

Southern Rivers

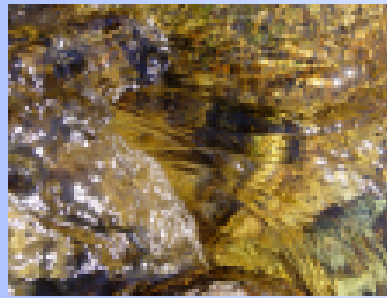
CATCHMENT MANAGEMENT AUTHORITY

Catchment Action Plan



SECTION 5:

Water Program



WATER PROGRAM

5.1 INTRODUCTION

The Southern Rivers region has highly variable and at times scarce water resources that are crucial for our economic, social and environmental wellbeing. We need to continue to improve the productivity and efficiency of water use, while maintaining healthy river and groundwater systems.



The region's rivers and wetlands are unique and varied. They range from pristine natural systems that support diverse aquatic flora and fauna and productive estuaries, to highly modified systems through developed urban and industrialised areas. The rivers and aquifers support diverse agricultural production, including dairying, forestry, beef, sheep, wool, fruit and aquaculture.

The recreation and tourism industries are also very important to the region in social and economic terms. The natural and scenic qualities of the rivers and wetlands are directly linked to the future success of these industries.

However, studies such as the NSW Healthy Rivers Commission reports for the Bega Valley and the Shoalhaven have identified locations where threats to the natural values are present. The Commission also highlighted the need for adequate planning and management to manage demands placed on our rivers and wetlands by development.

The state of the region's biodiversity resources, the continuing pressure on these, and the way the catchment action plan will direct effort to improve their condition is described in Table 8 below. The factors considered in developing the strategic direction and targets for the catchment action plan's water program are discussed below.

It should be noted that many of the management targets and examples of management actions outlined under the water program are the responsibility of other organisations, agencies and authorities and not Southern Rivers CMA.

For the purpose of this theme, 'river and wetland environment' comprises the waterway, the land beneath it, and the land adjacent to it. It includes groundwater aquifers, their dependent ecosystems and their interaction with surface waters.

5.2 INFORMATION FOR IMPROVED WATER MANAGEMENT IN THE SOUTHERN RIVERS REGION

Developing a strategic direction for conservation of water resources in the Southern Rivers region required the review of the most up to date and relevant information. The catchment blueprints of the southern and south-east catchment boards were reviewed. Actions and targets that were no longer relevant or not applicable were removed. Other actions and targets were modified, or added to in light of additional information and/or comments from community, state agencies and local government.

The NSW Government's stressed rivers reports prepared in 1999 for the entire region assisted in highlighting catchments under threat. Detailed water sharing plans for the Kangaroo and Wandella rivers, and a draft plan for the Bega River catchment have assisted in the development of actions and targets.

NSW Healthy Rivers Commission reports for the Bega and Shoalhaven River Systems provided assistance in identifying locations and management recommendations for improved conservation, protection and enhancement. Government has reviewed the findings and recommendations of each inquiry and issued its decisions in the form of statements of intent.

River styles reports for the Shoalhaven River (1999) and Bega River (1998) provided information on the form and function of these rivers and tributaries, and their likely response to management options.

A variety of specific catchment and river reach studies provide information and recommendations on remedial actions.

Examples of plans and studies consulted include: the Remnant Vegetation and River Corridor Action Plan for the Minnamurra Catchment (2002), the Broughton Creek and Currumbene Creek Catchment Management Plans (2000), the Survey of Stream Degradation in the Upper Shoalhaven and Deua Catchments, (2003), the Bega River Health Action Plan, the Wandella

Creek River Rehabilitation Plan, the Snowy River Rehabilitation Plan, and the Bombala River Rehabilitation Assessment Program (in preparation).

The Integrated Water Cycle Management Guidelines for NSW Local Water Utilities provided guidance to the nine local water utilities in the region. Local governments in the region have provisions in their planning instruments to protect and conserve water resources. The Department of Energy, Utilities and Sustainability (DEUS) is the government agency with responsibility to promote and recommend best practice management of urban water issues including stormwater, drinking water, and waste water/effluent disposal and to provide advice on integrated water cycle management plans. DEUS has provided advice in relation to improving management of water supply, wastewater and water conservation and efficiency.

The Department of Primary Industries (DPI) Fisheries is the primary source of data in relation to barriers to fish passage and re-establishment of fish habitat.

