

# RIVER HEALTH & WATER QUALITY ANNUAL REPORT



**2003-2004**



**GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY**

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## Healthy Rivers, Healthy Communities

“.....Healthy rivers, streams, wetlands, floodplains and adjacent land that support a vibrant range and abundance of natural environments, provides water for human use, sustains our native flora and fauna and provides for our social, economic and cultural values.....”.



## FOREWORD

The Goulburn Broken Catchment Management Authority (GBCMA) together with the Goulburn Broken River Health and Water Quality Committee (RH&WQC) and Waterway Working Groups (WWG) is pleased to present our River Health and Water Quality Annual Report for 2003 / 2004.

The commitment and dedication of our Waterway Working Groups, Coordinating and Implementation Committees, Management Team, Agency Partners and our community has ensured the continued success of our river health and water quality program. We wish to acknowledge the efforts of the many landowners and community groups who have contributed to the protection and enhancement of our waterways through involvement in on-ground works. In addition the ongoing partnerships with Goulburn Murray Water, Department of Sustainability and Environment, Department of Primary Industries, Environment Protection Authority, Goulburn Valley Water, North East Regional Water Authority and the region's local government authorities has been a strength to the program. The ongoing support and links with the River Health Unit of Department of Sustainability and Environment provides us with financial and strategic support to enable the successful implementation of both strategic and implementation actions.

The program has also been strongly supported through funding from both State (Waterway and Catchment Program, Stressed Rivers Initiative, Healthy Rivers Initiative, State Fishway Program) and Federal (National Action Plan for Salinity and Water Quality) Governments in 2003/2004. A funding total of \$5,087,000 has been directed towards the program, enabling high priority implementation actions, monitoring, planning, strategic and research initiatives to be undertaken.

We would like to acknowledge our dedicated waterways team for their achievements throughout 2003/2004. This group has continued to be effective in working with the community and other stakeholders in delivering and co-ordinating on ground action. This group is also responsible for administering waterway permits, developing and initiating works plans, seeking funds to support the program, promoting the benefits of a healthy river system, and co-ordination of the water quality program.

Finally we would like to thank the members of the River Health and Water Quality Committee who continue to provide coordination of strategic issues and our three geographically based Waterway Working Groups who provide input towards the development of the Implementation Program and strong links to and from our community.

We commend this Annual Report to all, being proud of our achievements and confident that with the continued efforts of our community and partners over the following years, we will make a significant contribution towards the protection of our catchment and the river system within.





## RIVER HEALTH & WATER QUALITY TEAM

### River Health & Water Quality Coordinating Committee

The River Health and Water Quality Committee has been established to:

- develop Catchment-wide policies and strategies on single issues listed in the Regional Catchment Strategy.
- develop processes for the initial stages of implementation, including monitoring and integrating implementation into broader activities within Catchment through Implementation Committees.
- aggregate the initial Implementation Committee reports into a Catchment Report.

The purpose of the Committee is to oversee: research, development of best management practices, proactive in setting benchmarks and monitoring and preparation and review of existing and new strategies.

### Committee Members

#### Community Representatives

Brian Greed  
 Suzanna Sheed  
 Royce Dickson  
 Hubert Miller  
 Russell Pell  
 Murray Chapman  
 Bob Dare  
 Jill Breadon  
 Peter Howarth  
 Alan Sutherland

