

GOULBURN BROKEN
CATCHMENT MANAGEMENT AUTHORITY
ANNUAL REPORT 2002/2003



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*John Laing, Winner Victorian
Individual Landcare Award 2003.*

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Our Catchment

Situated in northern Victoria and part of the Murray Darling Basin, the Goulburn Broken catchment comprises the catchments of the Goulburn and Broken Rivers and part of the Murray Valley. The catchment covers 2,431,654 ha, or 10.5% of the state. Although it occupies just 2% of the Murray Darling Basin, Goulburn Broken provides 11% of the Basin's stream flow.

The Catchment was once almost entirely covered in native vegetation, forested in the south and open woodlands in the north. Native vegetation has been retained in the mountainous far south, where slopes are steepest, but clearing has been extensive in the valleys and plains. Approximately 70% or 1.7 million hectares of native vegetation has been cleared since European settlement.

The major rural towns and cities in the catchment include Shepparton, Mooroopna, Benalla, Seymour, Kyabram, Cobram, Yarrawonga, Numurkah, Nathalia, Mansfield, and Yea. Some 189,590 people live in the catchment providing an employment pool of 77,000. Rapid population growth is occurring in some parts of the Catchment, notably centres within commuting distance of Melbourne and the City of Greater Shepparton.

The region is home to the largest Aboriginal population in Victoria outside of metropolitan Melbourne. Cultural and linguistic diversity is a feature of the Shepparton Irrigation Region (SIR) where well established communities, primarily as a result of Southern European post-war migration, co-exist with more recently arrived communities from countries such as Iraq, Iran and India.

Population numbers swell considerably during the fruit harvest season from December to March, when approximately 10,000 itinerant workers from throughout Australia and overseas converge on the SIR.

The Goulburn Broken catchment is widely regarded as the "food bowl" of Australia with production from the irrigation region supporting a large food processing industry that contributes to 25% of Victoria's export earnings. The Dryland area covers 1.4 million ha and generates \$1.9 billion each year. Total catchment economic output is approximately \$7.8 billion per annum.

Our Organisation

The Goulburn Broken CMA was established under the Catchment and Land Protection Act 1994 and Water Act 1989 and reports to the Minister for Environment the Hon John Thwaites.

The Authority was set up by the Victorian Government to co-ordinate environmental management in a region stretching from close to the outskirts of Melbourne in the south to the Murray River in the north and taking in the municipalities of Moira, Mitchell, Murrindindi, Strathbogie, City Greater Shepparton, Benalla and Mansfield.

From the irrigated Goulburn and Murray Valleys to the dryland grazing and cropping regions and high country valued for its recreational uses, the Goulburn Broken CMA is working in partnership with landholders (current and traditional), universities and research organisations, other authorities and agencies to create innovative solutions to natural resource management issues.

In the process it aims to improve the region's social wellbeing, environmental quality and productive capacity in a sustainable manner.

Members of the Goulburn Broken CMA Board are drawn from within the region. The Board has extensive collective experience and knowledge of primary industry, land protection, water resource management, waterway and floodplain management, environmental conservation, local government, business and financial management.

Under the direction of the Board, the Goulburn Broken CMA has developed detailed strategies to address land and water degradation. Issues such as biodiversity, salinity, water quality and waterway management, floodplain management, pest plants and animals and climate change are addressed in detail in the Draft Regional Catchment Strategy 2003 which sets out priorities and goals for on-ground works.





Goulburn Broken CMA Board and senior officers.

Back L-R: Stan Gibney (Business Manager), John Gray, Bill O'Kane (CEO), Kevin Ritchie (DPI), Huw Davies, Chris Norman (DPI), Craig Madden, Stephen Mills (Chair), Yvonne Davies.

Front L-R: Ailsa Fox, Dianne McPherson, Catherine Scott. Absent: John Dainton.

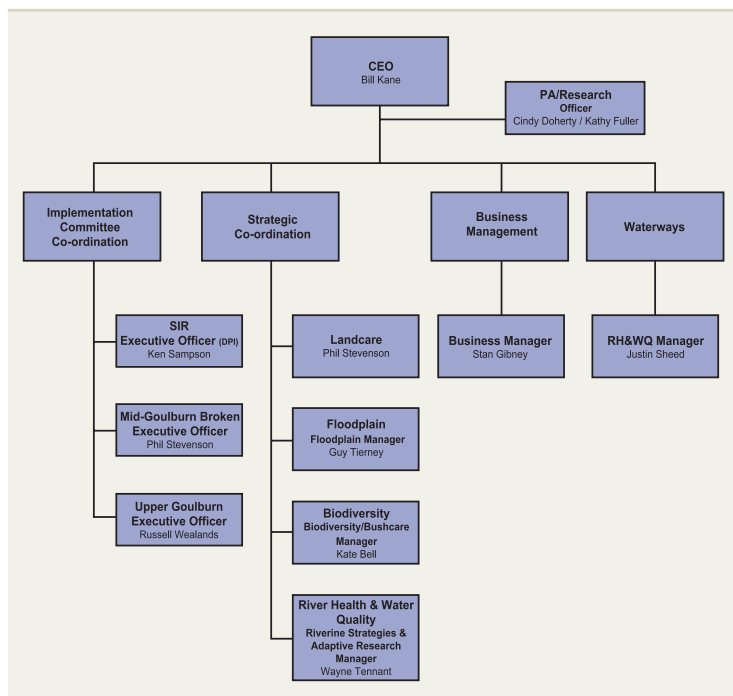
This integrated approach to natural resource management ensures that issues are not looked at in isolation, but on a catchment wide scale. All of the works undertaken within the catchment fit within State, Murray Darling Basin and National strategies.

Implementation committees drive the works programs to ensure the activities of the Goulburn Broken CMA reflect the views of the community.

The committees comprise community members with wide knowledge and experience in areas such as agriculture, food processing, waterway and floodplain management and biodiversity.

They are responsible for setting priorities for works in three geographical regions within the catchment – the Shepparton Irrigation areas, the Mid Goulburn Broken and the Upper Goulburn. Another issues focused committee addresses waterway and water quality.

These committees act as a valuable link between the community and the CMA Board and play a major role in Goulburn Broken's extensive consultative processes.



Chair's Report

Chair's Report

Enormous effort has been invested this financial year in the Draft Goulburn Broken CMA Draft Regional Catchment Strategy (RCS).

I am pleased to report, this blueprint for natural resource management in the catchment is now finalised and awaiting State and Federal Government approval.

The document is expected to be launched in November 2003. It builds on years of work developing a comprehensive array of sub strategies that identify and prioritise key natural resource management issues for the catchment.

Widespread consultation occurred in the development of the sub strategies and the RCS to ensure community ownership of the final document.

The development of the RCS also served to strengthen our relations with existing partners in Goulburn-Murray Water, Goulburn Valley Water, Department of Primary Industries and Department of Sustainability and Environment, local government and neighboring CMAs and to help grow partnerships, notably with the region's indigenous community. The year also saw the strengthening of the partnership with the Environment Protection Authority at a State level as we worked to identify common goals.

The catchment community has been providing valuable input into the Living Murray process looking into future management of the Murray River.



The Goulburn Broken CMA and its catchment partners expect to play an increasingly important role in the process in the coming 12 months as the so-called "first step decision" is made and community engagement continues.

The CMA will continue to identify regional environmental opportunities through the Living Murray process as more is learnt of the health of the Goulburn River (a Heritage River) which has such a significant impact on Murray River health.

I also look forward to the release of the State Government's Green Paper, which I believe will present opportunities for this region to continue to secure a sustainable future.

Both the State and Federal Governments must be congratulated for their efforts to drive the debate on future water use through the release of key discussion papers into the community.

The catchment community must also be recognised for their efforts to become involved in these important processes as they contend with the worst drought in living memory.





These have been extraordinarily trying times for landholders. Despite the devastating impact on many farm businesses, landholders must also be congratulated for their efforts to minimize environmental damage. The Catchment is in far better shape coming out of this drought than that of the early eighties.

I have been advised that funding for 2003/04 will be provided early in the financial year which is greatly appreciated. The Authority was advised of last year's NHT allocation in late May 2003 and of its NAP funding in November 2002.

The Goulburn Broken CMA promotes landscape change as an important means of bringing about significant environmental gains.

The CMA Board is looking for to the outcomes of studies currently underway into the future of the lower Goulburn floodplain and Lake Mokoan.

John Dainton who retired from the GBCMA Board on June 30 was a strong advocate of major projects that had the potential to bring about significant environmental benefits.

• His vision as inaugural Chair of the GB CMA placed the
• organisations at the forefront of natural resource management
• in Australia. This was recognised this year when he was short
• listed for the Prime Minister's Environmental award.

• My thanks are also extended to Dianne McPherson, Huw
• Davies and John Gray who also retired at the end of the
• 2002-2003 year. They served the catchment community well
• over a long period and were strong contributors to the CMA
• Board.

• Stephen Mills,
• Board Chair



Chief Executive Officer's Report

Extreme drought conditions of a scale exceeding living memory presented enormous challenges for land managers in the Goulburn Broken catchment during this year.

Despite the dire climatic conditions, environmental degradation including erosion and poor water quality appears to have been minimised, a situation I believe can be attributed to the environmental education and awareness of landholders and the extent of on farm environmental works undertaken including fencing and revegetation of waterways.

There were a number of examples of landholders degrading Crown Land frontage with over grazing and a small number of pollution incidents associated with dead stock. We have learnt a lot from these cases and I am confident that the responsible agencies will be able to deal with those issues better in the future. It is interesting to note that most of these problems were brought to our attention by concerned landholders.

