ANNUAL REPORT
2001 – 2002

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Hon Dr Judy Edwards, MLA
Minister for the Environment and Heritage

To the Hon Dr Judy Edwards, MLA
Minister for the Environment and Heritage

In accordance with the *Swan River Trust Act 1988* and Section 66 of the *Financial Administration and Audit Act 1985*, I have pleasure in submitting the 14th annual report on the operations of the Swan River Trust for the period 1 July 2001 to 30 June 2002.

G. F. Totterdell

Geoff Totterdell
Chairman
30 August 2002

Chairman's Report

Geoff Totterdell

In fulfilling its responsibility to protect and manage the Swan and Canning rivers the Swan River Trust has a challenging task. The task is to conserve and manage the environmental, amenity values and landscapes of one of the most highly valued and heavily used natural assets of Perth. The challenge is to ensure that the pressures for development and use of the rivers and adjacent areas do not detract from these values.

In meeting this challenge the Trust works with and enlists the support of other state agencies, local governments and the community to ensure that development and use of the rivers meets the diverse expectations of the community in a way that is equitable and sustainable.

This is evident in the two activities that make up the bulk of the Trust's work: assessment of proposals for development and environmental management of the rivers.

The Trust's assessment of proposals for development in and adjoining the Trust's Management Area is without doubt the most contentious part of the Trust's work. There are widely divergent views in the community on the desirability of development around the rivers and what is an equitable balance between the diverse interests.

This year the Trust considered and provided advice to the Minister for the Environment and Heritage on 205 development applications. The more notable included a constructed wetland at Point Fraser, East Perth; redevelopment of Mercy Hospital, Mount Lawley, and Bethesda Hospital, Claremont, jetty upgrade and maintenance in North Fremantle and a railway bridge over the Canning River in Kenwick.

The Trust also completed a review of its development assessment policies. These policies provide guidance to developers, state agencies and local governments and the community on the basis on which the Trust assesses development proposals. They include policies on; design of buildings, fences and retaining walls to complement the river; specific requirements for the installation of sewage, stormwater, public and private infrastructure and signage; requirements for commercial, residential and marina developments; conservation and landscape protection and acceptable uses of public foreshore areas. The policies are available on the Trust's website.

This year the Trust, in collaboration with the Western Australian Planning Commission, launched the Precinct Planning Project. The development of Precinct Plans in collaboration with local governments and the community will guide development to maintain and enhance the landscape, recreational and environmental amenity of the rivers.

The Swan-Canning Cleanup Program (SCCP) is a major part of the Trust's environmental management work. Utilising more than 60 per cent of the Trust's total budget, SCCP aims to reduce nutrient levels in the Swan and Canning rivers to limit the extent and frequency of algal blooms and prevent development of toxic blooms. In this third year of implementing its Action Plan, SCCP consisted of 22 major projects. It involved more than 50 people from six government agencies and other organisations as well as increasing participation by community based catchment groups and local governments.

SCCP received a High Commendation in the Sustainable Environment category of the 2001 Premier's Awards for Public Sector Management. This recognised the commitment of SCCP to ensuring a long-term sustainable environment, combining balanced environmental and economic objectives with transparent and consultative processes, strong partnerships, community participation and cost effective delivery.

Efforts to strengthen and support Integrated Catchment Management continued to be a priority of SCCP with $415 000 being provided to support the administration of catchment groups. The funds helped groups with operational costs such as employment of coordinators, project officers, administration support and office supplies. An additional $25 000 was provided to the Swan Catchment Council to help catchment groups to continue their activities during the Council's review of catchment group boundaries and operations. As well as supporting established catchment groups, the funds also helped foster community involvement in other SCCP priority catchments, particularly to facilitate development of the newly formed Susannah Brook Catchment Group.

Improving management of the catchments also means helping rural landholders to improve management of their properties to reduce the levels of nutrients entering waterways. During the year, 1 776 people participated in *Heavenly Hectares* field walks and workshops. Delivered through the Department of Agriculture, this program assists rural landholders to reduce nutrient losses and cover a wide range of topics including weed identification and control, pasture establishment, revegetation techniques and stock management.