5.3 ADDITIONAL INFORMATION CURRENTLY BEING DEVELOPED

DNR is at present collecting baseline data on riparian vegetation within the Shoalhaven/ Illawarra. This mapping information will assist in prioritisation of river reaches and sub-catchments for remedial action or conservation.

DPI is finalising a report for the region on barriers to fish passage which will provide additional detail.

5.4 MONITORING AND EVALUATION

The objective of this water program is to protect, maintain and improve river and water body health through the implementation of priority management actions. It is important to realise that there is no common and accepted way to monitor river health over a large area. Water quality monitoring is most useful, manageable and cost effective when specific sites or specific attributes are being assessed, such as chlorophyll, phosphorus or a particular pollutant. Very few, if any, water quality indicators have been measured over a long period of time in the Southern Rivers catchment.

There is less difficulty in monitoring river flows and consequently there is more readily available information over a period of time.

Monitoring of urban water use and efficiency is undertaken by all local water supply utilities and is reported yearly through the DEUS website.

DNR is currently collecting baseline data on riparian vegetation within the Shoalhaven/ Illawarra. This mapping information will not only assist in prioritisation of river reaches and sub catchments for remedial action or conservation but will also provide a repeatable method of assessing vegetation in riparian areas. It is possible that this mapping may be extended to cover the whole catchment.

Given that there is no recognised or adopted indicator to measure river health, both alternative and specific indicators will be required to monitor progress and change. For example, it is well documented that stock exclusion from rivers and wetlands has a positive effect on water quality and riparian habitat condition. Therefore, reporting on kilometres of river where stock is excluded represents a valid use of an alternative measure of improved water quality and riparian condition. Similarly, the creation of vegetated buffers protecting riparian areas has also been shown to lead to improvements in water quality and riparian habitat. This is recognised by the Property Vegetation Plan developer, a decision support tool used to help administer the *Native Vegetation Act 2003*

Southern Rivers CMA will collaborate with a wide range of stakeholders including state agencies, local governments, tertiary institutions and industry groups to develop acceptable, repeatable and cost effective indicators to measure resource improvement.

5.5 LINKS BETWEEN TARGETS



TABLE 8

WATER PROGRAM -
Current state and pressures and proposed action plan responses

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<p>Water resources The condition of rivers, streams and other water bodies is influenced by multiple factors including geology, climate, rainfall, riparian vegetation cover and composition, structural stability, and streamflow, as well as past and present instream uses and land management. The catchments and sub-catchments that comprise the Southern Rivers are as diverse and various as their condition. The state of the various elements of river condition is outlined below in sections dealing with:</p> <ul style="list-style-type: none"> • water sharing • water quality • water supply and wastewater management • water conservation • protection and rehabilitation of rivers and wetlands. 	<p>Water resources The region's riverine environments are under pressure from a variety of threats and impacts. Catchment activities, particularly those resulting in increased volume and/or decreased quality of runoff, have the potential to affect river health. Activities include increases in population within urban and rural areas, industry, tourism, agriculture and horticulture. The riverine environment is also subject to influences with impacts that can be difficult to predict, such as climatic changes, which may affect species, habitats or even whole ecosystems. These pressures are outlined below.</p>	<p>Water resources The mechanisms to reduce these pressures and improve river and aquifer condition are based on a surrogacy principle, that condition will be improved and enhanced through the implementation of priority water management actions in targeted areas.</p>
<p>Water sharing Many of the sub-catchments have been identified as having high levels of stress in relation to current water extraction; (stressed rivers reports, 1999):</p> <ul style="list-style-type: none"> • Shoalhaven 28 % (of sub-catchments) • Illawarra 0% • Clyde 2.9% • Deua 12.5% • Tuross 4.5% • Bega 34.6% • Towamba 11.1% • Snowy Genoa 15.4% <p>Two water sharing plans have been gazetted, the Wandella Creek and Kangaroo River water sources. A draft Bega water sharing plan has been completed. Three macro-sharing plans (addressing surface water and groundwater management) are under development for the whole region. Key aquifers that require water sharing plans include Araluen and Bega River Sands.</p>	<p>Water sharing</p> <ul style="list-style-type: none"> • need for high quality drinking water for urban and rural areas. • poor consideration of the environment as a water user in past water licensing • Increasing population growth • high tourism and visitor numbers increasing seasonal demand • irrigation and stock water demands, and environmental needs to protect wetlands and aquatic habitat. • mine subsidence causing loss of water flow • seasonal population increases due to tourism putting pressure on water supply and waste management 	<p>Water sharing</p> <ul style="list-style-type: none"> • Management target W1 • development and implementation of water sharing plans that will improve water use, efficiency, aquifer health and environmental flows • assistance for water user groups • improved monitoring to help in adaptive management • measurement of ecological/economic and social responses to assist in adaptive management of the resource • increased community awareness and education in broader catchment issues.