Works

The year saw Goulburn Broken deliver another strong program of works despite the drought and funding uncertainty. Landholders continued to invest in environmental works by tapping into GB CMA grants programs.



Strong management systems resulted in a flexible and adaptable program that made the most of opportunities presented.

Whole farm planning continues to provide an invaluable vehicle for natural resource management works in the Shepparton Irrigation Region (SIR).

This year, despite the devastating impact of the drought on irrigated farms, there were 225 whole farm plans completed, against a target of 140. This brings the total number of whole farm plans for the SIR to 2,670 covering almost 189,000ha.

The installation of irrigation re-use systems in the SIR also well and truly exceeded expectations with 99 re-use systems installed, more than double the target of 40.

There are now 4,700 re-use systems in the SIR. Their impact, combined with low water flows, saw a rapid decline in Total Phosphorous drain discharge which was just 2.52 per cent of the benchmark year.

Despite the shortage of water in the Catchment, Goulburn Broken CMA was able to provide environmental flows to two high value wetlands - Bray's Swamp and Reedy Swamp.

The uptake of environmental and waterway grants continues to grow particularly in the Mid Goulburn and Upper Goulburn areas. The CMA also made good progress in delivering its waterway and floodplain management programs. Over 1,000 Section 55 referrals were dealt with by the floodplain unit during the year.

Research

Extensive research is occurring in the Catchment to inform decision making and assist in the prioritisation of on-ground works. CSIRO has led the way with some major collaborative efforts such as the Ecosystems Services and Heartlands projects.

The South West Goulburn project consolidated and expanded the knowledge of the surface and sub-surface salinity processes in this 3000 square kilometre sub-catchment and helped to quantify the level of landscape change needed to reduce the amount of salt exported from the area.

The trade-off between the reduction of salt loads and the lowering of catchment water yield remains an issue.

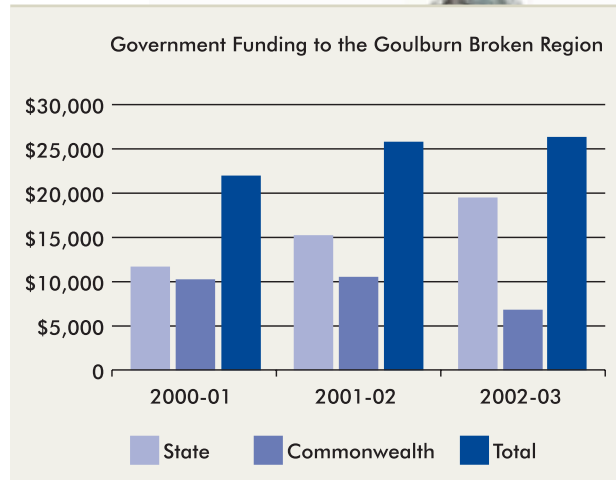
The Goulburn Broken CMA is proposing using a citizen's jury/deliberative forum model to explore future land management options with the south west Goulburn community.

Strategy

The task of finalising the Goulburn Broken Regional Catchment Strategy proved more challenging than expected, with much effort going towards preparing the strategy for sign off by the State and Federal Government.

Thanks must go to GB CMA personnel and consultants for preparing this document. Input from partner organisations in DPI, DSE, G-MW, GV Water and local government has also proved invaluable in this process. This body of work will be the basis for our investment decisions for the next five years.

These partnerships along with a large number of collaborative research programs are the foundation for the successful delivery of our works programs.



The Authority has been able to achieve its objectives with the lowest staff/income ratio across Victoria. This reflects on the dedication and effectiveness of our workforce and the strengths of our partnerships, particularly with DSE, DPI and G-MW.

OH&S continues to be an important component of the Authority's operations. The OH&S manual is being reviewed and will be adopted early next financial year. There were no major incidents reported this year.

Bill O'Kane
Chief Executive Officer
Goulburn Broken CMA

Shepparton Irrigation Region

2002/3 has been an extremely difficult year in the implementation of the Shepparton Irrigation Region (SIR) component of the Regional Catchment Strategy. Despite this, the members of the Shepparton Irrigation Region Implementation Committee (IC) continued to effectively carry out their role. The continued progress was due to a number of strengths in this catchment;

- Strong links with the catchment community through the IC members and members of the various working groups that report to the IC.
- A strong and vigorous partnership with the Landcare groups, the Goulburn Murray Landcare Network (GMLN) and more recently the Local Area Plan (LAP) groups.
- A strong partnership between key agencies and authorities.
- A strong technical support network to all aspects of the plan.
- An integrated approach to tackling the key natural resource issues and protecting our important natural assets.

Achievements

The partnership program with the Catchment and Water group of DSE is delivered with our regional partners in G-MW and DPI's Catchment and Agricultural Services business. The progress towards our targets for on ground works has again been impressive.

This high level of activity has occurred in a climate of the lowest irrigation water allocations on record, widespread drought, reduced funding and the ever-changing political and institutional arrangements.

These difficulties make the achievements all the more meritorious. The support given to the program by agency staff and the regional communities has been tremendous.



Farm Program

A particular highlight in the works program was the completion of a further 225 whole farm plan grants covering 17,368ha. This project continues to exceed targets and set new records for the number and area of whole farm plans prepared.

A total of 188,748ha of the irrigated part of the region is now covered by whole farm plans. The plans prepared this year represent an increase of 5.5 per cent and the area now whole farm planned is 59.6 per cent of the irrigated area.

These results are particularly pleasing in the context of the difficult seasonal and financial conditions that landholders were dealing with. This continued high level of activity in whole farm planning shows that landholders are committed to planning for catchment works on their properties.

The whole farm planning process continues to evolve and improve to satisfy changing environmental requirements. Over 137ha of native vegetation was planted on properties in the SIR as a result of the program. Another 81.2ha of remnant vegetation on private land were fenced.

Landholders in the region have continued to implement salinity mitigation works, encouraged by the public expenditure in infrastructure such as surface drains and public groundwater pumps. Initial estimates indicate that landholders have spent more than \$35 million on their properties. Works such as farm reuse and improved irrigation layout contribute significantly to the improvement in water use efficiency. These have both environmental and economic benefits. Each year in the SIR, a further six per cent of properties are installing drainage reuse systems and three per cent of the irrigation area is lasergraded.



Despite the drought conditions, the incentives for the construction of drainage reuse systems and installation of automatic irrigation have continued to be strongly supported by landholders. Incentives were paid for ninety-nine drainage reuse systems that were installed to drain 6,716ha bringing the total number to 171 systems draining 12,794ha.

Thirty-nine automatic irrigation systems have been installed with assistance and these systems service 2,231ha and include 40 channel outlets that have also been automated under the scheme. The total number of automatic systems installed with assistance is now 66 serving an area of 3,604ha.

During 2002/2003 all the grant schemes in the SIR were modified to introduce an expression of interest process providing a more accurate assessment of the funding requirement for grants for works underway.

The new process means that when landholders apply to be part of a grant scheme, approval to proceed with the works is not given unless the grant coordinator is confident that funding is likely to be available.

The Private Forestry Project has been involved in a community project to mechanically thin private plantations resulting in 25 tonnes of treated hardwood logs, 100 tonnes to be sold for pulp and 100 tonnes to be sold for firewood.

In response to the drought conditions, the Pest Plant and Animal program in the SIR during 2002/2003 took into consideration landholder focus on the dry conditions. Through the efforts of the Goulburn Murray Landcare Network facilitators, SIR Landcare Groups and DPI staff the program continued to maintain a coordinated approach to pest management in the community.

Environmental Program

The Environment Program is an integral part of all the SIR Catchment Strategy programs with program activities predominantly reflecting native biodiversity protection and enhancement and including both issue development and delivery of on ground works.

The Goulburn Broken Draft Native Vegetation Management Strategy goals and native biodiversity targets supporting the achievement of these goals have become part of the SIR catchment strategy. As a consequence, native biodiversity protection and enhancement works are more focused and where possible are being directed towards high priority action zones, significant and particular Ecological Vegetation Class (EVC) remnants and habitat localities. The Grey Crowned babbler project in the Murray Valley area is an example of habitat protection and restoration works.

A strengthening of partnerships with other SIR IC programs, the catchment community and other regional and State natural resource managers has brought about some very positive results highlighted in the annual target achievements. The program has also developed strong productive relationships with local government, Trust for Nature and Greening Australia resulting in several conservation covenants being negotiated with private landholders.

Through the development of adaptive management plans for significant wetland sites on private land and terrestrial sites on both public and private, improved native biodiversity management practices are being implemented. The management plan development process has assisted the development of strong links with both community and agency bodies. Their development has also assisted funding applications, environmental water allocations and implementing native biodiversity monitoring regimes. Plans have been completed for Yielma and Inglis Bushland Reserves and Brays Swamp. Kinnairds, Reedy and Mansfield Swamp plans are close to completion. An operational agreement has been developed between Parks Victoria, G-MW and DPI to assist in reinstating a natural watering regime.



Again this year the program was successful in transferring some environmental water to one of the important Goulburn River wetlands - Bray's Swamp. 265ML was transferred into the swamp in March.

Small isolated public land sites including road reserves supporting significant native biodiversity continue to be protected and enhanced through the implementation of a comprehensive SIR Public Land Works program. One of the most significant achievements in this program has been the success of the Peppercorn Removal Project.

Kraft Pty Ltd, Strathmerton sponsored the further development of a regional Seed Bank operation. The authorities purchased a direct seed machine for use in the SIR. Direct seeding activity is now being incorporated into public and private land works, resulting in 47ha of revegetation using this method.

Tree growing and environmental grant incentive schemes using the cost share matrices are working successfully and delivering more on ground works.