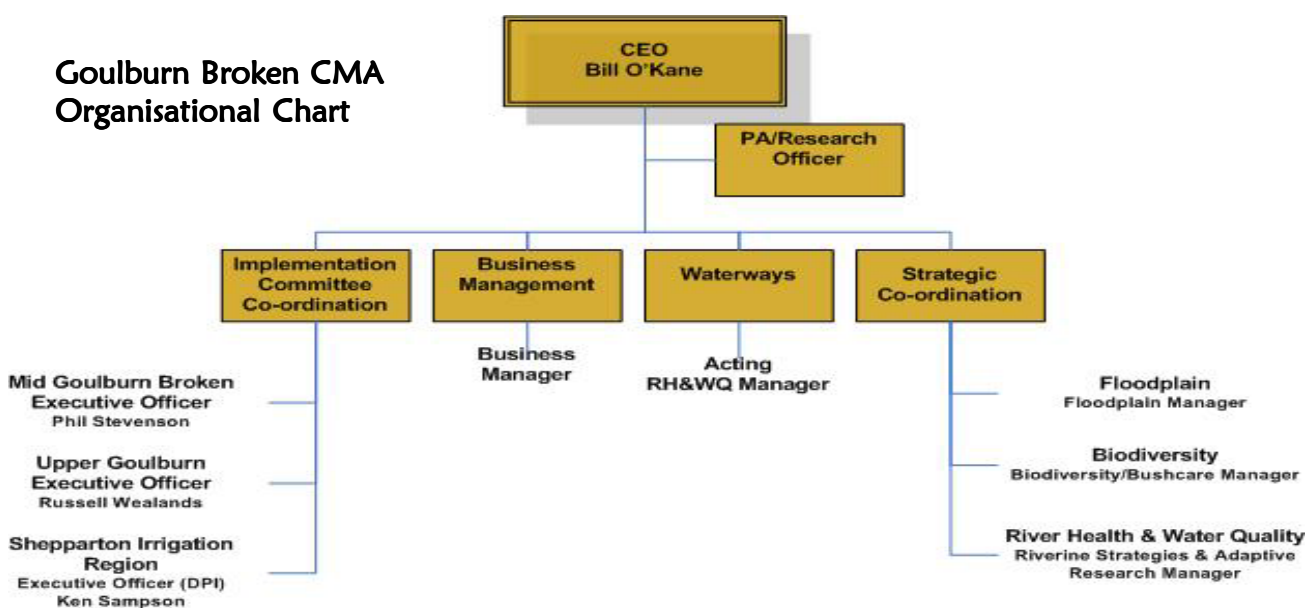
#### Agency Representatives

Bruce Radford, Department of Primary Industries  
 David Burrow, Department of Primary Industries  
 Elita Briggs, Environment Protection Authority  
 John Anderson, Goulburn Valley Water  
 Susan Tunnell-Jones, Goulburn Murray Water  
 Andrea Smith, Goulburn Broken CMA (local government)  
 Melva Ryan, Goulburn Broken CMA (local government)  
 Ken Sampson, Shepparton Irrigation Region IC  
 Peter Howard, Shepparton Irrigation Region IC

#### Corresponding Members

Neville Fowler, Department of Primary Industries  
 Pat Feehan, Goulburn Murray Water

Goulburn Broken CMA  
 Organisational Chart





## Waterway Working Groups

### The Waterway Working Groups roles are to:

- provide input to assist in the preparation of the annual waterway management program.
- provide balanced comment on community issues and ideas.
- provide a conduit to the community to assist in monitoring community attitudes and priorities to improve the progress and impact of the waterway program
- identify research proposals related to waterway management for referral to the River Health and Water Quality Committee.

### Upper Goulburn Waterway Working Group

#### Community Representatives

Peter Howarth  
George Vasey  
Rod Drew  
Susan Sleigh  
David Wakefield  
Mike Dalmau

#### Agency Representatives

Andrew Strange, Goulburn Murray Water  
Paul Brown, Marine & Freshwater Research Institute  
Kerry Goschnick, Department of Primary Industries  
John Cooper, Fisheries Dept.

### Mid Goulburn Broken Waterway Working Group

#### Community Representatives

Sally Simson  
Ken Whan  
David Ritchie  
Kevin Mitchell  
Kathy Beattie  
Arthur Frost

#### Agency Representatives

Steve McMonigle, Department of Primary Industries, Fisheries  
Chris Meek, Goulburn Murray Water  
Kerry Goschnick, Department of Primary Industries

### Shepparton Irrigation Region Waterway Working Group

#### Community Representatives

Russell Pell  
Ron Pearce  
Alan Sutherland  
Bill Probst  
Tate Hamilton  
Nick Roberts

#### Agency Representatives

Silvio Fontana, Goulburn Murray Water  
Bruce Cumming, Department of Primary Industries  
David Trickey, Department of Primary Industries, Fisheries  
Alex Sislov, Department of Primary Industries  
Ken Sampson, Shepparton Irrigation Region IC  
Peter Howard, Shepparton Irrigation Region IC  
Melva Ryan, Goulburn Broken CMA, Local Government





## STRATEGIC PROGRAMS

The Goulburn Broken CMA has continued to maintain support for strategic planning, monitoring and evaluation projects. The Authority wishes to acknowledge the support provided to the authority, from the following research organisations: CSIRO Land and Water, Murray Darling Freshwater Research Centre, Co-operative Research Centre for Freshwater Ecology, Monash University, Water Studies Centre (Monash University).

### **Draft Goulburn Broken Regional River Health Strategy**

Development of the “draft” Regional River Health Strategy was a major achievement in 2003/2004.

The Strategy builds on existing river-related action plans, implementation plans and strategic documents and is supported by a series of sub-strategies and discussion papers. It will provide a framework for integrated actions that will enable high quality rivers to be protected and others to be improved for current and future generations.

The Strategy is the first attempt to combine all elements of river management under one integrated document providing direction for protection and enhancement of the regions river systems.

### **State Fishway Program**

The Broken River catchment was the recipient of funding to improve fish migration from the State Fishways Program, through the Department of Sustainability and Environment.

Two key projects will benefit from the funding:

- Gowangardie Weir – Study into environmental, social and economic impacts of improved fish passage; and
- Casey’s Weir – design and approvals for the construction of a Vertical Slot Fishway. Works to be carried out in 2004/2005.

### **Stream Recovery – Identification of Target Areas**

A case study is also being carried out in the Goulburn Broken catchment, through CSIRO Land and Water, to identify the potential for threatened rivers to recover using assessment tools like SEDNET, a program for assessing sediment loads emanating from various streams in our Catchment . This work will assist the region to determine priorities in river restoration and improve our understanding of which actions will improve water quality and riparian condition over time.

