melbourne in August, has already interviewed more than 70 environmental leaders in Sydney, Wellington, Washington, New

to ask everything I could think of about leadership is like a dream come true."

Ms Brown is about to begin the second stage of her tour interviewing leaders from Asia, Africa, South America and Europe. Eventually she will have interviewed about 300 people across gender, issues, culture and style to try to identify generic qualities.

A highlight of her tour has been the opportunity to examine leadership courses in the US, particularly the Smithsonian Institute's two-week environmental leadership training program. This program combines

"Teaching our most talented young environmentalists world-class leadership skills will help ensure that all future graduates of our course will be effective catalysts of change," she says.



Q&A

On the frontline

What is involved in managing Melbourne's increasingly stringent water restrictions? We spoke to the Managing Directors of the metropolitan water retailers, which supply water to consumers.

WHAT IS DIFFERENT ABOUT THIS DROUGHT?

Tony Kelly (Yarra Valley Water): The extent of it is certainly unprecedented in our experience. The severity of it is concerning everybody.

Anne Barker (City West Water): Ten years of drought in the bigger context of climate change means we are in a whole new world.

Dennis Cavagna (South East Water): Perhaps the other thing is we have been getting a few false hopes (of rain), and then nothing much happens.

HOW HAVE YOUR CUSTOMERS RESPONDED?

Tony Kelly: Our customers have been amazingly supportive, particularly in the past few years, and across Melbourne the community has saved 22 per cent since the 1990s.

However, if we don't look after the longer term and help our customers save water, we run the risk of losing community support.

Dennis Cavagna: People are very water-conscious now, and Melbourne has the lowest per capita consumption among the capital cities.

We have still got about 40 per cent of water in our dams, and this shows that our forefathers did the right thing by Melbourne. We shouldn't understate that.

Anne Barker: There has been widespread acceptance and uptake

of restriction requirements, and additional action by many. The development and introduction of Permanent Water Saving Rules has also had long-term benefits.

Most customers have a positive attitude towards water conservation and restrictions, and it is unacceptable when the few who don't breach the rules.

IS THERE A LIMIT TO THE CONSERVATION BURDEN YOU CAN PLACE ON CUSTOMERS?

Tony Kelly: We have still got a fair way to go. In Europe, water consumption inside the house is about 125 litres per person per day. Here in Melbourne, we are still using about 170 litres per person per day indoors.

The Europeans are doing it not through water restrictions but mainly through water-efficient appliances.

For example, German plumbing shops sell the most water-efficient appliances on the planet because the average German is so conscious of the environment.

The Australian community is much more passive in that regard, but eventually our market will demand the same thing and the winners will be the manufacturers that are first into that market.

WHAT DO YOU DO TO MANAGE WATER RESTRICTIONS?

Dennis Cavagna: Communication about how people can use water is a

key part of it. We do this in a number of ways: through letterbox drops, advertising and news releases across the metropolitan area and locally.

We meet industry groups that are affected by restrictions such as nurseries, carwashes and the swimming pool/spa group.

South East Water alone received 8500 calls about restrictions in October. About half of these were general inquiries, one-quarter about exemptions, and the other quarter from concerned citizens about how water is being used by others.

People want to know if they can top up or fill their pools, councils want to water parks and gardens, and builders or developers want to roll out instant turf.

Tony Kelly: It means a lot of extra work. We have a special area in our call centre dedicated to restrictions, and have to contact customers if there are apparent breaches.

We find that as we go into each level, new issues arise. A lot of detail needs to be sorted out in a very short period of time.

For instance, there are possible exemptions for playing fields and sports grounds, which provide a very important social role in our community.

We have been negotiating the conditions under which we would enable councils, sports associations



Taking the lead, from left: Tony Kelly (Yarra Valley Water), Dennis Cavagna (South East Water), Anne Barker (City West Water)

and clubs to continue watering their grounds. Some sports grounds can be watered, but on the basis that the councils save a quarter of their existing consumption.

They can do that by closing some sports grounds and concentrating their watering on a smaller number of grounds.

WHAT CHALLENGES DOES THE DROUGHT POSE FOR YOUR BUSINESS?

Dennis Cavagna: Our response time to leaks has to be tighter, and we are responding more to leaks in private properties, which we aren't formally obliged to do.

Our costs are a real challenge, because we have had to put more people on, for example, in a call centre for restrictions.