The program continues to consider and respond to statutory planning referrals. With the introduction of the Statutory Planning Case Management System the process has been simplified and case information is now available on line. Statutory planning referrals and the associated negotiations have provided a continual source of protection and enhancement opportunities generally resulted in a net gain outcome and some significant remnant protection works.

The procedures for environmental monitoring have been previewed and a manual and detailed report for the last 10 years.

As a result of a range of extension activities, agency and industry bodies appear to be more aware of native biodiversity and environmental best management practices. A very noticeable and positive change in landholder attitude towards the retention of native vegetation and works associated with protection and enhancement is evident, with land holders now protecting larger areas of remnant vegetation and showing a greater awareness of environmental protection legislation and enforcement procedures.



This year's works program has led to the protection of 81ha of wetland and remnant vegetation.

Waterways Program

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 Seven and Castle Creeks, the Nine Mile Creek (anabranch of the Broken Creek), Goulburn River, Broken Creek and the Murray River. Community support for the works resulting from LAP and Landcare groups was a highlight.

Major projects included the removal of exotic woody weeds from the Goulburn River between Nagambie and Loch Garry, and continuation of programs on the Broken Creek and lower Goulburn River. A major bank stabilisation project at Bunbartha also included removal of a major exotic woody weed infestation. Seven existing rock weirs were modified to improve fish passage, and bank stabilisation works were carried out at seven locations on the Seven and Castle Creeks. Six new rock chutes were built on the Nine Mile Creek to stabilise the eroding bed and banks, and improve the habitat diversity. A major program has commenced on the Murray River to improve the frequency of wetlands filling during flood events. Implementation activities continued on the Kinnairds Wetland Master Plan, and new works commenced on the Gemmill's Swamp Recreation Plan.

The waterways fencing and revegetation incentive guidelines resulted in 38km of fencing to protect waterway frontage. Appropriate trees and understorey species were planted in the riparian zone along with grasses and water plants along the edges of waterways. Planting remained lower than normal due to the dry conditions (6,600 plants this year). A major abnormal activity was the watering of plantations to protect

current and previous investments from the impacts of the drought. Off stream stock watering points were provided at 53 locations, to compensate for loss of stock access to waterways.

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). A major review of the reference sites is due to be carried out in 2003/04, and this will provide an important report card on the works carried out to date, and help in the planning of future works priorities.

A wide range of research, evaluation and demonstration projects continued to be supported within the catchment with a range of catchment partners.

Surface Water Management Program

The Surface Water Management Program continues to progress well with 14km of primary drains constructed, 2.2km of existing primary drains remodelled, and 26km designed. As well 6.5km of community drains were constructed this year. In addition, 15km were surveyed and designed. This provided a regional drainage service to another 2,050ha, protecting this area from waterlogging and rising water tables. Eight drains previously managed by local government are in various stages of transfer to G-MW under our new management option.

Progress occurred in a number of developments, including drain monitoring, nutrient stripping and drain management, to keep the SIR at the leading edge of best practice. All of these developments are aimed at improving downstream water quality.

• Drainage Resource Assessments have been completed for the 20 existing main drain catchments. Drain Diversion Plans have been completed for all but one of these catchments, allowing allocation of additional drainage diversion licences to proceed.

• A review of the process for dealing with dairy effluent discharges to drains was undertaken in partnership with key agencies and changes recommended.

• Phosphorus loads exported from irrigation drains continued to show substantial decline, with the five year rolling average now below the target value for 50 per cent reduction (see graph).

• The program completed a joint research project together with G-MW and the Land and Water Resources Research and Development Corporation (LWRRDC) looking at ways of reducing the nutrient and sediment loads in surface drains.

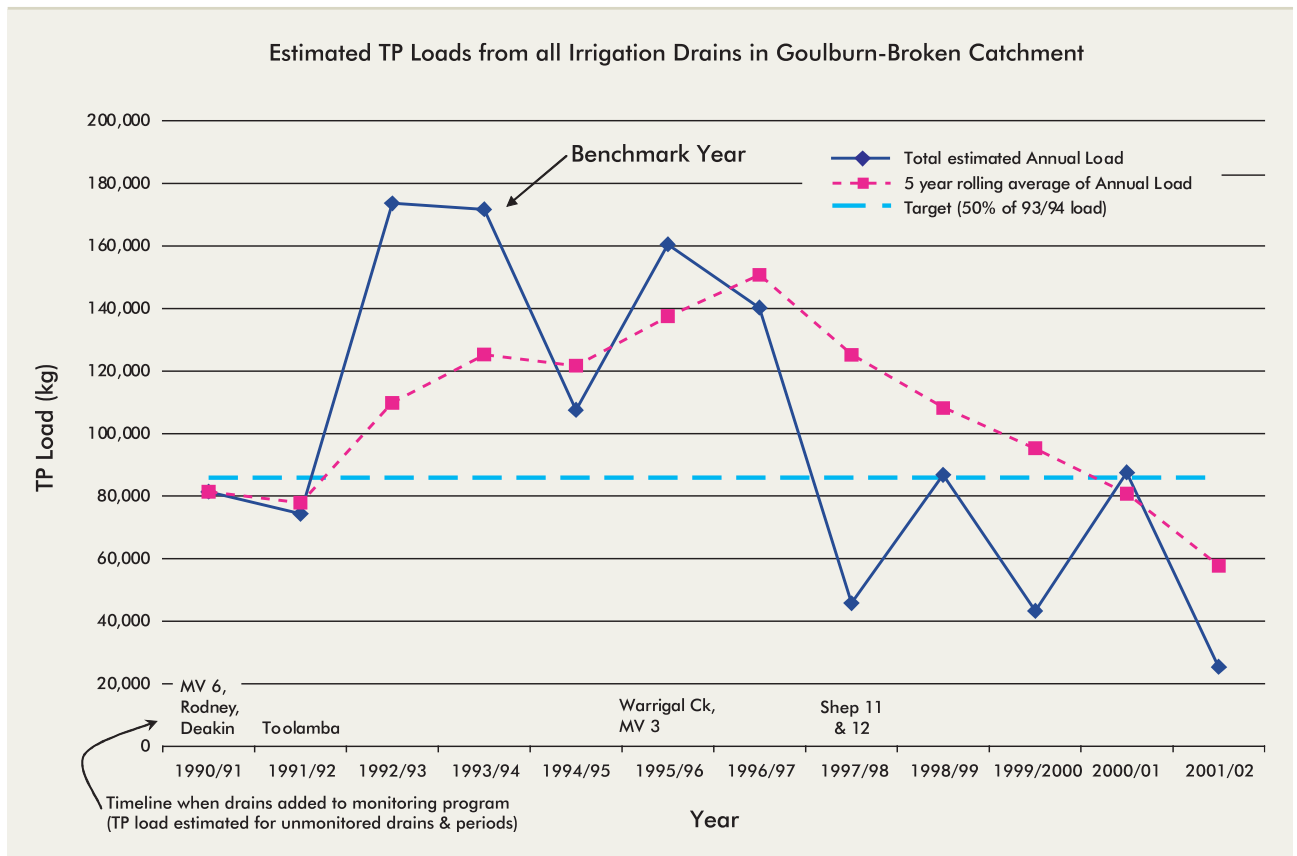
• The Farm Dams Review and its potential implications has continued to interrupted the demand for the Nutrient Removal Incentive Scheme. This scheme is aimed at building large farm storages (greater than 50ML) to capture high flow diversions from our major drains and significantly reduce nutrient outfalls from the region.

• Six new systems were completed this year with a total capacity of 1425 ML. There have been 21 systems constructed with assistance from this project with a total capacity of 4,043ML.

• A survey undertaken in 2002/03 showed that even in this drought year these storages were able to prevent 1.8 tonne of Phosphorus from reaching the rivers of the region. The total over the last four years is 25 tonne of Phosphorus prevented from reaching the rivers of the region.



Estimated TP Loads from all Irrigation Drains in Goulburn-Broken Catchment



Sub-Surface Drainage Program

Implementation of the SIR Groundwater Management Plan continued with a few of the remaining metres fitted to private groundwater pumps. The metering program is now effectively complete with 725 private groundwater pumps metered. Routine groundwater monitoring, flow meter reading and groundwater sample collection and analysis were completed. Monitoring, analysis and reporting for the August 2002 watertable study were completed.

Members of the IC have also been involved in the development of management plans for the Katunga and Campaspe Deep Leads. These are with the Minister for approval.

As well as the work on the Groundwater Management Plan, the Sub-Surface Drainage Program continued to progress. Exploratory drilling investigations were completed on 64 properties, identifying 23 sites suitable for private groundwater pumps and a number of sites with potential to be developed for public pumping sites. Fifty investigations are still currently in progress and there are 231 farmers on the waiting list.

- A further thirty-two private groundwater pumps were installed and two existing pumps upgraded. This brings the total number of new pumps to 252, with 72 upgraded, protecting over 31,000ha. A further eleven systems are in the process of being completed.
- A further five public pumps were completed bringing the total to 37 protecting over 5,500ha.
- The Sub-surface program completed a review to develop a future directions strategy and a five year research and development program.
- No winter-spring salt disposal under the Murray Darling Basin Salinity and Drainage Strategy was available from groundwater pumps last year due to low flows in the Murray River. The SIR is presently debited with 2.52EC of its allocation of 4.9EC.
- **Funding**
- The implementation of the SIR component of the Regional Catchment Strategy is funded jointly by the regional community and the Victorian and Commonwealth Governments.
- The Program has continued to attract significant Federal funding - a reflection of our ability to implement well planned, environmentally sensitive and cost effective works.
- However Federal allocations are declining.