Encouraging urban residents to reduce nutrient losses from domestic gardens and to become involved in environmental restoration activities is the focus of SCCP's community awareness campaign. This year it continued to increase the general community's understanding of river and catchment issues and generate a higher level of community involvement in, as well as corporate support for, environmental restoration activities that contribute to the protection of the Swan and Canning rivers.

Four major businesses supported SCCP through their involvement in Corporate Care Days. This new program connects the corporate sector with the community in the catchment and gives private business the opportunity to make a significant contribution to environmental restoration projects, as well as learning first hand about river management issues.

The SCCP Drain Game was launched at the 2001 Perth Royal Agricultural Show and proved highly popular with the community. The entertaining and colourful education activity helps people to understand how their actions affect the health of the rivers.

Assessing the current condition of the river environment and what changes are occurring is essential to guiding SCCP strategies and determining their effectiveness. SCCP's extensive water quality monitoring program provides the information to do this. There is now eight years' water quality and ecosystem health information for the estuarine and tidal portions of the rivers and over 15 years of continuous monitoring of nutrient levels in key catchment streams. SCCP short-term targets have been established to identify when change is occurring and assess progress, with long-term targets

set to indicate the eventual nutrient levels that are likely to be needed for SCCP aims to be met. In 2002, for the first time, the Trust is reporting progress against these short and long-term targets.

Work continued on assessing ways of preventing nutrients from being released from river sediments and fuelling algal blooms.

This included the third year of Phoslock™ trials to reduce the release of phosphorus from river sediments. Phoslock™ was applied to 1 500 metres of a previously untreated area of the Canning River upstream of the Kent Street Weir with very promising results.

Oxygenation of 2.3 kilometres of the Canning River upstream of the Kent Street Weir to reduce phosphorus release, facilitate removal of nitrogen and prevent anoxic conditions also continued. To date monitoring has confirmed the ability of oxygenation to increase dissolved oxygen concentrations, temporarily suppress nutrient release from sediments and improve conditions for aquatic fauna.

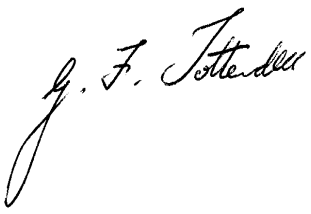
The less prominent but nonetheless important routine environmental management work of cleaning beaches, removing debris, reshaping eroded beaches and responding to pollution incidents again maintained the amenity of the rivers and beaches. However, additional funding boosted the Trust's foreshore protection work. This enabled the start of the River*bank* program to work with local governments to restore and maintain the rivers' foreshores.

This year the Trust also provided eight courtesy moorings at various locations around the Swan River. The highly visible orange mooring buoys provide boat users with a safe environmentally friendly way to moor their boats for up to four hours. Boat users have welcomed this initiative and use of the moorings is increasing.

As a result of recommendations of the Machinery of Government Taskforce, the Minister for the Environment and Heritage appointed CSIRO Director of the Australian Research Centre for Water In Society, Dr Geoff Syme, to review the functions and structural arrangements of the Trust. Board members and Trust staff contributed to the review, which also sought public submissions and included consultation with a range of stakeholders in the community as well as local and state government. The review was completed and provided to the Minister in April 2002.

This year saw one change to the Board membership with Mr Cleve Flottmann replacing Mr Kim Stone from 17 August 2001 as a nominee of the Minister for Planning and Infrastructure. Mr Stone made a valuable contribution to the Trust and the Board extends its thanks for his contribution over the past two years.

I would like to take this opportunity to also thank Board members and Trust staff for their commitment and contribution to the good management of the Swan and Canning rivers.



Geoff Totterdell
Chairman

Operations Summary

Water Information

Aims:

To understand and assess the water quality, to assist in assessment of general environmental quality of the Swan-Canning river system and establishment of environmental standards.

To provide information to assist public health authorities assess hazards to public health and recreational use of the rivers associated with algal blooms.