### **Identification of Wetland Systems – Their Values, Threats and Potential Risk.**

A project to identify Values, Threats and Potential Risk to Wetland Systems in the Goulburn-Broken Catchment has been established through a Partnership between the Department of Sustainability and Environment, Department of Primary Industries, Parks Victoria and the Catchment Management Authority. When concluded, the results will guide the development of focussed Wetland Implementation Plans in future years.







### **Index of Stream Condition (2004)**

The success of the river health program is monitored and evaluated using the Statewide Index of Stream Condition. This index reflects the various aspects of river health (water quality, in-stream habitat, river hydrology, riparian condition and river channel form) and will be undertaken again in 2009. This year's data was collected throughout the region by CMA staff. Data was collected to assess both channel form and riparian condition.

### **Development of a “Draft” Regional Waterway Response Framework**

As a consequence of a major fish kill incident on the Goulburn River the Authority coordinated a debrief process to establish a regional Response protocol, including a technical session, to identify the range of possible causes for the event. This work led to the completion of a Regional Response Framework and will contribute to the EPA run independent audit on the Goulburn River.

### **Activity Plans**

A number of local waterway activity plans were prepared this year to assist with planning of future works and activity programs. The plans encourage both community and agency involvement and include Broken River (between Casey's Weir and Gowangardie Weir); Broken River (between Gowangardie Weir and the confluence with the Goulburn River). This information will provide a detailed and prioritised works program for the Healthy Rivers Initiative.

### **Crown Frontages (Case Study)**

Twenty-eight licensed Crown Water Frontages on the Broken River between Casey's Weir and the Goulburn River have been comprehensively assessed as part of a “case study” into the condition of Crown Water Frontages in the catchment. Each Frontage was visited and assessed to establish its' status and develop management guidelines to protect its' associated value.

### **Broken Creek Management Strategy**

A review of the 1998 Broken Creek Management Strategy began mid year and will be finalised by September 2005. This will provide the GBCMA, our partners and the community with a clear direction for works and activities on the Broken Creek over the next five years.

The review has highlighted several significant achievements since 1998, and has identified a range of social, economic and environmental values which the community wishes to protect. This project will conclude in 2004-05.





## STRATEGIC PROGRAMS

### Support for Research Projects

The following research initiatives are being supported through the waterway health program: Seven Creeks Sand Slug Monitoring (CRCFE) – continue monitoring of response to installation of LWD. Assisting the CRC for Catchment Hydrology to produce a body of scientific work undertaken by Project 2.1, “Sediment Movement, physical habitat and water quality in large river systems”. The Project has produced a large body of technical information, highly relevant to waterway managers and CMA staff and is supported through the Victorian Waterway Managers Forum. Management and Control of aquatic weeds – Arrowhead. We are supporting work being undertaken by Goulburn Murray Water (Aquatic Plant Services)

### Project Support

Members from the Waterway Team have supported projects and committees to advance our understanding of river health and riverine issues. These include:

- Murray River Rainfall Rejection Project
- Major Storages (GMW) Water Quality Reference Committee
- Major Storages (GMW) Water Storages Water Quality Study Project Steering Committee
- Goulburn River Audit Reference Committee
- Trout Cod Recovery Team
- Ecological character of Ramsar Sites (DSE) - Project Steering Committee
- Critical Functional Relationships between Salinity Solutions and Biodiversity (DSE) - Project Steering Committee
- Technical Committee for the Guidelines for Waterway Management (VWWMF and DSE)
- Inter-agency Group for River Health-Related Targets (VWWMF and DSE)
- Goulburn Eildon Fisheries Plan Partnership Committee
- Victorian Waterway Managers Forum
- Murray Darling Freshwater Research Centre Community Advisory Committee
- Barmah Millewa Forum

### Catchment Assessment Techniques:

CSIRO Land and Water has been applying the catchments assessment tool in the Goulburn Broken Catchment to identify river recovery potential (using tools including SEDNET). The work will assist the region to determine priorities in river restoration and improve our understanding of which actions over time will improve water quality and riparian condition. This project will conclude in 2004-05.





## Research Day

In association with the University of Melbourne and Goulburn Murray Water a successful Research Workshop was conducted during 2003 / 2004. The workshop was attended by over 120 participants who were presented with the findings of some of the key research projects being undertaken in the catchment.

The Workshop entitled “River and Catchment Health” covered three main themes:

- Our Catchment and Our Land
- Riparian and Instream Zones
- Community and Social Research

Planning is underway for a further day in 2004/2005 following the success of the initial workshop.

## Environmental Risk from Salinity

With the support of the National Action Plan for Salinity and Water Quality an Environmental Risk Assessment (ERA) was conducted on the Impact of Rising Salinity on Aquatic Ecosystems. This work, commissioned by the Catchment Management Authority together with Goulburn Murray Water and the Department of Sustainability and Environment, was conducted by the Water Studies Centre at Monash University).





## WATER QUALITY PROGRAM

### Nutrient Program (DPI)

The Nutrient Project has continued to assist farmers with effluent and feedpad developments and has additionally completed an additional training workshop to Irrigation Designs and Surveys groups. This workshop was intended to transfer information on the siting criteria for feedpads and to ensure all feedpad developments are in accordance with the Feedpad Guidelines for the Goulburn Broken Catchment.