In 2002/2003, the total SIR IC budget was over \$17.6million. This was composed of 67 per cent State funds, mainly from the NAP, salinity and river health programs and 17% of Federal NAP and Natural Heritage Trust funds - a significant decline.

The majority of funds (75%) were directed to works. Other components include research and investigation, extension, monitoring, planning and coordination.

General

The SIR IC has continued to work closely with local Landcare Groups and networks to ensure their input into and support of the RCS. The IC has continued to deliver the Community Salinity Grants program. Last year we increased the allocation and 17 groups in the SIR received a total of \$30,000 for a range of projects.

Local Area Planning (LAP), as a means of delivering strategic planning aligned to the RCS at a sub-catchment (Landcare group) scale continues to gain momentum. This project is a joint activity between the GMLN, DPI and the CMA with eight LAPs progressed through 2002/3.

The first of the LAP's to be launched, Cornella, Wyuna, Invergordon and the Nanneella are now well into implementation of the plans. During 2002/2003, the Nathalia LAP was launched and the three groups in development have all made progress in developing LAPs for their areas.

Policy and Planning

The IC and its working groups continued to have a major input into the review of its strategy to align with a number of State activities and the NAP. This includes major reviews of surface, farm, environment, waterway and sub-surface programs. These activities have provided the opportunity to reflect on progress in implementing the SIR Catchment Strategy and develop programs to take these activities into the future. As part of this process the IC and its partners undertook a major foresighting exercise.

The Committee and its working groups had significant input into the review of the broader Regional Catchment Strategy (RCS).

This has been a major commitment by members of the IC and working groups, by agency staff and by members of the catchment community. Particular input was received from the LAP groups and the dairy industry action plan in addition to the specific reviews of each of the programs.

The SIR IC prepared its Business Plan as a component of the Goulburn Broken CMA Regional Management Plan. Individual communication strategies are being developed for each new or amended policy issue as the Committee endorses it.

Major new challenges including the increasing competition for water, structural change and Greenhouse will continue to require new thinking to keep our catchment at the forefront.

Conclusion

It is essential that the SIR IC continues to attract substantial government funding to maintain landholder confidence in the program. Our ability to implement well planned, fully integrated, environmentally sensitive and cost effective works, ensuring the future of the SIR, should not be placed in jeopardy.

I am certain that one of the great strengths of the irrigation program is the continuing strong and healthy partnerships which have been established between the community, agencies and government.

Outcomes for the individual programs will be further detailed in the SIR IC Annual Report.

Russel Pell
Chairman
Shepparton Irrigation Region Implementation Committee.



Case Study

Managing the Murray

Barmah Forest

Extended drought conditions throughout the Murray-Darling Basin saw the need for Murray River water to augment flows to Lake Victoria with additional Murray River releases from Hume Reservoir. This caused river levels to exceed channel capacity through the Barmah-Millewa forests, which resulted in up to 40 per cent of Barmah Forest being inundated between August and December 2002.

Although occurring at the 'natural' flooding period for the forest, this flooding event was unusual because the forest should have been dry due to the drought sequence. Excellent growth and flowering rates were observed in a variety of wetland plant species, notably in the significant Moira Grass plains. Large numbers of waterfowl and frogs also took the advantage to breed.



Of particular significance and management opportunity was the formation of a relatively large breeding colony of Royal Spoonbill (approximately 50-60 breeding pairs), among approximately 300 nests of White Ibis and a single nest of Straw-necked Ibis. Royal Spoonbill are listed as a 'Vulnerable' colonial breeding species, and of added significance was their breeding attempt on platforms of Giant Rush instead of the more usual heights of River Red Gums. This permitted an uncommon opportunity to closely monitor the breeding attempt and to refine water management to achieve successful fledging.

A special allocation of water was managed through the wetland where breeding was occurring. As a result, all nests successfully fledged with an average of 2.3 chicks per nest, resulting in 150 Royal Spoonbill, 750 White Ibis and two Straw-necked Ibis.

Murray Floodplain Rehabilitation Project

This project forms part of the broader Victorian Rural Water Reform Program, and is being undertaken in conjunction with the North East CMA. The project is implementing a range of floodplain rehabilitation activities on the Victorian Murray floodplain between Hume Reservoir and Tocumwal.

Within the Goulburn-Broken CMA region during 2002/03 (Yarrowonga to Tocumwal reach), an on-ground works program began with improved water management works achieved for eleven wetland systems. Most of the works involved the lowering of the 'commence-to-flow' threshold by removing earth from the channel bed of their feeder flow paths on the floodplain. Other works included the removal of potential fish passage barriers, removing or modifying structures blocking flows, and revegetation activities.

The works will result in more natural flood regimes for these wetlands. Five of the wetlands flooded during a recent natural rise in river level, where they would not have flooded otherwise. Improved wetland ecology and floodplain functioning is expected. A PhD student is monitoring the program to demonstrate outcomes.



Over the past year, the Mid Goulburn Broken Implementation Committee has consolidated its operation through a combination of strategy development, targeted community consultation and expanded on-ground works.

Our Implementation Committee has established close and mutually beneficial working relationship with staff from the DPI, DSE, G-MW and our own CMA staff to oversee the implementation of a \$6 million natural resource management program in the Mid Goulburn Broken area.

The foundations and directions of the 2002-2003 program have been put in place with careful planning and targeting of on-ground works to achieve multiple benefits for biodiversity, salinity and other natural resource management issues in priority areas.

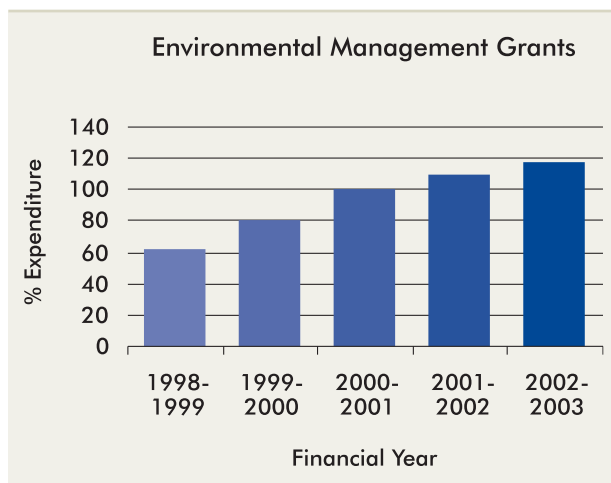
This year has seen two very successful community workshops held, with over 120 community members at Yarrawonga and Nagambie as part of the focus on consulting with local people about local issues.

It was interesting to see the difference in priority issues in both areas. At Yarrawonga the community saw "tackling pests" as the major problem, while intensive industries and water issues came to the fore at Nagambie.

The Sustainable Agriculture and Land Management Program (SALM) undertakes works to combat land management issues. To reduce the impacts of salinity in the Mid Goulburn Broken area, the following on-ground works were implemented in recharge and discharge areas:

- 177 ha of remnant vegetation protected;
- 132 ha of revegetation;
- 104 ha of perennial pasture (including salt tolerant species) established.

Funding was also targeted to initiate and complement projects such as the Links Officers' Program and the successful Environmental Management Grants (higher rates for multiple public benefits). The Environmental Management Grants have been the main reason for the great uptake of funding and on-ground works by Mid Goulburn Broken landholders in recent years as depicted by the table below. It shows the leap in the uptake of works that occurred following the introduction of the sliding scale for grants at the end of the 1999-2000 financial year.



- Other notable implementation achievements include;
- The provision of 69 statutory planning referrals completed with appropriate land management conditions.
 - Monitoring and maintenance of 296 bores for groundwater levels and salinities to update the groundwater database.
 - 64 whole farm plans developed with landholders.
 - 121 ha of gully erosion stabilized.
 - 354 ha of remnant vegetation protected and enhanced and 309 ha of threatened species habitat introduced in the Native Vegetation Management Program.
 - 16 grants for the purchase of soil moisture monitoring equipment provided to landholders under the Water for Growth program.
 - Rabbit populations have decreased in many parts of the catchment due to such measures as coordinated ripping and fumigation programs in priority areas.
 - Exploratory drilling for water on two private properties within areas identified as priority salinity risk.
 - 98 ha of hardwood farm forestry established in areas outside the Honeysuckle Creek Catchment.



The review of the Goulburn Broken Dryland Salinity Management Plan has shown that to make a real difference in the fight against salinity, enormous increases in on-ground works must occur. This will require an increased focus on community engagement and a co-ordinated approach by agencies.

The NAP for Salinity and Water Quality will enable a works plan which will be rolled out over the next six years.

The Mid Goulburn IC is optimistic that the funding will make a real difference if targeted to priority areas as detailed in the review.

Community Education and Landcare in the Mid Goulburn Broken

The Mid Goulburn Broken catchment has provided support to Landcare groups with the continued employment of the Landcare Support Officer. The officer (Heather Holder) supported groups with their administration problems, provided advice on funding applications and kept Landcare groups informed about events and information relevant to their groups and their members.



- The Landcare Award for Excellence is held annually by the
- Mid Goulburn Broken in recognition of the contribution
- and long term commitment that landholders make to their
- Landcare groups and the catchment. This year the award
- went to Terry Ring from the Molyullah-Tatong Trees and
- Land Protection Group.

- Geoff Campbell, a landholder at Wilby, near Yarrawonga, was
- awarded the Hi Fert Sustainable Farming Award for the
- Goulburn Broken Catchment at the Victorian Landcare
- Awards. Dorothy Inchbold, a landholder at Yarrawonga, was
- also highly commended in the National Landcare Individual
- Awards.