We are getting a lot of requests for help from customers on everything from greywater to rainwater tank connections. People are looking for solutions. So we have increased what we call the water literacy of our staff, and become involved in projects such as showerhead exchanges.

We also have people out there doing water patrols. Across Melbourne, there are 120 people and 90 cars. Sometimes when a call comes in, a property needs to be inspected immediately, and we need the resources to do that.

Anne Barker: Our water conservation/restrictions experts are under a lot of pressure talking to customers with individual needs. We try to make sure everyone in the business has a good knowledge of restrictions so that we can all help with communication.

About one-third of our customers speak a language other than English at home. We regularly use translation services, and are recruiting 'ambassadors' from various cultural groups to help communicate our key messages.

We also have a responsibility not to waste water, which means getting to leaks and bursts even quicker than usual. Our customers really let us know if they are not satisfied with our performance!

Tony Kelly: The onus is on us to explain restrictions and push the conservation message in every communication we send out.

We won an International Water Association award for the best water conservation account, we run the Government's rebate program, promote conservation at community events, and hold competitions to promote best practice.

WHAT EFFORTS HAVE YOU MADE TO DEVELOP A WATER-SAVING CULTURE AMONG YOUR CUSTOMERS?

Tony Kelly: We provide audits, advice and templates of a water conservation plan, and the better organisations, for example Ford and Visy and a couple of councils, have delivered exceptional results.

But the bigger challenge for Yarra Valley Water is commercial users such as offices and small industrial operations where a lot of water is used. We are working out how we can communicate more effectively with that group and what sort of products and services they need to save water.

Dennis Cavagna: A lot of our business customers have done an enormous amount, and have made water savings of 20 to 30 per cent, but there are a number of business customers who could still do more.

We are using our plumbing organisation to help businesses. For example, if they want to check out their water use, we have datalogging technology that can identify leaks.

Anne Barker: We were the first company to hold a community showerhead exchange back in 2005, and had a fantastic response with 2000 residential customers participating.

This year we have also initiated a summer campaign to help customers in our largest water-using areas save water in the home and garden, above and beyond the current restrictions.

Our industrial and commercial customers are also very keen to work with us to reduce their water use. Many have already achieved significant water savings

by participating in our Cleaner Production Program, which focuses on water conservation and trade waste reduction, and our Water Conservation Solutions program.

DOESN'T WATER CONSERVATION CONFLICT WITH YOUR ROLE AS A RETAILER?

Anne Barker: No. Water conservation is paramount to building a sustainable business. We need to ensure that water is sustainable so that we can continue to provide this essential service to our customers, and our target is to sell less water every year.

We now also have the opportunity to focus on developing new products, such as recycled water, which contribute to water conservation and provide growth for our business.

For example, we are working with Melbourne Water to provide recycled water from the Western Treatment Plant to various developments in the Werribee area including schools, parklands, industrial precincts and housing estates.

Tony Kelly: No. Our prices are set on getting a fair return on the infrastructure that we invest in to provide water to our customers.

It is always going to be cheaper for the community to save water and pay a CPI increase every year than to use more water and for us to provide major augmentation such as more dams, recycling schemes and desalination plants and pass on the costs to customers.