Achievements:

- Continued nutrient monitoring in the Swan-Canning estuary and its 15 key tributaries and reporting against Swan-Canning Cleanup Program (SCCP) short-term targets for nitrogen and phosphorus.
- Continued phytoplankton monitoring in the Swan-Canning estuary and provision of information to public health authorities and the community.
- Provided support to Geoscience Australia to investigate the relationship between nitrogen and phosphorus in sediments, in water within the sediments and the nutrient levels in the estuary.
- Applied Phoslock™ to an additional 1 500 metres of the Canning River upstream of the Kent Street Weir to reduce phosphorus release from sediments.
- Assisted Centre for Water Research to continue development of computer models of catchment and estuary hydraulics and ecology to guide future management decisions and to complete first validation trials.

Future Directions:

- Continue development of computer modelling to assist in developing management strategies.
- Continue development of Phoslock™.
- Continue monitoring and reporting against SCCP targets.
- Maximise the public accessibility and use of monitoring information.

Riverside Planning and Development

Aims:

To plan for the conservation, enhancement and appropriate development of the Swan-Canning river system.

Achievements:

- The Trust considered 205 applications for development within and adjoining the Swan River Trust Management Area.

Future Directions:

- Influence the policies of other agencies associated with development on the river.
- Continue to establish partnerships with local government to promote the Trust's outcomes for the river.

Management Planning

Aims:

To prepare management plans based on sound information to ensure conservation and enhancement of the Swan-Canning river system while allowing appropriate development and recreational use.

Achievements:

- The Swan and Canning Rivers Precinct Planning Project is designed to conserve the natural elements and built form of the river landscape and guide future use and development within the river setting. The Minister for the Environment and Heritage launched the project in May 2002.
- The Sir James Mitchell Park Management Plan was released in August 2001.
- The Discharge of Cooling Tower Waste Policy was finalised and the implementation strategy developed.
- A generic environmental management system was provided to assist yacht clubs and marinas to manage the potential environmental effects of their operations.
- The revised bait worm policy was finalised and the pamphlet "Fishing for a healthy river" was produced and distributed to explain the changes.

Future Directions:

- Develop, in collaboration with local governments and the Department for Planning and Infrastructure, the precinct policy plan components of the Swan and Canning Rivers Precinct Planning Project.
- Implement the Discharge of Cooling Tower Waste Policy.

Protection of Waterways and Foreshores

Aims:

To protect the Swan-Canning river system from the adverse effects of human activity and to facilitate public use and enjoyment of the river.

Achievements:

- 33 beaches and 146 kilometres of foreshores of the Swan-Canning rivers were regularly cleaned and maintained.
- 1 075 tonnes of beach sand was transferred from accretion sites to help restore eroded beaches.
- The River*bank* program for restoring foreshores was launched in January 2002 and a successful foreshore restoration workshop with local governments held in June.
- $440 000 was provided to eight SCCP Action Plan priority catchment groups.
- The Swan Catchment Urban Landcare Program, jointly supported by the Swan River Trust and Alcoa, funded 66 environmental restoration projects.
- SCCP continued to support:
  - development and delivery of pollution prevention training for industry. (CSIRO-Curtin University Centre for Cleaner Production)
  - negotiation of agreement between local governments and agencies on policies, guidelines and checklists to be developed to meet local government environmental management. (Eastern Metropolitan Regional Council)
  - provision of assistance to landholders to reduce nutrient losses from rural land. (Department of Agriculture)
  - delivery of community education about the river environment. (Swan Catchment Centre)
  - nature conservation skills development for the community. (Swan Catchment Centre)
  - oxygenation of 2.3 kilometres of the Canning River upstream of the Kent Street Weir to assist reduction of phosphorus release, facilitate removal of nitrogen and prevent anoxic conditions.

Future Directions:

- Continued development of the River*bank* program.
- Continued implementation of the SCCP Action Plan through:
  - development of the regional planning framework needed to support SCCP initiatives.
  - development of the local government environmental policy manual.
  - support of community participation in catchment management.
  - provision of training to landholders to reduce nutrient losses from rural land and pollution prevention training to industry.
  - further development and application of constructed wetland and drain retrofitting technologies.