A regional Nutrient Training Workshop was conducted in early May at the Kyabram Dairy Centre. With strong representation from a number of key stakeholders; Goulburn Murray Water, Catchment Management Authority, Department of Primary Industries and local Councils, the workshop was able to identify common issues amongst the group and set the foundation for building more effective partnerships across agencies in relation to reducing nutrient impact on waterways and public property. A common concern identified by several agencies was the significant development of feedpads across the catchment with a lack of direction from planning referral agencies.

Following this workshop a small sub-committee was formed to address the issue and has set direction in relation to creating a referral mechanism for feedpad developments within the GB catchment. The DPI Nutrient team will compose a paper proposing an amendment to the statutory planning provisions in attempt to see feedpad developments are implemented in accordance with the GBCMA Feedpad Guidelines.

The nutrient team has also been involved in the delivery of a Soils and Fertiliser program in Numurkah, attracting 25 participants. The training course significantly enhanced farmers ability to utilise fertilisers and develop effluent management systems in accordance to best management practice. The incorporation of the nutrient budgeting/mapping concepts developed from the Toolamba/Murchison project was also successfully introduced and well received by participants. The participants have gained more confidence in selecting the appropriate nutrient products and will start to fine tune their understanding on their own farms.

The DPI Nutrient Program has also compiled a draft Nutrient booklet. This booklet aims to ensure dairy farmers are aware of the sources of nutrients from their farms that may enter regional drains and waterways, establishes new Best Management Practices and changes in farming practices to reduce nutrient loads entering irrigation drains, and assists farmers use nutrients more productively on farms to enhance productivity and long term sustainability. This booklet should be published early in the new financial year.





## Drain Nutrient Removal Scheme

The Drainage Nutrient Removal Incentive Scheme was introduced in April 1998 to encourage landowners to construct strategically located storages (drainage nutrient removal systems) to collect and use regional drainage water. The water and nutrients collected can be used productively, and are not lost to areas of the catchment where they may cause problems such as blue green algae blooms. These storages can increase the volume of water available to the irrigator and reduce the amount of nutrient rich water entering our catchments.

With the low rainfall, only 2 storages were constructed this year. These were at Tallygaroopna (120 ML) and Strathmerton (200ML). Another 4 were planned for this year but with conditions uncertain they were postponed and will be completed next financial year.

### Results from 2003/2004:

During July 2004, a number of landholders with systems constructed were contacted to determine the volumes of water collected and used for irrigation. Samples of the water were taken and tested for salinity and phosphorous levels.

Water Service Area	ML Capacity Constructed	Volume Diverted (ML)	Phosphorous Saved (tonnes)	Salt Saved (tonnes)
Central Goulburn	1,658	1,985	1	631
Murray Valley	1,315	2,010	3	518
City of Greater Shepparton	1,240	2,360	1	200
Rochester (GBCMA Section)	150	100	0	0
<b>Total</b>	<b>4,363</b>	<b>6,455</b>	<b>5</b>	<b>1,349</b>

*\*\* Samples were not obtained from all 23 storages.*

Since the scheme commenced the total number of high flow storages built in the SIR with assistance from the incentive scheme is 23 and a storage capacity of 4,363 ML.





## WATER QUALITY PROGRAM

### Waterwatch

This year Waterwatch has continued its work in providing school education throughout the catchment as well as facilitating community monitoring network development.

There were 23 schools involved in the Catchment Capers program for primary schools this year with a total of 71 schools participating in some type of activity organised or assisted by Waterwatch. Three in-services were provided for current and future teachers to explain the Catchment Capers program and its activities.

Through the community monitoring networks, 281 sites have been monitored at least once during the year. Four of the networks within the Shepparton Irrigation Region (that monitor drains) were provided with training this year, and a new monitoring network was established along Seven Creeks. The establishment of two new networks are in the pipeline for this coming financial year. End of year reports are now being prepared for all community monitoring networks.

Waterwatch was also the organiser behind the Water Festival held throughout the catchment during Water Week in October 2003. The Water Festival featured boat trips along the Goulburn River near Nagambie, story and photographic competitions, posters from school students, movie nights across the catchment, and a swimming competition among all the water authorities in the region (which GBCMA won!). The Festival was a great success and broadened the scope of Water Week to the entire community.

### Stormwater

The Catchment Stormwater project has been working closely with the Shepparton, Moira and Mitchell Councils in targeting the construction and building industry and highlighting “only rain should go down the drain” and pollution prevention. The campaign has seen television and radio announcements and advertisements, on-site inspections of building sites and other awareness raising measures. The campaign was launched on 10 June 2003 at Gemmills Swamp in Mooroopna by Councillor Chris Hazelman. Also in attendance was Member for Shepparton Janette Powell, Moira Council Mayor David McKenzie and Mick Williams from the CMA board. Overall there were approximately 50 people present along with WIN TV and Shepparton News. At the launch the large Gross Pollutant Trap (GPT) was emptied and cleaned out for the first time since installation (December 2003). Just under 3 tonnes of litter were removed from the GPT. This campaign will run for approximately 3 months.