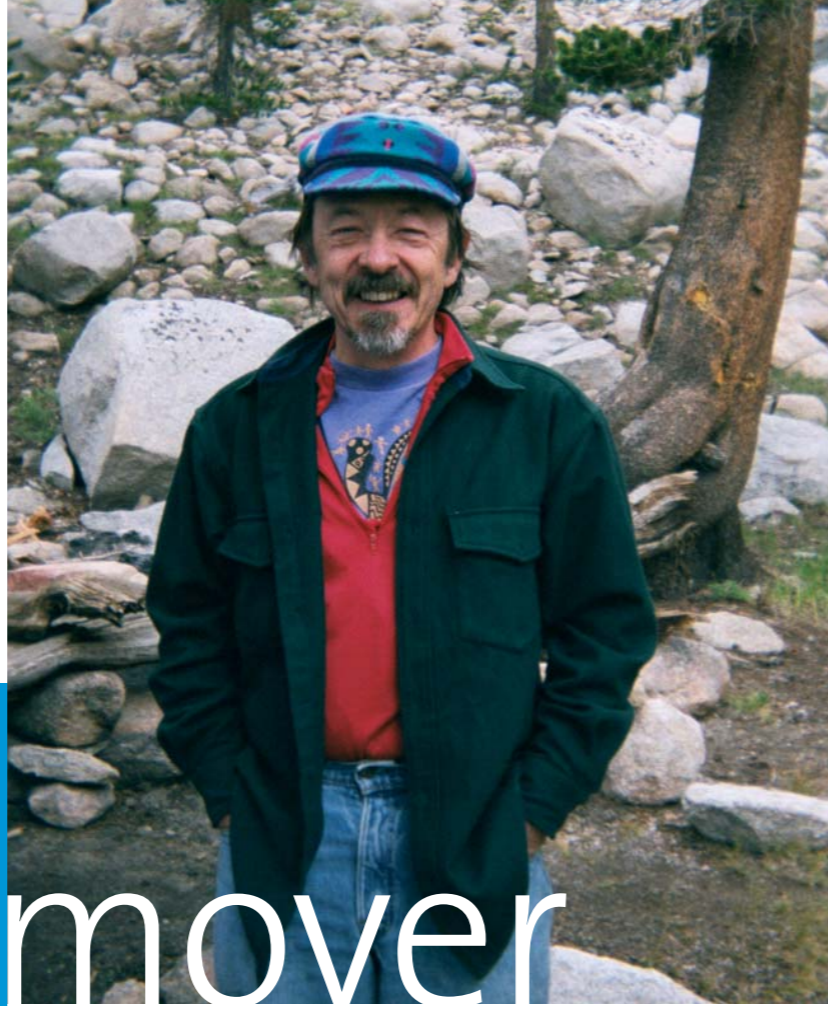
Dennis Cavagna: There would be a conflict if we were judged on water sales. In fact, we are judged on how much water we can save, and the Government understands that.



www.citywestwater.com.au
www.southeastwater.com.au
www.yarrawalleywater.com.au

Establishing common ground is the key to involving the community in environmental renewal, according to US urban studies expert **Steve Johnson**.

People mover



It's no good telling people about environmental issues when they may be struggling to make a living or to keep their children at school, according to noted US community campaigner Steve Johnson.

Dr Johnson, who visited Melbourne recently, says winning people's support depends on listening to their stories and finding a link with their concerns.

He learned the importance of 'common ground' restoring the Johnson Creek catchment in Portland, where he lives.

The watershed (catchment) council he established is rated the most effective stream restoration group in Oregon. Its activities have encouraged a remarkable 1 in 15 of the 175,000 residents in the catchment to become involved in voluntary restoration activities.

"I used to think I needed to repair the watershed but I realised that repairing the people who live in the watershed had to come first," he says. "You have to find common ground and listen to where the community is at, or you will be on your own."

Dr Johnson is Manager of Community Research at the Center for Urban Studies at Portland State University.

Melbourne Water invited him to speak to staff, councils and community groups as part of its program to strengthen its connections with

community groups and agencies contributing to river health.

Dr Johnson has worked for almost 25 years to restore the creek, and is passionate about involving the community.

With the same name as the catchment and one of its largest private landowners, it was natural for him to lead the charge to restore one of Portland's last free-flowing waterways.

"I believe in the wisdom of crowds," he says. "Regulatory solutions have their place, particularly in controlling point pollution, but we needed different skills to solve the problems caused by residents."

For most of its urbanised history, the creek had been a flooding and pollution hazard to residents and an intractable problem for government.

'Regulatory solutions have their place, but we needed different skills to solve the problems caused by residents'

"The usual approach of getting five guys in suits together to restore and manage the catchment didn't work at all," he says. Some 40 plans were produced leading up to the early 1990s, but none was successfully implemented. It was only when agencies involved the community that progress was achieved.

Back then, the local community talked about 'euthenasing' the creek by turning it into a drain, like most other waterways in Portland.

It was viewed as a liability; nobody cared about it or even visited. Each neighbourhood was preoccupied with its own more pressing issues such as social and commercial decline, and was not going to support additional taxes to put fish back into the creek.

The challenge was to build the skills to bring the community together.

"We needed a long-term solution not a quick fix, to involve community interest groups, schools, government agencies and activists in all areas, not just the environment," he says.

Working together with the City of Portland, schools and residents of one of the poorest neighbourhoods,

the watershed council converted a disputed area of land along the creek, ruled by gangs and violence, into a recreational and educational resource for the community.