- Community education has continued to be a focus this year.
- The Education Kit for Natural Resources in the Dryland was
- completed and distributed to 31 primary schools through out
- the Catchment. Every year the Goulburn Broken CMA in
- partnership with GV Water organises an array of activities for
- Salt Week.

- "A Matter of Salt" day was held at Dookie College, with nine
- schools and 150 school children attending. Activities on the
- day included the edible aquifer, a taste of salt, the visible and
- the invisible, testing soil salinity samples and the saltwatch
- sports.

- Another fifteen schools were visited with presentations
- including 'A Taste of Salt' and 'Story of a Catchment'
- discussing salinity, its causes and effects on our lives.

River Health and Water Quality

The River Health Program delivered a \$1.112 million dollar works program in the Mid Goulburn Broken catchment in 2002/03 enabling the acceleration of the program which included the more traditional river management works necessary to:

- Stabilise eroding streams, reducing the sediment load and associated nutrients from entering the waterways and degrading stream condition bed and bank stabilisation;
- Control stock access, protect and enhance indigenous native riparian vegetation; and
- Control Exotic vegetation.

As well, there were several new initiatives that focus on improving the condition of the instream aquatic environment.

Works Summary

- 78 projects across the region;
- Bed deepening (stream incision) processes over 8.5km;
- 1.3 km of rock bank stabilisation to control bank migration at 32 priority sites;
- 12 km of exotic vegetation (willow) management at 29 sites;

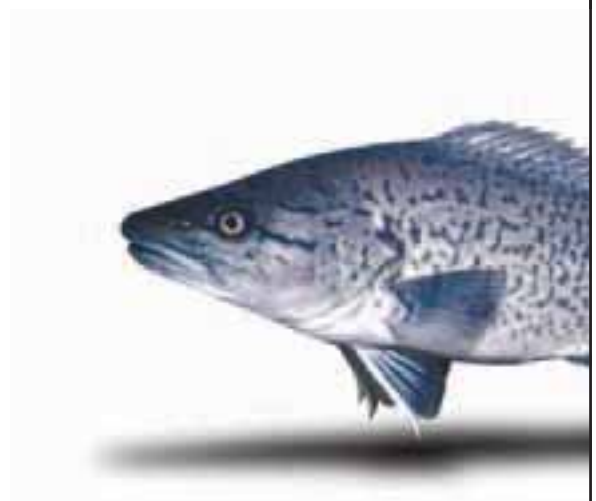
Most work sites are in the process of having stock access controls (fencing and alternative stock watering) and revegetation works undertaken through the Waterway Grants scheme. This popular scheme, assists landowners to protect the works from damage by stock and delivers long-term water quality and aquatic habitat benefits,



This year 38 grants were issued with landowners agreeing to fence out 26.4 km of waterway and plant 24,000 seedlings. The GB CMA has agreed to assist 16 landowners whose stock will no longer have direct access to the waterways by meeting part of the cost of off stream stock dams and/or troughs.

The Trout Cod Project on the Sevens Creek has been a major focus for the Wwaterways Program. This has been an excellent project and will provide the basis for an increased focus on improving habitat values for endangered species.

Peter Robinson,
Chairman
Mid Goulburn Broken Implementation Committee.



The Heartlands Initiative

The Heartlands vision is to design and achieve socially acceptable land use change in the Honeysuckle Creek Catchment that is economically viable and achieving good hydrological and biodiversity outcomes.

The Heartlands program, a long term project now in its third year, integrates research with on-ground works to develop sustainable land use systems that landholders can use to arrest and reverse landscape degradation.

Heartlands encourages and support landholders to trial all sorts of deep rooted plantings. These include the protection and enhancement of remnant vegetation, revegetation plantings using indigenous species, plantation woodlots for long term timber and/or for firewood lots for the future, perennial pasture establishment using lucerne (some trials are also being carried out with chicory), riparian restoration and other options of commercial or environmental benefits proposed by landholders.

A function was held at the Benalla Regional Art Gallery to celebrate the launch of funding received from The Foundation for Rural and Regional Renewal (FRRR). Mr Ian Allen QAM from the Pratt Foundation launched the funding that now allows Heartlands to take the next step in interpreting and implementing the aerial geophysics data.



Open Day

During September 2002 an Open Day was held at Jack Frewins property with 170 people attending and being involved in discussing land use change and works being carried out in the Heartlands.

The Heartlands research team continues to be active in the Honeysuckle Creek area. The Sheep Pen Creek sub catchment has been used as a focus area to combine knowledge on salinity and groundwater management, biodiversity, rainwater runoff and stream flow, and commodity production potential. CSIRO has been applying a framework to integrate knowledge from these and other themes into spatial patterns of land use. Land use options are being explored to help support catchment planning and prioritisation of investment into on-ground works. Good planning, initial investment, early participation and a scientific base are the ingredients for positive on-ground action.

The Heartlands farm forestry field trials are gradually producing information to help in prediction of forestry production potential (as used in the exploration of land use scenarios above) and in

development of systems of low to medium rainfall farm forestry.

The Heartlands steering group is producing a report for landholders and agencies on the "Lessons Learnt from Heartlands Experience".

Gil Earl was appointed to put this document together and hopefully the report will be available during the next few months.

Incentives have been given to landholders for timber and firewood lots, broadstream vegetation plantings, protection and enhancement of remnant vegetation, perennial pasture establishment, seed production areas, erosion control, fencing of wetlands and normal revegetation programs. Due to the drought many landholders had been reluctant to carry out revegetation plantings, but erected fences for the coming years plantings. In total:

- 118 hectares of plantings;
- 51 kilometres of fencing erected;
- Total of 45 sites within the catchment;
- Total Grant Program 2002/03, \$368.000.

The Heartlands program gives landholders the opportunity to interact with researchers in the Honeysuckle Creek Catchment. It also gives researchers the opportunity to understand the needs and the concerns of the landholders in their quests to alleviate environmental degradation.

Upper Goulburn

Implementation Committee

The highlight of the past year has undoubtedly been the Upper Goulburn Implementation Committee's success in strengthening its partnership with Landcare and its community. This has led to greater community input and ownership of the planning and delivery of natural resource programs in the region.

Key initiatives that have led to this achievement have included:

- Round-table discussions with its Landcare collectives, environmental and field naturalists groups and key program leaders.
- The appointment, training and coordination of Landcare Coordinators to strengthen and develop the three major Landcare collectives in its area.
- The integration of community programs with those being conducted concurrently by local government and other government agencies.
- Increased member and staff commitment to engage with, and importantly listen to its community.

The outcome of increased understanding, engagement and subsequent trust between the UGIC and its community is helping to achieve integrated on-ground works to achieve the priority goals contained in the draft RCS.

An improved understanding was achieved of the complex surface and sub-surface processes that release and export high salt loads (31 kg / ha) from the 30,000 ha South West Goulburn catchment to the downstream irrigation areas in the Goulburn Valley and the Murray River. This was achieved through a major study, funded under the bilateral NAP, to quantify the level of landscape change needed to significantly reduce salt export.

The major challenge confronting us now is to take and disseminate this knowledge and successfully engage our community, local government and partner agencies to work towards economically and socially acceptable landscape changes necessary to lower the salt exported.

Despite the prolonged drought and Bushfires in neighbouring catchments over the past year, the GB CMA, DPI and partner agencies have achieved significant progress and on-ground outputs. These natural disasters drew heavily on the regions resources. Particular appreciation is recorded to the numerous staff members (mainly within DPI) who gave so generously of their time responding to these emergencies.

The on ground achievements outlined below relate to sites identified as being of high or medium priority. The works (outputs) generally exceed the targeted level of outputs contained in the endorsed Regional Management Plan. These include:

Sustainable Agriculture and Land Management Program

Environmental Management Grants (salinity, water quality, biodiversity benefits)

- Fence and protect 281ha of remnant vegetation.
- Revegetation of 267 ha of recharge /discharge sites.
- 24ha of lucerne/perennial pasture established.
- 559 ha of land protected from further gully erosion.

In addition:

- An area of some 900 ha was protected from environmental damage through use of stock containment areas.
- 82 ha of timber plantation planted (private forestry.)
- Increased extension participation in field days.
- Assistance to Landcare groups and individuals involved in development of LAP and Whole Farm Plans.
- Timely response to statutory planning referrals (214).





River Health & Water Quality Program

River Health

- 45.7 km of fencing was erected to protect riparian areas.
- 65 ha of riparian zone was revegetated.
- 5.4 km of eroded waterway was stabilised.
- 18.6 km of exotic vegetation control was completed.

Water Quality

- Completion of the draft Water Quality Strategy.
- Expansion of the highly successful Upper Goulburn Waterwatch program.
- Urban Stormwater Plans completed for Shires of Mitchell and Delatite.

Pest Plant Animals

- Continuation of successful Rural Extension Program (six areas).
- Coordination of Good Neighbour program to ensure effective integration of weed control programs at the public/private land interface.
- 5808 fox tails received at Broadford / 10,381 at Benalla depots.
- Rabbit numbers down about 80 per cent of pre calicivirus populations.
- Successful Second Generation Grants program delivered in partnership with Landcare groups.
- Low stock losses to wild dogs due to poisoning, snaring and fencing program.
- Draft Wild Dog Management Plan completed.

Biodiversity

- Biodiversity Action Planning commenced in South West Goulburn (SWG).
- Mapping of native grasses undertaken in two SWG sub-catchments.

Water for Growth

- A considerable increase in irrigator interest in improving water use efficiency occurred following a media campaign.
- 11 Irrigation Drainage and Environment Plans developed.
- 13 landholders subsidised purchase of soil moisture monitoring equipment.
- Two irrigators were assisted to improve system efficiency by up to 50 per cent.