Community Awareness, Education and Involvement

Aims:

To increase community awareness of, education, and involvement in the conservation and management of the Swan-Canning river system.

Achievements:

- Produced and distributed, in collaboration with the Department for Planning and Infrastructure, a boat users guide for the Swan and Canning rivers
- Maintained high level of recognition and acceptance of SCCP initiatives through the use of the Clean Swan logo and the slogan "HELP KEEP OUR RIVERS HEALTHY".
- Ran *Fertilise Wise* and *Protect Your Profits, Protect Your River* television campaigns focused on managing urban fertiliser use and pollution prevention in light industry. The campaigns reached an average target audience of 93 per cent during five months of viewing on Channel 7.
- Developed and used the highly successful interactive Drain Game to teach children about how to prevent contamination of the river by appropriately disposing of wastes.
- Recruited four businesses to participate in the Corporate Care Day Program providing more than 170 city volunteers to assist catchment groups undertake environmental restoration projects.
- The Ribbons of Blue/Waterwatch WA program registered 27 new school groups.
- Expanded the range of information available on the Swan River Trust website at www.wrc.wa.gov.au/srt.

Future Directions:

- Continue to build public awareness and involvement in the conservation and protection of the Swan-Canning river system directly and through partnerships with of the community, other agencies and local governments.

Contents

Swan River Trust Vision and Mission

Vision

To cherish the Swan and Canning rivers as a valued river system and a source of enjoyment for the community forever.

We must be a creative team with a deep commitment to deliver quality river planning and management.

Mission

To work with the government, local government and community to ensure that the Swan and Canning river system is conserved and managed to enhance its environmental quality and public amenity.

About the Swan River Trust

The Swan River Trust was established in 1989 to coordinate the work necessary to balance the use and protection of the waterways and shorelines, and to restore degraded environments. The Trust is constituted under the *Swan River Trust Act 1988* and is responsible to the Minister for the Environment and Heritage.

The Swan-Canning river system is the lifeblood of Perth. Its waterways and shorelines are part of our heritage and the central focus of our urban landscape. The rivers provide a range of recreational opportunities, maintain a functional living environment in the heart of an urban area, supports businesses and tourist enterprises and contributes to surrounding property values.

Specifically, the functions of the Swan River Trust are to:

- Manage and protect the river system and work with local government and other bodies to provide facilities around the rivers
- Advise the Minister for the Environment and Heritage on development proposals within the Trust's Management Area
- Control and prevent pollution of the rivers and keep them clear of rubbish
- Advise on and control erosion of river banks
- Provide advice to local governments and the Western Australian Planning Commission on town planning issues affecting the rivers
- Promote community awareness of issues affecting the health of the river system and increase community involvement in river protection and restoration.

Through the Swan-Canning Cleanup Program, the Trust and the organisations working with it have identified the sources of nutrients that support algal blooms and have developed a range of strategies to reduce the frequency and extent of algal blooms. A key component is supporting community-coordinated management of the catchments so that the level of nutrients entering the river system is reduced.

Public understanding of the importance of protecting and managing the river system is vital to the Trust's work. Production of environmental reports and information for shoreline residents, householders and students, community groups, boat owners and recreational anglers make sure people know and care about the Swan-Canning river system.

The Trust has a very close relationship with the Water and Rivers Commission, sharing similar philosophies and carrying out complementary functions. The Commission provides the Trust with the staff and corporate services necessary for the Trust to carry out its functions. However, the Trust is a separate legal entity with separate accounting and reporting responsibilities.

The Swan River Trust plays a vital role in the protection and management of the Swan-Canning river system – one of the State's most treasured assets.