A “No Butts” campaign was conducted throughout the Goulburn Valley. The campaign was aimed at educating smokers that cigarette butts are litter, and that smokers need to take personal responsibility for disposing of their waste. The integrated campaign encouraged local councils and businesses to be proactive in combating cigarette butt litter. A key component of the campaign was to distribute personal ashtrays to smokers so that they can dispose of every butt. The campaign hit 25 towns across the catchment in 21 days and distributed over 10,000 cigarette butt canisters.





Kraft Foods in Strathmerton have begun to stencil their treatment plant stormwater and trade waste drains. The Kraft plant has many drains, with some leading to the stormwater outlet and others to trade waste. The environmental team at Kraft felt it was a priority to stencil the stormwater drains a blue colour and the trade waste drains a red colour to prevent a spill being leaked into the stormwater system.

### **North East Monitoring Partnerships**

The Goulburn Broken and North East Catchment Management Authorities are participating in the North East Monitoring Partnerships Agreement together with Goulburn-Murray Water, some local councils and other agencies.

The monitoring partnership provides a review of current water quality, rainfall and stream flow monitoring to work towards a fully coordinated and accountable monitoring partnership. It will develop a monitoring network program that meets each organisations needs while ensuring equitable cost sharing.

The partnership will take the region through a competitive tendering process, with one highly specific contract covering the entire region (NE and GB CMA areas) for water quality monitoring, rainfall and stream flow gauge networks. This process has commenced with Expressions of Interest called and submitted. Assessment of EOIs will be carried out on the early August, after which a shortlisting will be made for a request for tender.

Water quality, rainfall and stream gauge monitoring is essential for setting and monitoring against resource condition targets and compliance with regulations.

### **New Best Management Practice Documents**

The CMA has compiled a manual for Water Quality Best Management Practices. The manual titled; *Current Recommended Practices (CRPs) for Water Quality in the Goulburn Broken Catchment* was completed in February 2004. The manual lists water quality related CRPs providing practical, proven advice that will assist landholders, council staff, agency staff and any interested people in the reduction of high nutrient, sediment and other inputs to the catchment waterways. The manual is available on the GBCMA website and is also being produced on CD to be distributed to all councils and local libraries in the catchment.

DPI (Snobs Creek) has recently completed the development of Best Management Practices for Salmonoid Fish Farms. This will be useful for the fish farms within the upper catchment of the Goulburn Broken catchment management area.





## IMPLEMENTATION PROGRAM

While a number of new initiatives commenced in 2003/2004 the river health program continued to build on initiatives commenced in previous years. The aim of our program is to reduce the key threats to the health of our rivers and the quality of water within them. This included stabilisation of near stream and instream erosion, protection and enhancement of riparian lands and wetlands, address degraded riparian frontages (control of exotic vegetation and revegetation activities). Through special funding barriers to fish migration were investigated to prepare for removal or modification in future years. This year key implementation targets achieved included:

- 217km of stream frontages protected (with 190 binding management agreements);
- over 60 km of instream and near stream erosion controlled; and
- 79 ha of woody weed control.

Key projects included: extension of habitat for the native Trout cod (Seven Creeks); recreational fishing access and habitat (Goulburn River); healthy rivers and stressed rivers projects (Broken River); planning for future works programs – Local Waterway Activity Plans for the Broken River (Caseys Weir to the Goulburn River Confluence).

## UPPER GOULBURN IMPLEMENTATION COMMITTEE

A \$1.7 million River Health program was completed in the Upper Goulburn region. The past year has seen an increase in the control of exotic vegetation along waterways. The Waterways Grants scheme has been very well supported resulting in a 48% increase in landholders taking up incentives for off stream troughs and dams and a 67% increase with fencing and revegetation works. Restricting stock access to waterways has many water quality, stream health and environmental benefits.

River Health Investigations and studies completed this year will inform future river health programs on the King Parrot Creek and Sunday Creeks. Other studies relating to implementation of Stream Flow Management Plans on the King Parrot Creek and Yea River were also finished. A Regional Willow Strategy was completed.

Funding from the Recreational Fishing Licence Funding enable significant work to be undertaken along the Goulburn River to improve angler access, improve the condition of riparian lands and enhance instream diversity. This successful program will continue in 2004/2005.







## Recreational Fishing Licence Project - Goulburn River



The Goulburn River between Eildon and Molesworth is one of the most popular recreational fisheries in Victoria. The area is extensively used by recreational anglers and their visitation to the area contributes substantially to the local economy.

The main issue facing anglers along this stretch of waterway is access. Barriers such as inappropriate fencing, exotic vegetation, illegal signage, natural and artificial drainage outfalls, non-cooperative adjoining landowners and weeds all effect the ability of anglers to access the water frontage reserve.

The GBCMA is working hard at reducing these barriers for the betterment of the recreational angler and the waterway. The year's programme covered 16 sites from Eildon Pondage downstream to Alexandra. The first stage involved the stem injection of willows and commenced towards the end of March 2004. A number of contractors were used over a period of around six weeks. The distance covered over these sites was approximately 10.5km. Of the sites covered all had varying degrees of willow infestation. Removal began late in May again with a number of contractors using mainly twenty tonne excavators and fallers. The removal program took approximately 2 months with willows removed and burnt.