Salinity Infrastructure

- Production of an aerial-magnetic map of South West Goulburn to assist in locating fractured rock aquifers suitable for groundwater development.
- Geophysical investigations completed at three potential groundwater sites.
- Stream salinity monitoring analysis of 2002 data completed. Whiteheads Creek continues to deliver the highest salt load (44 kg/ha/annum).

Finally, my sincere appreciation to my fellow members and our Executive Officer, Russell Wealands, the staff and members of the CMA, DPI and G-MW and our Landcare co-ordinators for the dedicated work to implement yet another successful on-ground program to improve the natural environment of the upper Goulburn catchment.

Chris Doyle
Chairman

Upper Goulburn Implementation Committee.



Biodiversity Program

Once again a considerable amount of work has been undertaken across the catchment under the biodiversity program. Despite the prolonged drought, landholders continued to actively protect and enhance remnant vegetation and revegetating with indigenous species through the assistance of the CMA grants. Biodiversity continues to be well integrated into land management programs in the catchment. We acknowledge that grants alone will not achieve the biodiversity outcomes that we are seeking and a focus this year has been on integrating biodiversity outcomes into landuse change.

Strategic Direction

This year has seen considerable effort invested in the development of strategies for biodiversity outcomes in the catchment. The strategies emphasise building on the strengths of the catchment's existing natural resource management programs and further integrating biodiversity into these programs.

Goulburn Broken Native Vegetation Management Strategy

With the release of Victoria's Native Vegetation Management: a Framework for Action the Goulburn Broken Native Vegetation Plan - Volume 2, Regional Guidelines for Native Vegetation Retention Controls in the Goulburn Broken Catchment is being finalised. A complete five-year review of the Native Vegetation Strategy will begin in 2004.

Biodiversity Integration Strategy

A Biodiversity Integration Strategy (BIS) has been developed and will be finalised in late 2003. The BIS outlines the strategic direction for biodiversity in the Goulburn Broken and sets out the framework for integrating biodiversity into other natural resource management programs.

Regional Catchment Strategy

The updated RCS now contains extensive information on biodiversity assets and long and medium-term targets for biodiversity conservation in the catchment.

- Biodiversity Committee
- The Biodiversity Committee was wrapped up in December 2002 having been extended from its original sunset clause of December 2001 to ensure that all strategic biodiversity issues were captured in the RCS.

Improving Our Information

- We continually strive to improve the information upon which we base decisions for biodiversity in the Catchment.

Biodiversity Action Planning

- Biodiversity Action Planning (BAP) helps to improve our decision making by identifying priority biodiversity areas.
- Draft Strategic Overviews for five bioregions and draft Landscape Plans have been developed this year. These documents draw together all information on biodiversity assets and threats for a particular area. The plans will be useful in assisting funding bodies and land managers to recognise biodiversity assets and the management actions required to protect these assets.

- More detailed identification and mapping of priority biodiversity sites at a landscape scale has been developed for the Longwood area and mapping commenced in the Violet Town and South Yarrawonga / Tungamah areas. Work in these areas has been aided through funding grants secured by local Landcare groups. Extensive bird surveys have also been undertaken in these areas showing that the numbers of woodland bird species are considerably lower in farming landscapes (Figure 1) and much work is needed to improve the habitat for these species.

Mapping native pastures

- A GIS mapping layer of known sites of native pasture in the catchment has been developed. This will inform priority setting processes and other land management programs. A trial is being conducted to investigate the use of satellite imagery analysis as a method to remotely measure the areas of native pasture in the catchment.



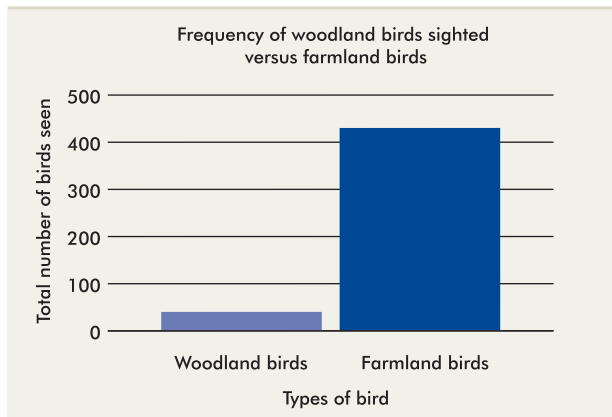


Figure 1. Woodland birds are far fewer in numbers than farmland type birds (eg. magpies) in the Longwood and Violet Town areas.

Investigating ways to achieve landscape change

A project was undertaken in late 2002 to investigate landscape change options for the non-irrigated agricultural landscapes of the catchment. The project investigated funding options to finance landscape change, matching priorities for change with potential mechanisms, improving the capacity to use existing mechanisms and investigating options to achieve landscape change. The final report provides a series of recommendations to achieve landscape change in the catchment, including the opportunity to develop public-private partnerships, ways to leverage private investment in landscape change and a proposal for a catchment revegetation investment scheme.

Avoiding risks to biodiversity with future projects

Biodiversity Risk Mitigation Protocols have been developed for the catchment to ensure that any new natural resource management projects consider the risks to biodiversity, options to mitigate these risks and, where possible highlight any ways to improve biodiversity outcomes from the project.

Implementation to Achieve Biodiversity Outcomes

Better Targeting of Grants

Despite the effects of the drought, a considerable amount of on-ground works were undertaken in the catchment through the assistance of the environmental and waterways grants (see Figure 2). The grants programs are continually improving the biodiversity component of the incentive matrix to ensure that maximum biodiversity benefits are achieved.

The dryland Environmental Management Grants matrix now considers the habitat quality of vegetation and the conservation status of EVCs where investment is being made. This not only provides a greater incentive to sites with higher habitat quality in a more threatened EVCs, it also allows for the collection of baseline vegetation data for future monitoring of grant outcomes.

A review of the Waterway Grants matrix has also seen biodiversity information included by providing a greater incentive for works undertaken in more threatened EVCs. Waterways vegetation officers undertook habitat hectares training and are incorporating habitat quality assessments into their works.

Improved understanding of native vegetation retention controls
 The rollout of Victoria's Native Vegetation Management - a Framework for Action began this year with considerable consultation, education, training and product development. The Native Vegetation Officer has been involved in communicating the framework to stakeholders and formal roadside management training was undertaken for the City of Greater Shepparton and the Shire of Strathbogie. Documents to assist with the interpretation of the framework including the Net Gain Operational Guidelines will be finalised by DSE in 2003/04.

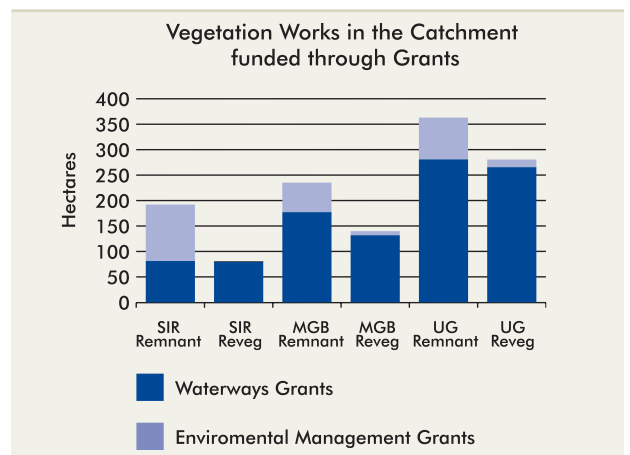


Figure 2. The results of waterways and environmental management grants in 2002/2003. Remnant = works to protect and enhance (through supplementary planting) remnant vegetation. Reveg = works to revegetate previously cleared areas with indigenous vegetation. SIR = Shepparton Irrigation Region Implementation Committee. MGB = Mid Goulburn Broken Implementation Committee. UG = Upper Goulburn Implementation Committee.

Table 1: Summary of seed collected and sold

Year	Qty Coll.			Qty Sold (kg)			Purpose		Income
	UG	MG	SIR	UG	MG	SIR	Nursery	DS	
Oct 2001-2002	259 kg			30 kg			23%	77%	\$9 400
	24%	38%	38%	30%	36%	33%			
2002-2003	170 kg			95 kg			10%	90%	\$47 000
	27%	15%	58%	3%	45%	52%			

UG – Upper Goulburn Catchment, MG – Mid Goulburn Broken Catchment, SIR – Shepparton Irrigation Region, DS – direct seeding

Better communicating biodiversity

Biodiversity communications are seen as an important part of the CMAs activities and a communication plan has been developed. Regular articles have been produced in a range of media and biodiversity will become a key part of the updated CMA website. The CMA, DPI, DSE and Trust for Nature have been working in partnership with Landcare groups to produce a free booklet for landholders covering a range of fauna species and their needs titled 'A Wildlife Guide for Landholders in the Plains and Box-Ironbark Regions of the Goulburn Broken Catchment'.