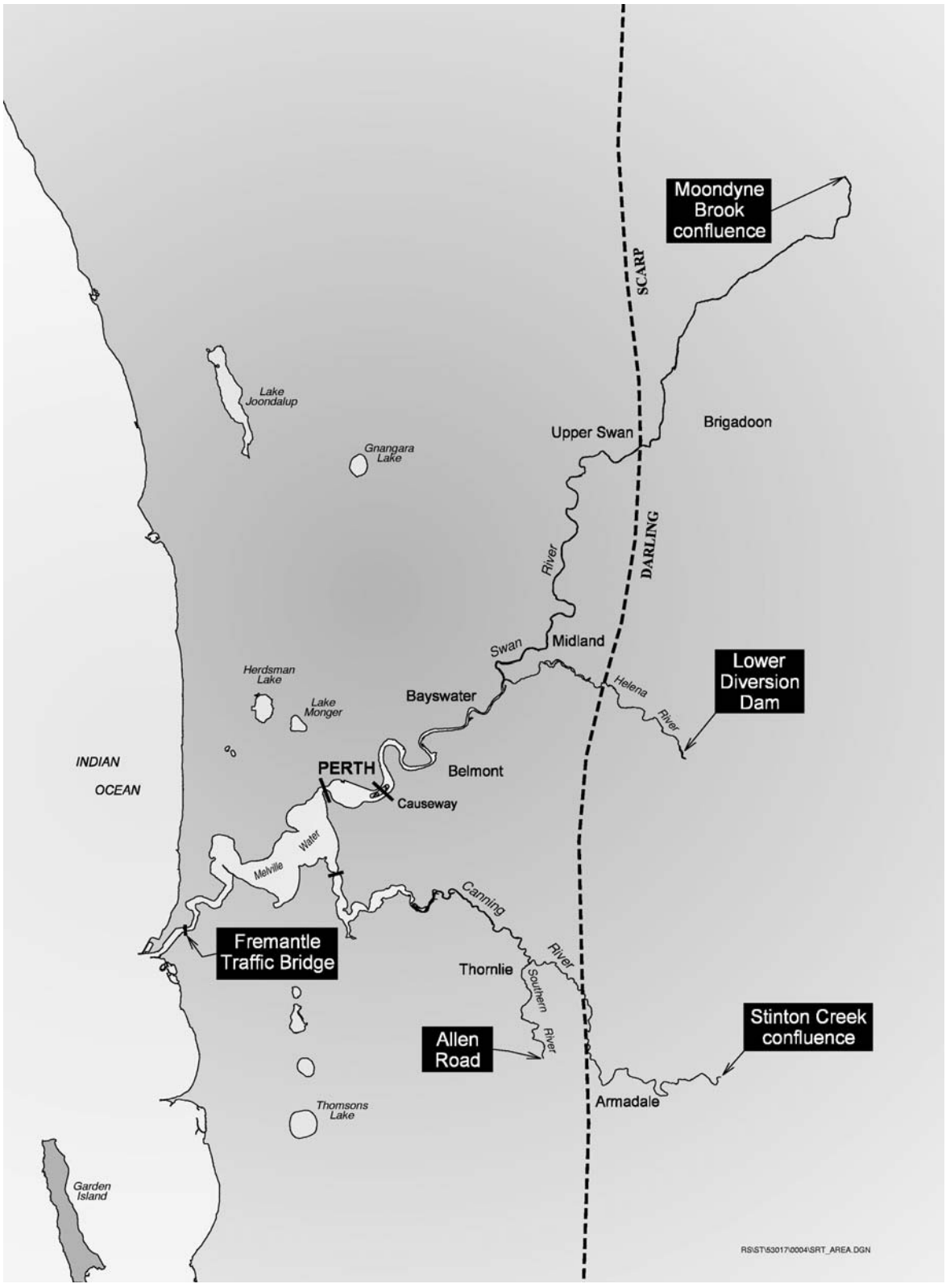


Figure 1: The Swan River Trust Management Area includes the waters of the Swan and Canning rivers and adjoining parks and recreation reservations – extending upstream from the Fremantle Traffic Bridge to Moondyne Brook on the Avon River, to the lower diversion dam on the Helena River, along Southern River to the Allen Road crossing and the Canning River to its confluence with Stinton Creek.