So far four of the largest and most easily accessed sites have been fenced to exclude stock from the river banks to allow for the planting of native vegetation which will commence at the start of August.

### Waterway Grants (Case Study).

This site is located in the upper reaches of the Hughes Creek catchment. So many of our sites by the time we see them are in such a poor state the thought of restoring them to anything of value is often quite daunting.

This section of water course which is approximately 700 metres in length and has existing fencing one side. A Waterway Grant for fencing at a setback ranging from 20 metres to well over 40 metres will almost cover half of the landowners cost for constructing the fence. No further investment from the GBCMA is required as such a great diversity of vegetation exists including three different eucalypt species and at least eight understorey species including small to large shrubs, ground and tree ferns, ground covers and climbing plants.

Sites like these illustrate the main principles of the Victorian and Goulburn Broken River Health Strategies which is 'protection of the best'. As a result we have achieved a significant outcome for a minimal investment.





## SHEPPARTON IRRIGATION REGION IMPLEMENTATION COMMITTEE

The Waterways Program focused on specific reaches of rivers and streams to achieve multiple benefits in stream health, water quality, and biodiversity. The main targets were the Broken River downstream of the East Goulburn Main Channel, Sevens and Castle Creeks, Goulburn River, Broken Creek system and the River Murray. A highlight was the community support for the works generated from Local Area Planning (LAP), Landcare Groups and development of Waterway Action Plans.

Major projects included the implementation of the Broken River Action Plan through funding from the Healthy Rivers Initiative that resulted in significant community involvement. This led to the removal of exotic woody weeds, bank alignment and bed and bank stabilisation works. The Goulburn River between Nagambie and Loch Garry continued to be a primary focus for works especially in woody weed control and follow up work on sites from previous years' projects. Monitoring of completed works sites ensures follow up works such as weed control or modification of in stream rock structures to improve fish passage as required.

Fifteen outfall stabilisation structures to reduce erosion and improve water quality were built on the Goulburn and Broken Rivers and the Sevens and Honeysuckle Creeks.

The River Murray Project has continued over the last twelve months (with emphasis on the Tocumwal to Echuca reach) to improve the frequency of wetlands filling during flood events, and the overall health of the floodplain system. This year saw planning and appointment of contractors for the construction of a low-level bridge across Shier's Lagoon to replace part of the forest road network that was potentially acting as a fish barrier. Revegetation of uncommon sandhill species existing on the floodplain has also occurred, especially concentrating on former sand extraction sites within Bruce's Bend, with about 8000 understorey shrubs and Yellow Box being planted.

Implementation activities continued on the Kinnairds Wetland Recreation Master Plan, and work continued on the Gemmill's Swamp Recreation Plan.

Waterway grants to landholders helped fund 18.6km of fencing, two property outfalls and 24 watering points at a grant cost of \$103,876. Most were on the Broken and Nine Mile Creeks downstream of Katamatite and the Corop Lakes area. Appropriate trees and understorey species were planted in the riparian zone along with grasses and water plants. Planting remained lower than normal due to the dry conditions (10,000 plants this year). Plantations were watered to protect current and previous investments.





## Waterway Health Activity Plan - Lower Broken River. Shepparton Irrigation Region



This action plan was prepared for the Broken River from Gowangardie Weir to its confluence with the Goulburn River at Shepparton.

This study aimed to develop a detailed action plan aimed at maximising environmental values and minimising the impact of threats to the stream.

Consultants were engaged to undertake an assessment of the health and condition of the Lower Broken River and undertake a risk analysis to identify the range of stream values and threats. The occurrence of bank instabilities was identified highest in reaches 3 & 4 from the East Goulburn Main Channel to the Goulburn River at Shepparton.

A works and activities program was developed with a number of high priority bank erosion sites identified for works to take place late in the 2003-04 financial years works program.

## Anabranch Flow restoration and fish barrier removal, Seven Creeks, Karramomus. Shepparton Irrigation Region



The Seven Creeks has a number of anabranches in the lower reaches with one commencing upstream of the East Goulburn Main Channel. The “named” Seven Creeks follows the eastern waterway and the “anabranch” is the western waterway. Due to past works by the old State Rivers and Water Supply Commission the flow was diverted into the western anabranch leaving the eastern waterway blocked at the bifurcation. The design was for structural works to restore flows to the eastern waterway of the Seven Creeks as the eastern waterway has no barriers and also improve fish passage to the western waterway.

The construction works consisted of a structure downstream of the East Goulburn Main Channel syphon site of the western waterway to flood the exposed syphon pipe and allow fish passage across the structure open the waterway for fish passage.

A structure was also built on the western waterway at the bifurcation of the eastern waterway as a control point to allow water to flow to the eastern waterway as well as the western anabranch to open both flow paths to fish passage. A fish friendly ford crossing was also constructed to the eastern waterway to allow landowner access as a result of the increased flows along the waterway.