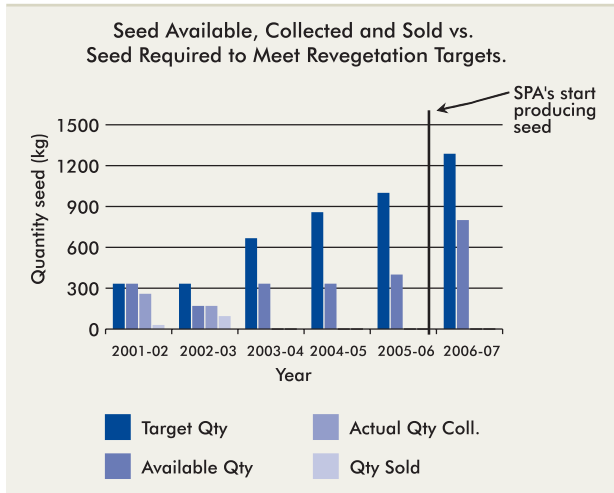
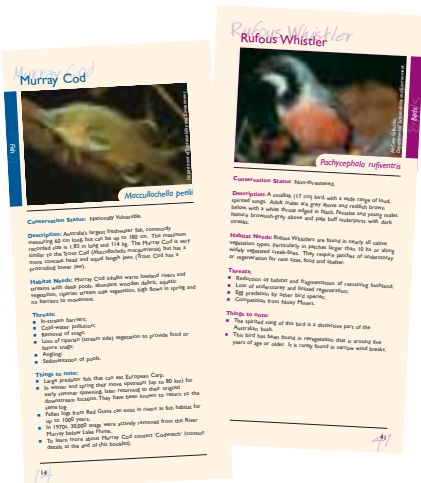


Figure 3. Seed available, collected and sold vs. seed required to meet revegetation targets.

and limited labour to collect seed within a short time frame. Nine Seed Production Areas (SPAs) will be established during spring 2003 to provide ongoing local provenance seed supply across the catchment in order to assist meeting revegetation targets.

Table 1 provides a summary of the seed collected in 2002/03 in comparison to 2001/02. While seed collected was lower this year due to the drought, a much higher proportion of that collected was sold.

Ensuring future indigenous seed supply

This year 170kg of seed was collected by the Goulburn Broken Indigenous Seedbank. This was 35% down on last year, primarily due to poor seed set as a result of the prolonged drought. More favourable conditions are expected in 2003/04 with the aim of collecting approximately 333kg of seed (see Figure 3). The amount of seed available to meet revegetation targets is currently limited due to the small amount of remnant vegetation remaining in the catchment



Integrating biodiversity into farm forestry

Work is progressing to develop guidelines for the establishment of farm forestry plantations that will include biodiversity considerations.

Contribution from our partners

The work undertaken by our partner organisations is vital in helping the catchment community achieve biodiversity goals.

Department of Primary Industries and Department of Sustainability and Environment

We continue to work in close partnership with DPI and DSE in integrating biodiversity priorities into on-ground works programs. DPI implements the Environmental Management Grants and provides extension advice that incorporates biodiversity as a multiple benefit outcome. This is greatly assisted through the links provided by the Nature Conservation Coordinator in the dryland and the Environmental Management Program in the SIR. We continue to have a strong working relationship with DSE's Flora Fauna program and this year saw the Threatened Species Recovery programs incorporated into the CMA's regional funding for the first time.

Goulburn-Murray Water

Work is continuing in G-MW's natural resources section on the development of biodiversity and water quality plans for all of the Authority's storages.

Goulburn Valley Water

GV Water has undertaken flora and fauna plans at all of its 27 Wastewater Management Facilities with a view to improving the biodiversity values at all sites. GV Water intends to maximise any opportunities to enhance flora and fauna assets and biodiversity issues have been included in staff training programs.



Parks Victoria

Parks Victoria continued to undertake vegetation management in its reserves and has actively worked with the CMA in many areas including the Murray River floodplain restoration and development of the Broken Boosey Conservation Management Network. Works undertaken by Parks Victoria include a major rehabilitation program in Lake Eildon National Park that has involved planting of 20,000 indigenous seedlings, considerable work on pest plant and animal control, vegetation condition assessments, monitoring and mapping of weeds in the newly proclaimed Broken Boosey State Park and development of a draft Management Plan for Barmah Forest Ramsar Site.

Trust For Nature

Trust for Nature has had an extremely successful year with 795.6ha of land placed under conservation covenant in the catchment. This was made up of 22 covenants across five municipalities. In addition, the Trust purchased an 85ha property at Naring and brokered the purchase of three other properties under the National Reserves System. Key projects this year included a joint project with the Shires of Moira and City of Greater Shepparton with the provision of a rate rebate for land covenanted through the Trust. In addition, the Trust implemented a project in the Broken Boosey area with funding through the Threatened Species Network, resulting in permanent protection of a 65ha cane grass wetland at Tungamah.

Local Government

Through the project 'Linking the Regional Catchment Strategy into Local Government Planning Processes', biodiversity information is being incorporated into a profile for each municipality within the catchment. MSS reviews are now incorporating biodiversity information, a process in which the CMA has had input. The Shire of Murrindindi is incorporating vegetation management conditions into their rural zone review and the City of Greater Shepparton has embarked on a project to plant one million trees.

Landcare

Many Landcare groups again undertook vegetation management projects and are contributing substantially to the management of vegetation on private land. Examples include the Nagambie and Sheep Pen Creek Landcare groups who successfully received funding through the Threatened Species Network program to protect and enhance remnant vegetation within their areas.



Local Area Planning (LAP)

LAP groups in the SIR have produced a number of high quality plans that include detailed sections on vegetation management.

Improving our Monitoring and Reporting Recording through State-wide databases

The reporting of vegetation works activities in the Regional Data Net Catchment Activity Management System (CAMS) was reviewed and a standard set of vegetation activities and outputs developed. All grants programs are now recording information in a consistent format in CAMS.

Developing a framework to monitor biodiversity

A framework is currently being developed for the monitoring of biodiversity assets across the Catchment, including native vegetation, native species, wetlands, rivers and streams. The framework will outline what information needs to be collected and how, so that that catchment community will be able to determine if we are making a difference through the implementation of the various strategies and plans relating to biodiversity.

Meeting our targets

Last year we presented for the first time an indicator of how our grants programs are contributing towards achieving the goals of the Goulburn Broken Native Vegetation Management Strategy. In the last year further work has gone into refining the projections for how the goals of the Strategy are likely to be achieved, based on better available information. For example, rather than the simple linear projection for achieving Goal 3, it is now believed that the projected results over 30 years will more likely look like that in Figure 4. Based on the revised annual targets, the contributions from our grants programs and the Trust for Nature covenants towards these goals are presented in Table 2.

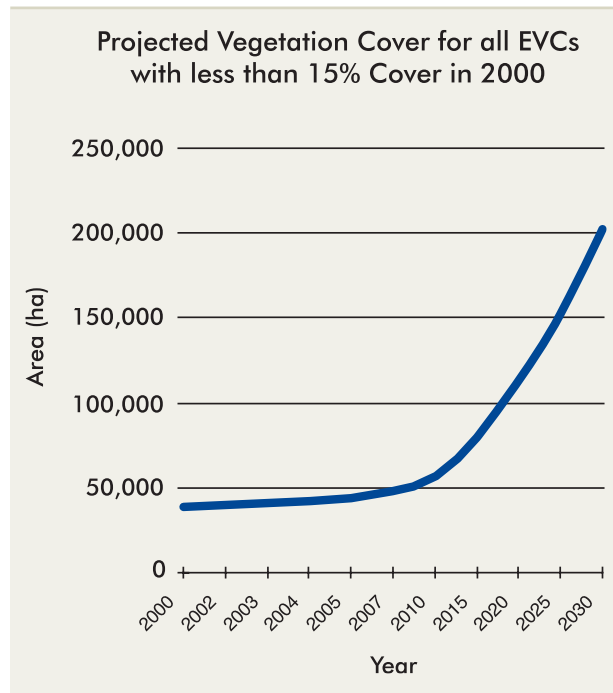


Figure 4. The projected increase in the area of endangered and applicable vulnerable EVCs in the Goulburn Broken to reach 15% of their pre-European cover by 2030 (Goal 3).



Table 2. The contribution of the CMA's grants programs and Trust for Nature's covenants towards the goals of the Goulburn Broken Native Vegetation Management Strategy.

Native Vegetation Management Strategy Goal, 2003	Indicator for 2002-203 ¹	Native Vegetation Strategy Target Environmental and Trust for Nature Covenants ²	Contribution from Waterways, Management Grants
1. Maintain extent of all native vegetation types, at 1999 levels, in keeping with the goal of 'Net Gain' listed in Victoria's Biodiversity Strategy 1997.	Area of remnant vegetation protected and revegetated less remnant vegetation	Net gain in the amount of vegetation in the catchment.	2152 ³ ha
2. Improve the quality of 90% of existing (2003) native vegetation by 10% by 2030.	Area of remnant vegetation protected and enhanced.	1179 ha ⁴	1585 ha ⁵
3. Increase the cover of all endangered and applicable vulnerable EVCs to at least 15% of their pre-European vegetation cover by 2030.	Area of indigenous revegetation of all endangered and applicable vulnerable EVCs.	1625 ha	425 ha ⁶

1. Based on revised targets for the Goulburn Broken Native Vegetation Management Strategy included in the RCS, 2003.
 2. Does not include other activities on private land that have not been reported through the CMA. Also does not include community group activities funded through the CMA as these were not available at the time of printing.
 3. At this time no figures are available for the amount of vegetation cleared in the catchment so only area of remnant protected & enhancement and revegetation is included.
 4. Target figure set for private land only.
 5. Based on the assumption that any fencing, enhancement with supplementary planting and covenanting activities will improve the condition of existing native vegetation by 10%. Based on the estimate that 75% of reported activities are occurring in 'endangered' and applicable 'vulnerable' EVCs.

Research and Investigations

Many research projects investigating different aspects of biodiversity are being undertaken in the catchment. A few that CMA biodiversity staff have been involved on the steering committees for are:

- Ecosystem Services Project - CSIRO Nature and Value of Australia's Ecosystem Services project is almost finalised (for more information go to www.ecosystemservicesproject.org).
- Bats and Paddock Trees - conducted by DSE and Deakin University (see case study).
- Biodiversity and Farm Business - conducted by DSE. Investigating ways of maintaining and improving on-farm productivity whilst catering for biodiversity.