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<p>Water quality</p> <ul style="list-style-type: none"> interim water quality objectives were established in 1999 by the NSW State Government for all water bodies. the Southern Rivers catchment has a diverse mix of land uses that each have different impacts on water quality, e.g. typically higher water quality from forested and undisturbed natural areas as compared to poorer water quality in urban and agricultural areas. many of the coastal lakes and estuaries rely on high quality water to support aquaculture, environmental services and tourist needs. sediment, nutrient and biological pollutants have resulted from poorly designed and maintained roads, tracks and laneways throughout the catchment the Upper Shoalhaven River is within the Sydney Water catchment area where the Sydney Catchment Authority has a key role in protection of water quality access to information and monitoring of water quality is not provided in a consistent and co-ordinated manner across the catchment. 	<p>Water quality</p> <ul style="list-style-type: none"> stakeholders unable to obtain information about water quality and/ or information of consistent quality erosion and sedimentation, instream and in the catchment urban, industrial and rural residential expansion point-source inputs (e.g. sewage treatment plant outfalls, stormwater drains, agricultural drains); diffuse outputs (e.g. agricultural run-off) stock accessing waterways. 	<p>Water quality Management Target W2.</p> <ul style="list-style-type: none"> supporting and partnering of industry to monitor and address causes of poor water quality. improved networks that collect and utilise water quality information. Increased community awareness, education and involvement increased accessibility to water quality information water quality more suitable for the protection of aquatic ecosystems and human uses.

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<p>Water supply and wastewater management There are nine local water utilities plus Sydney Water in the catchment and a consistent approach is required. The preparation of integrated water cycle management plans are recommended by the Department of Energy, Utilities and Sustainability as Best Practice for management of urban water issues including stormwater, drinking water, and waste water/effluent disposal. Six councils/ shires have commenced these plans and one has completed their plan at the time of writing, with many more expected in the next few years. A metro water sharing plan is also under development.</p>	<p>Water supply and wastewater management</p> <ul style="list-style-type: none"> • high population centres and high seasonal tourist populations need to be supplied with high quality drinking water and safe wastewater disposal. • need to protect numerous sensitive wetlands, estuaries and riparian areas • changing community perception of reuse and recycling of water resources. 	<p>Water supply and wastewater management Management target W3.</p> <ul style="list-style-type: none"> • development and implementation of integrated water cycle management plans to improve efficiency and effectiveness of water supply and wastewater management. • maintenance and enhancement of water efficiency education and extension programs
<p>Water conservation Local water utilities are required to comply with best management practice guidelines which involves preparing demand management strategies for all water sources. Increasing demands for water access will need to result in more efficient water use across all sectors</p>	<p>Water conservation</p> <ul style="list-style-type: none"> • increasing population • increasing demand and competition for water access from urban, industry, agriculture and the environment • erratic climatic conditions including prolonged drought periods • need to produce high quality primary produce. 	<p>Water conservation Management target W4 (a) and (b)</p> <ul style="list-style-type: none"> • maintenance and enhancement of water efficiency education and extension • adoption of improved irrigation practices • implementation of demand management strategies • development of partnerships to monitor water use.

State of key natural resources in the Southern Rivers region	Pressure on natural resource condition	Response of the Catchment Action Plan
<p>Protection and rehabilitation of rivers and wetlands</p> <p>Within the catchment there is a high level of variation in native riparian vegetation from poor coverage and weed infested to areas of high conservation value.</p> <p>Previous activities in some areas, such as, mining, gravel and sand extraction, has resulting in long-term readjustment and instability of river bed and banks.</p> <p>Migratory fish are restricted in their movements by structures, including inappropriately designed and constructed road crossings (approximately 470) and approximately 14 major weirs (further detailed study required).</p> <p>River bank erosion varies from localised to extensive.</p>	<p>Protection and rehabilitation of rivers and wetlands</p> <ul style="list-style-type: none"> • uncontrolled stock access. • wash from power boats • poor vegetation and stock management around water sources. • vegetation removal within the riparian zone and the catchment. • weed invasion. • past river management such as desnagging, channel straightening and mining. • protection of water quality for drinking supplies • nutrient input. • urban development. 	<p>Protection and rehabilitation of rivers and wetlands</p> <p>Management Target 5 (a) to (d)</p> <ul style="list-style-type: none"> • community capacity building in river and wetland rehabilitation • protection of high conservation rivers and wetlands. • establishment and conservation of native riparian vegetation • removal of weeds in strategic areas • develop partnerships between state agencies and local government to identify and remediate key barriers to fish passage. • provide incentives for the protection and rehabilitation of priority reaches and wetlands. • implementation of remedial works to stabilise river bed and banks.