While it hasn't solved all the problems in the area, it has provided valued family recreational space, and by

involving local students in outdoor education and restoration activities, reduced the school dropout rate.

Dr Johnson says that much of his effort has gone into developing community skills, and the courses he teaches are based on values and skills graduates need to be well informed and active citizens. He says this long-term investment is helping to build a strong community with the knowledge to contribute to a healthy democracy.

"Placing ourselves in the larger social context, working with each community's priorities rather than imposing our own, gradually converted the story residents were telling themselves," he says.

He says he could die now and know that the restoration of the creek will continue.

"We have planted some trees, removed invasive species and implemented new public works," he says.

"But that isn't what makes me sure, as things can change. It's really the investment in people that makes me confident. We are telling ourselves a different story now about where we live and what is our responsibility."



<http://homepage.mac.com/stevenreedjohnson>

Ideas flow from immersed students

About 250 school students from Australia and New Zealand explored everything from using recycled water for firefighting to choosing sustainable seafood as part of the inaugural International Youth Coastal Conference recently.

The four-day conference, held at sites around Port Phillip Bay, featured a 'hands-on' day of bird research at the Western Treatment Plant in Werribee.

The students, from Years 5 to 11, also visited Melbourne Museum, Point Nepean and Queenscliff.

At the Western Treatment Plant, they examined habitat at the Ramsar-listed Lake Borrie, counted bird types and species and tested the water.

Based on this evidence, they suggested many ways to rehabilitate typical wetlands and attract birdlife, such as installing nestboxes and platforms.

Education projects officer Sarah Dagg was one of 12 Melbourne Water people who helped run the activities at the Western Treatment Plant.

"The students came up with phenomenal ideas, and were so excited about the possibilities of recreating Lake Borrie in their local neighbourhood," she said.

Some 285 bird species are found at the Western Treatment Plant, second only to Kakadu (with 289).

The conference, organised by environmental event manager Firestarter, was supported by Melbourne Water.

"Our involvement is part of our commitment to use a variety of ways

to engage and inspire young people about water issues," Ms Dagg said.

Cathy Oke, from Firestarter, said the students learned communication and resilience skills, met people from all walks of life, built a lasting commitment to the marine and coastal environment, and worked with expert mentors to deliver interactive workshops to their peers.

For example, four students from Bentleigh West Primary simulated a Rove-style TV talk show in 2020, showing how a polluted bay would produce new species. The presentation included an original song, and information on what not to put down street drains that carry litter and pollution into creeks, rivers and eventually the bay.

Students from Bayswater Secondary College delivered an informative multimedia presentation on firefighting with recycled water. Their mission was finding new markets for this resource while reducing flows into the marine environment.

These two schools attended the conference after winning a Melbourne Water competition for their presentation proposals earlier in the year.

All school groups, who were accompanied by at least one teacher, presented at least four times to their schools and parents as part of their preparation for the conference, and now are taking their presentations to their local communities.