- Landscape Patterns for Biodiversity Conservation - conducted by Deakin University, examining the relationships between native vegetation patterns and biodiversity to provide improved knowledge for the management of rural landscapes.
- ESAI - Biodiversity and Intensive Agriculture - conducted by DPI, this project is investigating the improvement of biodiversity in intensively farmed areas of the Victorian Riverina bioregion through the promotion of indigenous shelterbelts.



Case Study

Bats and Paddock Trees

Insights from Recent Research

Large old trees, scattered across paddocks in rural landscapes are widely appreciated for their aesthetic appeal. Increasingly they are being recognised for their economic benefits, such as providing shade and shelter to livestock, lowering the risk of salinity and reducing erosion. Fewer people are aware of their value in conserving biodiversity.

One group of animals that commonly use paddock trees are insect-eating bats. These valuable native animals often go unnoticed because they are small, largely silent (to our ears at least), hidden during the day in roosts and only feed at night where they are often mistaken for a moth or late-flying bird.

Bats eat a wide range of invertebrates, predominantly moths, beetles and bugs, with some species also taking spiders, mosquitoes, grasshoppers and crickets. Individuals can consume up to half of their body weight in insects in one night. Some species have been recorded catching up to 600 mosquitoes in an hour. The role they play in reducing insects is likely to be particularly important around sparsely scattered trees, because there are few insect-eating birds in these situations.



The Little Forest Bat is the smallest species in Southeastern Australia, weighing only 4g.

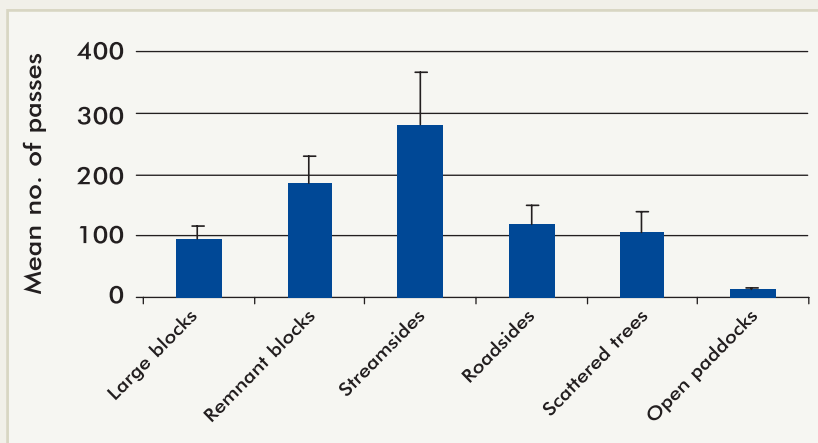
A recent research project undertaken in the Goulburn Broken Catchment (with funding contributed by the CMA) to examine the value and use of scattered paddock trees for foraging by bats has shown that whilst bats were most commonly recorded in stream-sides and small remnants, the activity around scattered trees in farmland was similar to that in large forest blocks (see Figure 1). Bats were found to be widespread in remnant forest blocks, densely and sparsely scattered paddock trees, with the highest levels of activity at sites with 20-30 large trees per hectare. The numbers of bats declined as the density of trees declined. Bats are very mobile and may fly more than 10km in a night so they are able to move between different patches of trees, including



scattered paddock trees, to feed. But no matter how scarcely scattered the trees, bats are still to be found.

For all species of bats, remnant vegetation of some sort, even scattered paddock trees, is necessary for their survival in rural landscapes. Bats make extensive use of scattered paddock trees for foraging and roosting. More than one third of all roost sites found near Numurkah were in scattered paddock trees in farmland.

This research has shown that it is vital to protect scattered paddock trees as well as patches of remnant vegetation to ensure the ongoing survival of bat populations - our natural insect controllers.



Floodplain Management

Floodplains are generally the low-lying lands bordering waterways over which water tends to flow during floods. The width of floodplains in the Goulburn and Broken River Basins varies from a few metres for a small creek to about 15 kilometres for the lower reaches of the Goulburn River. The Broken and the Goulburn Rivers have breakaway flow paths that carry floodwaters a considerable distance away from the main stream.

The catchments of the various rivers and streams within the Goulburn Broken CMA's region include areas of flood prone land, where flooding has historically caused substantial damage to the natural and built environment. Floods are naturally occurring events, and the inherent functions of the floodplains to convey and store floodwater should be recognised and preserved to minimise the deterioration of environmental values, the long term flood risk to floodplain production, assets and communities.

Flooding imposes substantial costs on individuals and the community with the damage bill estimated to be \$30 million annually. Indirect costs to the community such as loss of productivity, displacement of residents, closure of roads, trauma and ill health are also significant. Notwithstanding these significant impacts, natural flooding of floodplains and their associated wetlands provide essential breeding habitats for bird and aquatic species, and promotes the health of rivers and floodplains.



- Key tools such as flood warning, emergency response planning and careful land use planning are encouraged across the Goulburn Broken Catchment to minimise the impacts of flooding.
- The framework for floodplain management delivery including priorities setting is documented in the Goulburn Broken Regional Floodplain Management Strategy, which was endorsed by the Minister for Water in early 2003. The strategy deals with eleven programs:
 - Asset (levee) management;
 - Flood monitoring action;
 - Local flood studies and floodplain management plans;
 - Information systems (GIS and data base development);
 - Statutory land use planning;
 - Best practice development and training;
 - Best practice principles for sound floodplain management decision making;
 - Resources - responsibilities, priorities and cost sharing; and
 - Control of works and activities on floodplains;
 - Performance monitoring.
 - Emergency response planning;

Vision

The vision presented in the Goulburn Broken Floodplain Management Strategy is to:

Work with the community to achieve best practice floodplain management for the benefit of current and future generations, through the implementation of the Regional Floodplain Management Strategy.

Objectives

The objectives of floodplain management are to carry out activities to address the existing, future and residual flooding problems. Floodplain management involves setting down guidelines for use and development on floodplains to assist in the protection of life, property and community infrastructure from flood hazard by applying sound planning principles, undertaking investigations and preparing flood management plans.

Priority activities

- Provision of accurate and timely floodplain management advice under the Planning and Environment Act, 1987 and the Water Act, 1989;
- Resolve the lower Goulburn River flooding issue;
- Continue levee maintenance programs for the Murray River and Goulburn River levees;
- Assist in implementation of floodplain management studies/plans for Seymour, Cobram to Strathmerton, Shepparton and Mooroopna Violet Town, Merrigum, Tatura, Nathalia and Yea;
- Assist in implementation of approved flood mitigation schemes for Benalla and Euroa;
- Carry out a 100-year ARI flood level program across the Goulburn Broken Catchment.

Floodplain management functions

From 1 January 1998, the Goulburn Broken CMA has carried out floodplain management functions under section 202 of the Water Act, 1989.

Funding

Funding for the implementation of floodplain management activities was provided from the Waterways Programs.

Funding under the Natural Disaster Risk Management Studies Program has been received for a floodplain management study for the flood level declaration program across the Goulburn Broken catchment, Violet Town, Shepparton and Mooroopna.

Funding under the Regional Flood Mitigation Program has been received for the Benalla Approved Flood Mitigation Scheme and Shepparton and Mooroopna Floodplain Management Plan.

Floodplain Manager

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.

Statutory planning referrals

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.

Lower Goulburn Floodplain Rehabilitation Scheme

In March 1999, the Goulburn Broken CMA Board unanimously resolved to adopt the Lower Goulburn Floodplain Rehabilitation Scheme as the preferred option for future management of the Lower Goulburn and its floodplain. This resolution followed a number of studies carried out by Sinclair Knight Merz, SMEC Victoria and PricewaterhouseCoopers. A Business and Implementation Plan was finished in August 1999 and has received State Government support. Sinclair Knight Merz in association with Water Technology was commissioned in 2001 to carry out the detailed design works and accurate acquisition area determination.

Since this time the Commonwealth and State Governments have commissioned Monash International to carry out an Independent Review. It is anticipated that the report will be delivered to the Steering Committee of the NAP Office for final resolution in September 2003.



Climate Change

Greenhouse and climate change are recognised by the GB CMA as key natural resource management issues.

As part of the review of the RCS, a Climate Change and Greenhouse Gas Abatement Directions Paper was developed. This paper provides background information and strategic advice on greenhouse gas abatement and management in the catchment. This directions paper will be developed into a Climate Change Strategy.

In December 2002 the CMA ran a climate change workshop with key stakeholders to determine how the catchment community should tackle climate change issues in the next five years. It was agreed that the CMA should co-ordinate the natural resource management part of climate change in the catchment, maintain links with relevant research programs, incorporate Greenhouse into other natural resource management programs and continue to seek funding for climate change projects.



The CMA in partnership with the Sheep Pen Creek Land Management Group, FFORNE Hardwood Cooperative, The Superb Parrot Project, CSIRO and the Shire of Moira was successful in obtaining funding through the Victorian Government's Community Action Fund to undertake a project to measure carbon in multiple benefit revegetation sites. The project will focus on designing revegetation projects to achieve maximum carbon absorption and educating landholders on how to measure the carbon sequestration potential of their plantations into the future.



The Goulburn Broken Catchment Management Authority gratefully acknowledges the support of the Natural Heritage Trust, the National Action Plan for Salinity and Water Quality, the State and Federal Governments and landowners of the Catchment who invested millions of dollars in protecting and enhancing natural resources in 2002-2003.