5.6 TARGETS OF THE CAP WATER PROGRAM

Set out below are the water catchment targets, five management targets and detail on the intent, performance indicators and examples relevant to each management target.

The water catchment targets

Water catchment target: By 2016 river and water body health is maintained or improved in priority stressed river sub-catchments and priority high conservation value rivers.	
Intent	<p>The objective of the water program is to protect, maintain and improve river and water body health through the implementation of priority management actions in at least 30% of sub-catchments (based on stressed rivers sub-catchment boundaries).</p> <p>It is Southern Rivers CMA's intent to support the development and maintenance of fully functioning aquatic, groundwater and riverine-dependent ecosystems and provide healthy and productive water resources for the community.</p> <p>Additionally, this program supports the objective of protecting and improving water quality, wherever possible.</p> <p>Sub-catchment priorities have been determined through the water sharing committee process. Integrated water cycle management will be promoted to ensure improved efficiency and conservation of water resources.</p>
Performance indicators	<ul style="list-style-type: none"> • kilometres of stream rehabilitated and/ or protected • number of artificial barriers removed or modified to permit fish movement • length of stream in kilometres opened to fish passage • number of local governments developing and adopting an integrated approach to water cycle management • number of surface water and groundwater sharing plans being implemented. (Annual report on implementation programs DNR) • number of days shellfish harvesting is permissible

TABLE 9

The water management targets

Water Management Target W1 – water sharing

W1 By 2008, 80% of surface water sources and priority groundwater sources of the Southern Rivers region will be managed according to a water sharing/management plan.

Water Management Target W2 – water quality

W2 By 2016 the quality of priority water bodies will be maintained or progressively improved

Water Management Target W3 – management of water supply and wastewater

W3 By 2016 all water utilities within Southern Rivers CMA area will be managing their water systems consistent with the NSW Governments Best Practice Management of Water Supply and Sewerage Guidelines approach.

Water Management Target W4 – water conservation and efficiency

W4(a) By 2016 the residential consumption (per capita) of potable water in urban areas will progressively reduce from the 2001/02 benchmark (as per the NSW Water Supply and Sewerage Performance Monitoring Report)

W4(b) Water savings (through adoption of improved water use efficiency and conservation measures) will be progressively improved against the 2005 benchmark, so that by 2016 a 20% improvement in water conservation and use efficiency will be achieved by at least 80% of licensed irrigators within the Southern Rivers catchments.

Water Management Target W5 – river and wetland protection and rehabilitation

W5(a) By 2016 an additional 2,000ha of riparian vegetation will be actively managed for improved riverine ecosystem condition.

W5(b) By 2016, streambed and bank stability over 150km of priority watercourse will be rehabilitated and protected through the construction of a minimum of 50 streambed and bank control structures.

W5(c) By 2016 in-stream habitat will progressively be improved by appropriate in-stream works, such as re-instatement of large woody debris, sandy riverbed reconfiguration and removal of a minimum of 15 barriers to fish passage in priority reaches.

W5(d) By 2016 priority actions and works will be implemented to protect and enhance 40 wetlands of national and regional importance identified as priorities.

W5(e) By 2011, local environmental plans (LEPs) will incorporate minimum vegetated buffer distances to protect waterways from impacts of development.