## MID GOULBURN BROKEN IMPLEMENTATION COMMITTEE

The combined efforts of the River Health and Water Quality and Sustainable Agriculture and Land Management (SALM) Programs successfully made improvements to land and water throughout the Mid Goulburn Broken catchment in priority areas identified by the Goulburn Broken Regional Catchment Strategy. Major improvements were made with 'in stream' works, revegetation and protection of biodiversity.

The waterways team carried out an impressive array of works supported by the community-based Waterways Working Group who actively engage local communities and provide a valuable connection between landholders and the CMA.

Establishing native grasses at sites following works such as willow removal, bank stabilisation and fencing is a continuing challenge in the Waterways program.

Interest in Waterway Grants remains strong with total expenditure 03/04 \$141,000 resulting in 22km of fencing protecting 55ha of stream frontage. Nineteen off-stream watering systems were established to offset the loss of access to drinking water for stock.

A further \$100,000 in grants have been approved and are in progress while \$107,000.00 in waterway grants are proposed and under consideration with landholders.



*Broken River upstream of Gowangardie Weir*



*Broken River downstream of Gowangardie Weir*





## Establishment of Native Grasses in Revegetation on Waterways - Mid Goulburn Broken Catchment



Establishing Native Grasses at sites following works such as willow removal, bank stabilisation and fencing is a continuing challenge in the Waterways program. Since 2001, we have been trialling the use of native grasses grown in Hiko cells. While the planted sites have been successful, a number of issues have been identified.

Extremely thorough pre-planting weed control is needed which means we can't always plant out a site immediately to stabilize soils disturbed by works. Follow up weed control is usually necessary as well. Planting is very time consuming and expensive on top of the cost of purchasing the plants.

Because of these issues, we have found that this intensive restoration of native riparian grasses is best suited to the urban waterway bushland environments such as Lake Benalla and Seven Creeks in Euroa. This provides opportunities for community involvement and awareness on top of the obvious biodiversity benefits of including grasses in revegetation projects.

In 2004/05 we will begin to trial the use of native grass seed for establishment at post works sites which we expect to be more cost and time effective. These sites will be monitored to ensure that we continue to improve our techniques and can share experiences around the catchment.

### Sediment Control - Upper Broken River Tributaries.



During the summer of 2003/2004 the CMA was involved in an ongoing program. Previous years had seen numerous projects occur in the area based on the upper Broken Catchment Plan. The focus of the efforts in the catchment was to stabilise gullies and improvement of riparian vegetation to reduce the effects of erosion on the Broken River and Lake Nillahcootie.

of stream walks and surveys were

undertaken. Using the information collected, designs were developed to plan an extensive construction program. Over twelve rock chutes and sediment traps were constructed throughout the area, mainly concentrating on one section of a creek at a time. The structural work was supported by other initiatives, including fencing of streams to reduce stock pressure and protect revegetation programs. There has been a noticeable reduction of soil movement through these initial sites, and given time these reaches of streams will only improve.



Finally the continual surveys and designs will assist the continuation of the program over the next several years ensuring that we see an improvement in the water quality in Lake Nillahcootie and the Broken River downstream.





## WORKS OUTPUTS

Project Title (Standard GB Threat or Impact Managed)	Action Description (as per RCIP)	SIRIC	UGIC	MGBIC	Total
<b>River Health - CW 505</b>					
<b>Threat</b>					
<b>Land and water use practices</b>					
Stock grazing (ha = terrestrial; km = riparian)	Fence stream/river remnant (ha)	47.5	115	55	217.5
	Off-stream watering (no)	24	43	19	86
	Binding Management Agreement (license, Section 173, covenant) (no)	19	87	24	130
Other (specify)	Other (specify)				
	Stormwater management projects (no)	1			1
In-stream and near-stream erosion	Bank protection actions (km)	3.5	included below	1.2 km bank prot plus 5.6 km gully stabilised 250 ha land stabilised	4.7
	In-stream & tributary erosion controlled (km)	16	26.5	25	67.5
Changed flow pattern	Water allocated (ML)				0
	Drain (see surface water management actions)				0
Weed invasion	Weeds – woody weed management (ha)	8	25	46	79
Other (specify)	Other (specify)		included above	flow recommendations for Moodie Swamp fencing for Curlew protection community education engagement for grants	
<b>Impact</b>					
Habitat loss - terrestrial	Revegetation - plant natives within or next to remnants (ha)	18		10.8	28.8
	Revegetation - plant natives away from remnants (ha)	2		10.8	12.8
Habitat loss – in-stream	Vertical slot fishway (no)	1			1
	Rock ramp fishway (no)				0
	Fish barrier removal (no)				0
	Establish SEAR (Significantly Enhanced Aquatic Refugia) (no)	0		10	10
Habitat loss – wetlands	Reinstate flood regime				0
	Construct new wetland (ha)				0
Habitat loss – Threatened species	Threatened Species Recovery Plan and Action Statements (no projects)				0
Other (specify)	Carry forwards			2	2





## INVESTMENT

Programs	Mid Goulburn Broken IC Investment 2003-2004	Shepparton Irrigation Region IC Investment 2003-2004	Upper Goulburn IC Investment 2003-2004	Catchment wide programs
<i>State</i>	\$1,113,500	\$1,175,000	\$659,500	\$550,000
<i>National Action Plan for Salinity &amp; Water Quality</i>	\$320,000	\$514,000	\$428,000	
<i>Recreational Fishing Licences</i>			\$215,000	
<i>Murray Darling Basin Commission</i>				\$112,000
<b>Total</b>	<b>\$1,433,500</b>	<b>\$1,689,000</b>	<b>\$1,302,500</b>	<b>\$662,000</b>

Funding for the implementation of waterway health programs is provided by local (in-kind), State and Federal Sources.