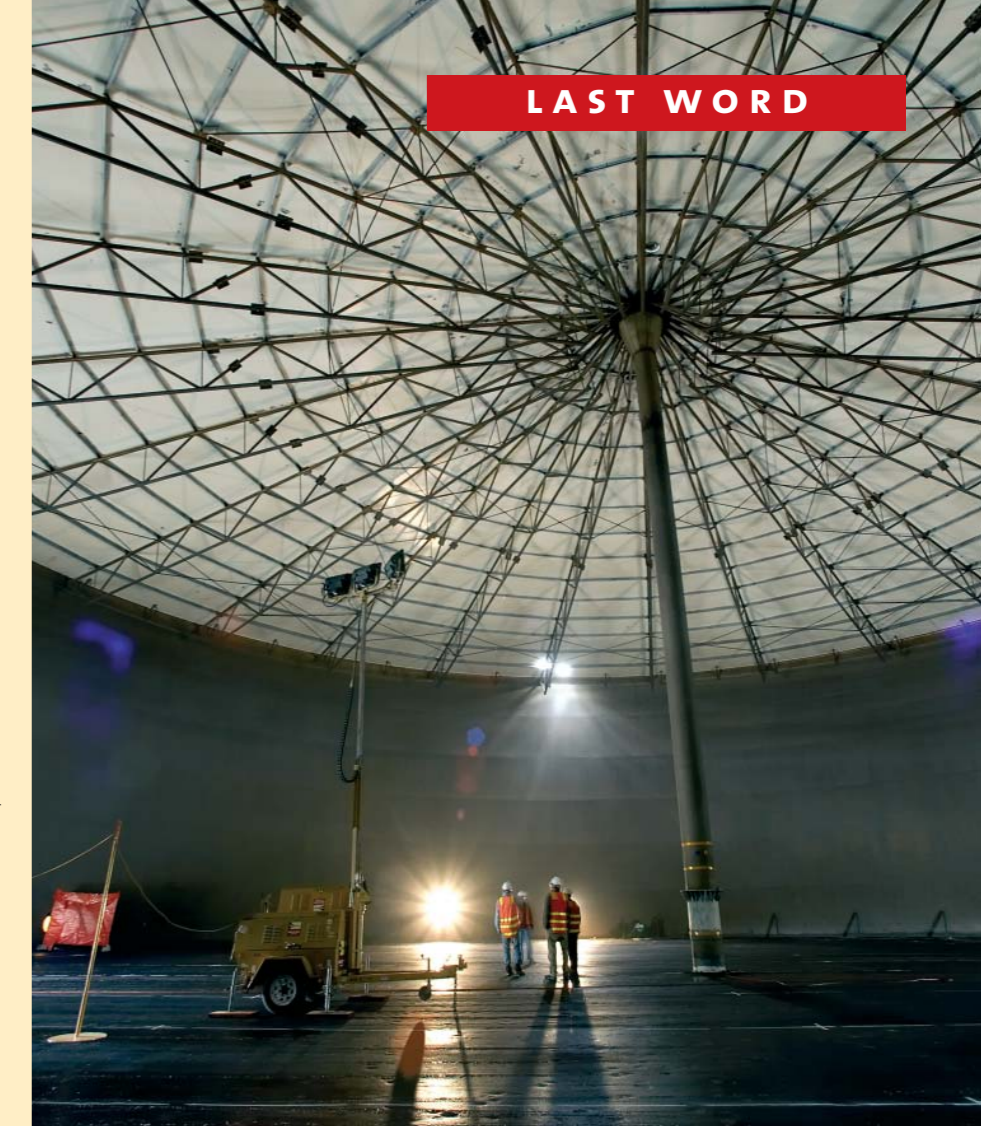


www.onelifeoneworldourfuture.com



On the lookout: Students check bird habitat at the Western Treatment Plant as part of the International Youth Coastal Conference

For a free subscription to *The Source*, ring 131 722 or see melbournewater.com.au/thesource



The inside story: Workers lay bitumen in the new St Albans tank

New vision for monitoring tanks

A technique that maps corrosion has guided a \$3.5 million project to rebuild a steel tank in St Albans.

The technique, which is an important risk management tool for Melbourne Water, details the extent of any defects through the metal plates on the tank floor to help prevent leaks.

These defects can result over time from stormwater intruding into the tank base.

Corrosion technologist Robert Callant said that the technique is providing superb knowledge and information to Melbourne Water.

"It delivers a scan of coloured pixels that has been compared with an x-ray," he says.

The scanning technique is commonly used in the oil industry to measure corrosion on the inside of tanks, but this is believed to be the first time in Australia that it has been adapted to assess and model leakage vulnerability in the water industry.

The 32 million litre St Albans tank, which was commissioned in 1970, has been drunk down, emptied and cleaned.

Two huge doorways have been cut into the tank to enable cranes to lift out the old metal floorplates, and bring in and lay down new ones.

Typically, about 130 of these plates are needed on the floor. Each is about 2.5 metres wide, 9 metres long and 10 millimetres thick.