Details on water management target W1 – water sharing

Water management target W1:	
By 2008, 80% of surface water sources and priority groundwater sources of the Southern Rivers region are being managed according to a water sharing/management plan.	
Intent	<p>To negotiate and implement water sharing arrangements with a wide range of stakeholders to ensure environmental protection and equitable outcomes for the community and water users.</p> <p>In recognition of the central role of land owners in water sharing arrangements, water sharing plans are regarded as the most effective means for stakeholder participation in decision making. Through negotiated water sharing arrangements, issues such as river health, environmental flows, habitat protection, value of irrigated agriculture, and water quality will be considered by a wide range of stakeholders to ensure fair and equitable outcomes.</p> <p>Protection for priority groundwater sources [e.g. Coastal Sands, Bega aquifers, Lachlan Fold Belt (Braidwood/Araluen), Sydney Sandstone] will also be encouraged through community involvement in the water sharing process. Actions designed to achieve this target include defining sustainable yield, increasing the self-management capacity of communities to manage water extractions, and improving water security for all water users and the environment.</p> <p>Facilitate opportunities that are consistent with the water sharing plans to develop water storages for the purpose of accessing high flows, thereby reducing pressure on rivers during periods of low flows.</p>
Performance indicators	Number of water sharing plans allowing effective, efficient, sustainable and equitable water sharing for all sectors, including environmental allocations.
Examples of catchment activities that would support this target	<p>Capacity building program for water user groups</p> <p>Plans and strategies</p> <ul style="list-style-type: none"> • negotiation of water sharing plans • integrating water sharing plans with river health programs • development of environmental water management plans (as per the Catchment Management Authorities Act 2003) <p>Implementation</p> <ul style="list-style-type: none"> • implementation of water sharing plans • implementation of environmental water management plans • incentives for water users to adjust to new water access rules <p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • key data gaps identified and addressed. • monitoring programs including surface water flow monitoring (DNR) • measuring success of plan implementation • measuring system response in terms of river flow objectives • measuring ecological/economic or social responses
Related targets	C1, B1, CM1, CM2

Details on water management target W2 – water quality

Management target W2:	
By 2016 quality of priority water bodies is maintained or progressively improved.	
Intent	<p>Priority areas will be established by the assessment of risk to water quality in areas of high value to the community. In areas where a high risk to water quality has been identified appropriate investigation and assessment will be undertaken. Where existing baseline data are not available these will need to be generated. It is the intent of Southern Rivers CMA to protect and maintain water quality where it is currently in good condition (i.e. meets NSW Interim Environmental Objectives).</p> <p>Where water quality currently fails to meet environmental objectives and where the affected water body has high value to the community (e.g. environmentally sensitive, recreational use, oyster production, domestic consumption, public health etc.), Southern Rivers CMA will assist in identifying the key pollutant sources and work strategically with partners and the community to improve water quality.</p> <p>Southern Rivers CMA will aim to refocus current and future water quality monitoring efforts towards cost-effective and strategic measurement of parameters related to catchment targets. To achieve this will require a co-ordinated approach to water quality monitoring and data sharing and will involve supporting local governments, state agencies, Southern Rivers CMA communities and industry in the strategic monitoring and identification of pollutant sources and working towards improved water quality. Key industries for partnership include the oyster industry.</p> <p>There is a need to increase community awareness of water quality issues, particularly to improve community understanding of the links between catchment activity and water quality impacts.</p> <p>A key component of protecting and improving water quality is to ensure that effective water quality protection measures are incorporated into planning instruments and development controls and in policies, procedures and work practices of relevant agencies and organisations. Priority for water quality protection should be placed on protection of sensitive receiving waterbodies with particular emphasis on coastal lakes, shellfish harvest areas, public swimming areas, potable water supply catchments and catchments with high conservation values.</p> <p>Priority for improving work practices should focus on point-source effluent management, management of large sediment sources and diffuse source inputs from cleared/urban lands, stormwater flows, roads, tracks and farm laneways. Establishment of riparian filter strips and buffer zones in rural and urban areas will assist in improving and protecting water quality. In many cases the development and application of best management practices that target specific activities associated with water quality should be a priority action.</p>
Performance indicators	<ul style="list-style-type: none"> • number of days shellfish harvest is permissible • number of programs undertaken to improve knowledge and understanding of water quality • number of LGAs and state organisations adopting an integrated approach to water monitoring • State of Environment reporting trends • number of stormwater management plan actions implemented • decline in number of fish kills.