The Authority wishes to acknowledge the financial support provided through the Victorian State Government's River Health Program and the National Action Plan for Salinity and Water Quality, Murray Darling Basin Commission and Recreational Fishing Licence Grants. This investment has enabled the delivery of the key initiatives and programs detailed within this Annual Report.

In addition the program recognises the considerable support provided by the local community through direct program participation and delivery of onground works by regional Landcare Groups and individuals.





## WORKS ON WATERWAYS

The Goulburn Broken CMA continued to administer the Waterways Protection By-Law through the processing of applications for Works on Waterways. A total of 60 applications were received for the year across the whole catchment. These were located 7 in the Shepparton Region, 23 in the Mid Goulburn Broken, and 30 in the Upper Goulburn Implementation Committee Regions.

A total of 26 permits were issued to private applicants for a range of works including bridges, culverts, earthworks, and drainage outlet structures. A total of 12 works approvals were given to exempt Authorities for public works crossings including pipelines, cable and roadways. The remainder of applications are either withdrawn, still being processed or awaiting supply of further information from the applicant. One major works approval involved the decommissioning of the Honeysuckle Creek Reservoir at Violet Town. Approval has been given but the works have been deferred due to wet conditions and will be carried out next summer.

Another interesting project has been an application to remove a substantial private road bridge over the Goulburn River at Seymour. The Bridge is no longer required by its owner, and is to be removed to eliminate the safety hazard.

Other activities include site inspection and administration of cases where un-authorized works have been carried out on waterways. Some cases which would have been permitted if an application had been made, are required to make application and comply with conditions for approval. Other cases have required removal of the offending works. The Authority has the power to remove such works and recover the cost from the offender



*New pedestrian bridge over the Stevenson River at Buxton*



*Erosion of sediments within the storage basin of the Honeysuckle Ck. Reservoir prior to decommissioning.*



*Unauthorised dam building works on a tributary of King Parrot Ck.*



*New bridge over the Broken Ck. at Barmah*







## STATUTORY

### Floodplain Management

From 1 January 1998, the Goulburn Broken CMA has carried out floodplain management functions under section 2002 of the Water Act, 1989.

Guy Tierney is the Floodplain Manager for the Goulburn Broken CMA and manages floodplain management activities across the Goulburn, Broken and part of the Murray River basins.

The CMA is responsible for statutory floodplain management advice under section 55 of the Planning and Environment Act, 1987. Under the Water Act, 1989 the CMA provides advice to the public when requested. The CMA is frequently approached for advice from the community, consultants and developers before formal applications are made to municipalities.

About 1,000 referrals including requests for advice were processed this financial year with the majority from the SIR. Referrals included the assessment of subdivisions, whole farm plans, dwellings, extensions and general flood information.

### Occupational Health & Safety

The Goulburn Broken CMA recognises its moral and legal responsibility to provide a safe and healthy work environment for employees, contractors, customers and visitors. This commitment extends to ensuring that the organisation operations do not place the local community at risk of injury, illness or property damage.

OH&S committee members are Richard Warburton, Acting Manager, Justin Sheed, Tom O'Dwyer, Fleur Jaques, Poppe Davis, Geoff Brennan, Marion Howell (past member), Keith Yates (past member).





## WATERWAY MANAGEMENT TEAM

Name	Position
Christine Sagona	Waterway Vegetation Officer – Upper Goulburn
Collin Tate	Waterway Works Officer – Upper Goulburn
Dustin Lavery	Waterway Vegetation Officer – Shepparton Irrigation Region
Fleur Jaques	Waterways Executive Assistant
Geoff Brennan	Waterway Works Supervisor – Mid Goulburn
Gordon O'Brien	Waterway Environmental Engineer
Jim Castles	Grassy Ecosystems Project Officer
Justin Sheed	River Health & Water Quality Manager
Joanne Gaudion	Waterways Vegetation Officer - Mid & Upper Goulburn
Keith Yates	Waterway Works Officer – Upper Goulburn
Max Colliver	Waterway Works Officer – Mid Goulburn
Meegan Davies	Water Quality & Works on Waterways Coordinator
Rebecca Nicoll	Waterway Vegetation Officer – Mid Goulburn
Richard Warburton	Waterway Works Supervisor – Shepparton Irrigation Region
Steven Collins	Waterway Works Officer – Mid Goulburn
Tom O'Dwyer	Waterway Team Leader – Mid/Upper Goulburn
Tony Kubeil	Broken Boosey Nine Mile Conservation Management Network Coordinator
Wayne Tennant	Manager-Riverine Strategies/Adaptive Research