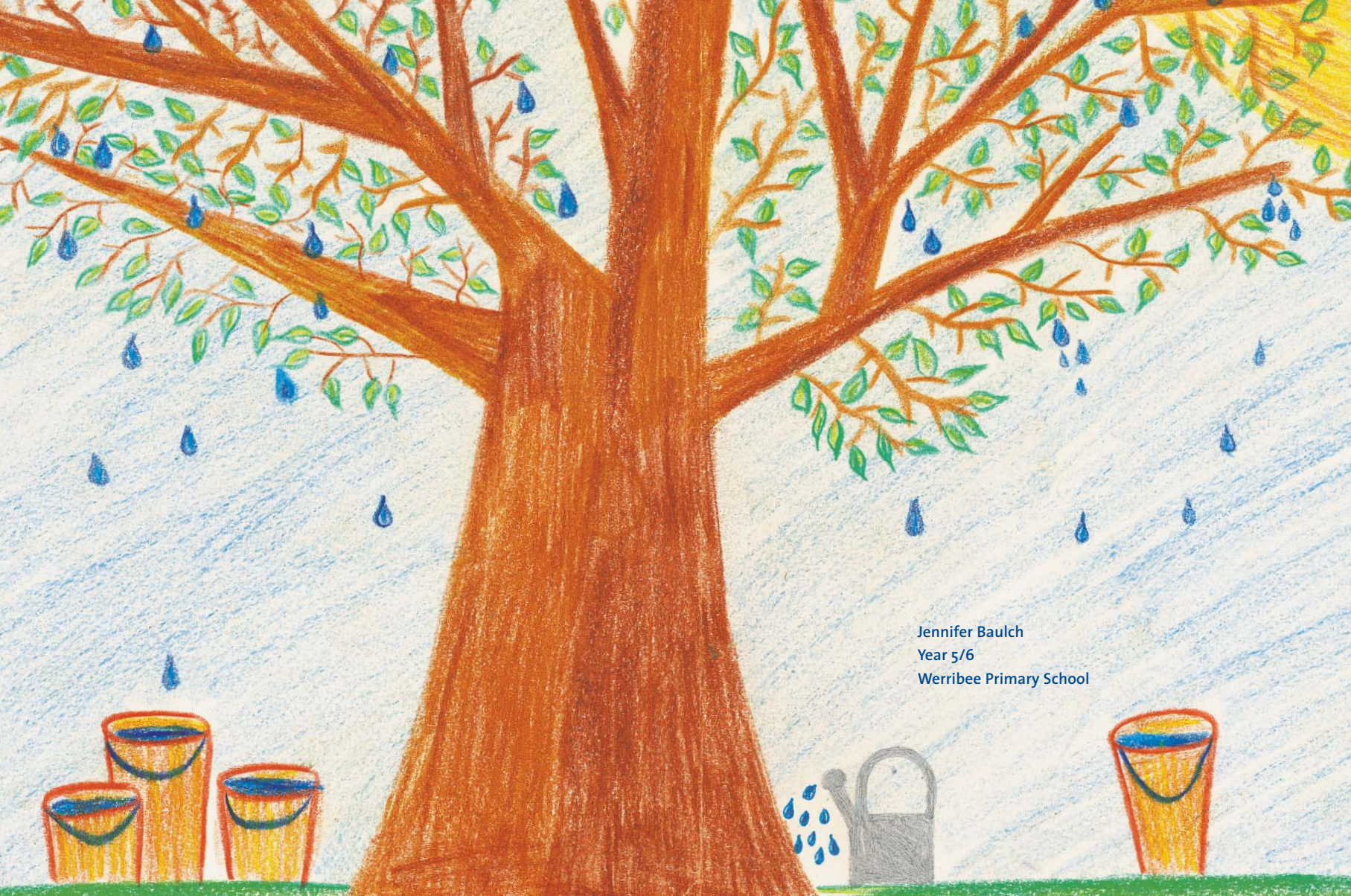
The project, which began in August, aims to significantly reduce long-term corrosion by improving the stormwater drainage systems near the tank and installing heavier floorplates.

Importantly, the old base of limestone (which has a high salt content) has been replaced with layers of soft bitumen that eliminates voids and air gaps into which stormwater could run.

The tank at St Albans, one of three at the site, was taken offline in late 2004. The new tank, which is due to be completed by February 2007, is designed to last at least 100 years.

Melbourne Water has 40 steel tanks in its water supply system.





Jennifer Baulch
Year 5/6
Werribee Primary School

Working together to ensure a sustainable water future

At Melbourne Water, we are working with many organisations as well as the community to ensure water of appropriate quality and quantity is available for all uses now and in the future.

This includes water for drinking, healthy rivers, parks and gardens, industry and agriculture.

Our sustainability principles include protecting and conserving Melbourne's water resources, and protecting and improving the environment, including biodiversity.

For more information, see Sustainable Water – A Strategic Framework at melbournewater.com.au > *about us* > *who we are* or call 131 722



Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems in the Port Phillip and Westernport catchment.

melbournewater.com.au