Details on water management target W2 – water quality (continued)

<p>Examples of catchment activities that would support this target</p>	<p>Capacity building and information</p> <ul style="list-style-type: none"> • catchment education and participatory water monitoring to affect attitudinal change (eg Streamwatch) • appropriate support for regulatory authorities and other agencies to manage water quality monitoring and information and to respond to water quality issues. <p>Plans and strategies</p> <ul style="list-style-type: none"> • encourage networks to improve data quality, focus and usefulness • support for relevant agencies to implement legislative requirements that prevent water pollution • undertake planning, management and education activities that positively impact on water quality and the recording of water quality information • incorporate water quality protection measures into local government planning instruments and development controls <p>Implementation</p> <ul style="list-style-type: none"> • establish and implement a coordinated and integrated approach to water quality data access, collection, storage and reporting to improve decision-making, and community participation in catchment management • support/partner industries to monitor and develop solutions which address the causes of poor water quality (especially those directly dependent on good water quality, such as the oyster industry) • implement best practice erosion and sedimentation controls for new developments and existing land uses • implement incentive schemes for landholders to address/remediate water quality decline • implement stormwater management plans. <p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • audit catchment water quality • increase accessibility of water quality information; • support for access to water quality information held by users e.g. oyster farmers, local government
<p>Related targets</p>	<p>B1, SLC6, CM1, CM2</p>

Details on water management target W3 – management of water supply and wastewater

<p>Management target W3: By 2016 all water utilities within the Southern Rivers CMA area are managing their water systems consistent with the NSW Government’s Best Practice Management of Water Supply and Sewerage Guidelines approach.</p>	
<p>Intent</p>	<p>To ensure efficient water supply regimes and safe effluent management systems that do not negatively impact on human or environmental health.</p> <p>To Work with water utilities to ensure that proposals for new effluent management systems clearly demonstrate best public health and environmental outcomes.</p> <p>To prepare and adopt integrated water cycle management plans.</p>
<p>Performance indicators</p>	<p>Percentage of water supply utilities developing and adopting an integrated approach to water cycle management consistent with the Best Practice Management of Water Supply and Sewerage Guidelines approach.</p>
<p>Examples of catchment activities that would support this target</p>	<p>Capacity building and information</p> <ul style="list-style-type: none"> • water efficiency education and extension programs <p>Plans and strategies</p> <ul style="list-style-type: none"> • encourage water utilities to develop integrated water cycle management plans (IWCMP), which may address urban water supply, water efficiency, sewage management, effluent re-use, and stormwater management • encourage water utilities to develop integrated management approaches that improve the management of wastewater systems, in conjunction with State and local governments. <p>Implementation</p> <ul style="list-style-type: none"> • support IWCMP implementation • support the establishment of sewage pump-out infrastructure for boats • work with water utilities to ensure on-site waste management systems are installed and functioning correctly • support utilities to implement the backlog projects identified under the Country Towns Water Supply and Sewerage Program • support for additional projects to enable adjustment to water reforms • support implementation of priority actions relating to water supply and wastewater in accordance with council’s strategic business plans and council-adopted stormwater, floodplain and estuary management plans • support sewerage augmentation plans at Berridale, Bega Valley, Bateman’s Bay, Eurobodalla, Kangaroo Valley, Shoalhaven REMS, Conjola and Tabourie. <p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • support monitoring and evaluation of IWCMPs.
<p>Related targets</p>	<p>C5, SLC2</p>

Details on water management target W4 – water conservation and efficiency

<p>Management target W4:</p> <p>Water management target W4(a): By 2016 the residential consumption (per capita) of potable water in urban areas will progressively reduce from the 2001/02 benchmark (as per the NSW Water Supply and Sewerage Performance Monitoring Report).</p> <p>Water management target W4(b): Water savings (through adoption of improved water use efficiency and conservation measures) will be progressively improved against the 2005 benchmark, so that by 2016 a 20% improvement in water conservation and use efficiency has been achieved by at least 80% of licensed irrigators within the Southern Rivers catchments.</p>	
Intent	<p>To increase efficient use of water in urban and rural applications. To reduce per capita consumption of potable water for domestic use (in urban and rural areas).</p> <p>Given the increasingly erratic patterns of rainfall over the Southern Rivers region, it is appropriate to promote demand management of all water sources. Water use must be consistent with the principles of ESD and be governed by the principles of reduce, reuse and recycle.</p> <p>Management target W4 (a) recognises the significant role of local governments in managing large parts of the natural environment. This target aims to support local governments to meet the expectations of communities to deliver on negotiated environmental outcomes. Actions designed to support W4 (a) include working with individual councils, regional local government organisations, state agencies and community stakeholders to identify priority actions, provide funding assistance and promote a catchment management model to address these issues.</p> <p>Management Target W4 (b) aims to promote improvements in water efficiency and water conservation by irrigation farmers. Savings may take the form of improved farm production per megalitre of water applied or reduction in the volume of water extracted and a saving for the environment. Actions to support this target include working with irrigation farmers to improve irrigation farm management practices and scheduling, and improvements to irrigation system design and performance. Key support measures include training, extension advice, irrigation system performance measurement and irrigation farm management planning.</p>
Performance indicators	<ul style="list-style-type: none"> • number of water efficiencies adopted, eg number of new water tanks installed, number of new water saving devices installed • number of water authorities implement approved demand management strategies • reduction in per capita consumption • adoption of improved irrigation technology • attendance of landholders at water efficiency training • benchmarking based on irrigation system audits and case studies (2005)

Details on water management target W4 – water conservation and efficiency (continued)

<p>Examples of catchment activities that would support this target</p>	<p>Capacity building and information</p> <ul style="list-style-type: none"> • water efficiency education and extension programs, eg adoption of Reasonable Use Guidelines for basic landholder rights users maintained and enhanced. [zz wording of this is confusing] <p>Plans and strategies</p> <ul style="list-style-type: none"> • water efficiency guidelines embedded in LEPs • support demand management strategies • Support farm water planning as a component of property management planning. <p>Implementation</p> <ul style="list-style-type: none"> • implementation of council stormwater management plans • metering of rural water extractions • support incentive programs (rainwater tanks and other conservation measures) • support partnerships with other agencies to encourage water conservation and efficiency. <p>Research, monitoring and evaluation</p> <ul style="list-style-type: none"> • develop partnerships with water supply agencies, primary industry and local governments to monitor water use • identify benchmarks for water efficiency.
<p>Related targets</p>	<p>C5</p>

Details on water management target W5 – river and wetland protection and rehabilitation

Management target W5:

Water management target W5(a):

By 2016 actively manage an additional 2000ha of riparian vegetation for improved riverine ecosystem condition.

Water management target W5(b):

By 2016 rehabilitate and protect streambed and bank stability over 150 km of priority watercourse through the construction of a minimum of 50 streambed and bank control structures.

Water management target W5(c):

By 2016 in stream habitat has been progressively improved by appropriate in-stream works, such as re-instatement of large woody debris, sandy riverbed reconfiguration and removal of a minimum of 15 barriers to fish passage in priority reaches.

Water management target W5(d):

By 2016 priority actions and works are implemented to protect and enhance 40 wetlands of national and regional importance identified as priorities.

Water management target W5(e):

By 2011 LEPs incorporate minimum vegetated buffer distances to protect waterways from impacts of development.

Intent

To strategically protect and rehabilitate the integrity of riverine and wetland environments and to promote community support of strategically planned catchment approaches to riverine health

Southern Rivers CMA recognises that the quality of riparian areas has a major impact on the protection of in-stream qualities. Intact riparian vegetation prevents erosion, provides habitat, supports native in-stream ecology, resists invasion by pest species and minimises the entry of pollutants. Actions designed to achieve this management target include a minimum of 1,000km of management fencing, weed management and revegetation including strategic investment in riparian vegetation to promote connectivity between isolated areas of native vegetation.

Additionally, this program will seek to control streambed and bank erosion priorities as identified in river rehabilitation plans based on geomorphic processes.

By 2007 priority catchments for river rehabilitation will be identified and plans will be progressively developed.

Identify and improve fish habitat and passage. By 2007, a priority list of fish passage barriers is prepared based on assessment by DPI.

It is the objective of Southern Rivers CMA to protect and enhance high conservation rivers, estuaries and wetlands. Actions designed to support this include reducing pressure of identified priority areas by way of provision of expert advice, community support, project management and funding assistance for projects.

By 2007 local wetland protection priorities will be established based on resources including the National Wetlands Inventory, State of the Estuaries Report, and DEC and DNR wetland assessments.

Southern Rivers CMA to work with state and local government to establish minimum vegetated buffer distances to protect waterways.

Details on water management target W5 – river and wetland protection and rehabilitation (continued)

<p>Performance indicators</p>	<ul style="list-style-type: none"> • kilometres of stream length rehabilitated and/or protected. • number of artificial barriers removed or modified to permit fish movement. • kilometres of stream length opened to fish passage. • number of instream habitats created or enhanced • number of river plans produced and implemented • hectares of riparian vegetation • numbers of structures built to stabilise and rehabilitate streams and rivers • number of wetlands protected and enhanced.
<p>Examples of catchment activities that would support this target</p>	<p>Advice and information</p> <ul style="list-style-type: none"> • increase community involvement in river management through education and capacity building • extension support for landholders and community groups in terms of provision of expert advice (that is up to date and scientifically sound and based on best management practices), project design, funding assistance for projects and supervised implementation of projects. Projects may include river works, riparian vegetation rehabilitation and weed control. • support access to geomorphic advice and information for extractive industries on the management of sand and gravel resources consistent with river protection and rehabilitation principles (DNR) <p>Plans and strategies</p> <ul style="list-style-type: none"> • support development of river plans for reaches and priority sub-catchments for future on-ground works, with community involvement (including public and private lands) • encouraging instream extractive industries to adopt best practice and to comply with reach and sub-catchment targeted river restoration plans as well as regulatory constraints. Develop plans and strategies for sand and gravel management (DNR). • community capacity and planning enhanced to enable investment in future works • support preparation of plans and strategies for public lands along streams • support development of fish habitat management plans for key catchments (DPI) • support development of best management practice guidelines for river and wetland management • ensure wetland protection zoning is included in LEPs. <p>Develop and implement projects</p> <ul style="list-style-type: none"> • support development of streambank rehabilitation plans and projects, with local community and landholder involvement • support development of property vegetation plans and other incentive mechanisms to enhance and protect riparian native vegetation, and manage threats to native riparian vegetation • support development of structures constructed for the protection and stabilisation of stream channel, bed and banks, and instream habitat enhancement by the addition of large woody debris and structures. • priority barriers to fish passage opened to allow migration and increase accessibility to fish habitat • establishment and protection of riparian vegetation, foreshore vegetation and regional corridors in priority areas • develop and broker partnerships to facilitate project funding and implementation • provide incentives for small scale rehabilitation projects in non-target areas • work with local government and Dept of Lands to implement river rehabilitation plans and actions • riparian vegetation protected and enhanced • repair stream erosion <p>Monitoring and evaluation</p> <ul style="list-style-type: none"> • develop an agreed methodology to assess river health condition.
<p>Related targets</p>	<p>B2, B3, C3, SLC2, SLC3, CM5</p>

5.7 RISK TO TARGET ACHIEVEMENT

Low level of stakeholder and industry acceptance and involvement

The degree to which targets are achieved will often rely on the level of community, industry and/or stakeholder acceptance and/or involvement.

Targets at risk: Water management targets W1, W2, W4(a), W4(b).

Response: The Southern Rivers CMA is responding to this potential risk through an engagement and partnership strategy to be adopted in late 2006. The strategy will identify changes in community needs, methods of improving engagement and development and identification of partnership opportunities.

Lack of collaboration with utilities

Collaboration and consistency is required between Southern Rivers CMA and all water utilities to manage water systems consistent with NSW Government Guidelines.

Targets at risk: Water management target W3.

Response: Southern Rivers CMA will work with utilities to identify opportunities for the use of NSW Government Guidelines. Methods of engagement will be developed through the partnership and engagement strategy.

Climate Change

Climate change has the potential to influence rainfall patterns, thus influencing drought/flooding cycles with consequent impacts on streambed and bank stability.

Targets at risk: Water management target W5b

Response: Raise level of awareness of potential impacts of climate change to influence project planning and stakeholder input.

Data quality

At this point of time there is no single benchmark to measure river health. The 2005 benchmarks refer to single components only. Improved quality of data is needed to support decision making.

Targets at risk: C1

Response: Improved collaboration and support from agencies and research institutions.

Buffer distances (statutory planning):

Gaining acceptance of minimum buffer distances from local government is required before incorporating buffer distances into LEPs. Buffer distances around streams and waterways are required to simplify planning processes to ensure protection of riparian areas from erosion and to improve habitat/biodiversity values.

Target at risk: Water management target W5(e)

Response: Refining and improving partnership with local government.

Buffer distances (broadscale landscapes)

Protection of water quality is enhanced by protecting or enhancing vegetation buffer distances around watercourses. Landholders may not adopt this principle.

Targets at risk: W5(a), W5(b), W5(d.)

Response: Raise level of awareness with landholders and provide incentives for landholders to voluntarily undertake management actions to protect water quality and stream protection.