The Swan River Trust Board

The Swan River Trust Board comprises eight members drawn from the community, local government and government agencies. They are:

- a chairman appointed by the Minister for the Environment and Heritage
- a member of the board of the Water and Rivers Commission
- nominees of the Minister for Planning and Infrastructure (As a result of the amalgamation of planning and transport portfolios the Minister administers both the *Western Australian Planning Commission Act 1985* and the *Marine and Harbours Act 1981* and therefore nominates two members of the Trust) and the Coordinator of Water Services
- a representative of the Western Australian Local Government Association appointed by the Minister for the Environment and Heritage
- two independent members appointed by the Minister for the Environment and Heritage.

When the Trust is considering a development application, local governments from areas affected by the development may nominate a representative to attend Trust meetings and vote on the development. Local government representatives are also regularly invited to attend committee and other meetings.

Membership changes

Mr Cleve Flottmann replaced Mr Kim Stone from 17 August 2001 as a nominee of the Minister for Planning and Infrastructure.

Board members

Mr Geoff Totterdell B.Com, FCPA, CD, AICD
Chairman
Mr Totterdell is an active river user who has chaired the Swan River Trust since August 1994. His interests over many years have included swimming, fishing, canoeing, powerboat time trialing and yachting. He holds a Bachelor of Commerce degree (UWA) and is a Fellow of the Australian Society of Certified Practising Accountants and a member of the Australian Institute of Company Directors.

Mr Noel Robins
Deputy Chairman
Water and Rivers Commission Board Member
Mr Robins is a former Commissioner for Waterways who has extensive experience in river and estuary management. He played a lead role in the creation of the Swan River Trust and in the establishment of various community-based management authorities to tackle environmental problems in waterways.

Mr Ray Stokes Dip TP (Nottm), Dip TD (L'pool), FRAPI
Nominee of the Minister for Planning and Infrastructure
Mr Stokes is a qualified town planner and Fellow of the Royal Australian Planning Institute. He is currently Director Policy and Legislation with the Department for Planning and Infrastructure.

Mr Kim Stone
Nominee of the Minister for Planning and Infrastructure
Mr Stone has an extensive background in government engineering and management roles, primarily in the areas of maritime facilities, water supply and sewerage. He has also run his own management consultancy business, and is currently Director of Coastal Asset Management in the Portfolio Management Division of the Department for Planning and Infrastructure.

Mr Cleve Flottmann
Nominee of the Minister for Planning and Infrastructure
Mr Flottmann has an extensive background in engineering and project management, particularly in urban planning and development and in the maritime sectors. In a diverse career he has worked for both Commonwealth and State Governments, and as a private engineering consultant. He is currently acting as Manager Facilities Management in the Coastal Asset Management Directorate of the Department for Planning and Infrastructure.

Dr Brian Martin M ScAgric, PhD
Coordinator of Water Services
Dr Martin is an economist who has worked in a range of State and Commonwealth Government agencies over 25 years, primarily in the area of policy development. In 1996, he was appointed Coordinator of Water Services in Western Australia, with the task of establishing and leading the newly formed Office of Water Regulation.

Cr Marion Blair
Nominee of the Western Australian Local Government Association
Marion Blair has been a Councillor of the City of Belmont since 1987 and has been the Deputy Mayor for seven of those years. She is Deputy President of the Western Australian Local Government Association and a member of the Eastern Metropolitan Regional Council, which, as part of its responsibilities, looks after regional community services and the environment including the Swan River. Enjoying a childhood of swimming in the Swan River (Belmont has 11 kilometres of river frontage) helped to develop Marion's keen interest in the river.

Mrs Pat Hart
Community Representative
Mrs Hart is a retired business proprietor with over 30 years' involvement in rural and urban community organisations. She has served on numerous committees involved with catchment management and has been Chair of the Swan Catchment Council, Chair of the Swan-Avon Integrated Catchment Management Group and a member of the Swan-Canning Cleanup Program Taskforce. She is currently Chair of the Canning Catchment Coordinating Group, deputy chair of the Armadale/Gosnells Landcare Group, Board member with the Botanic Gardens and Parks Authority and a member of the Swan Catchment Council.

Dr Tim Mather BVSc FAICD MAVA
Community Representative
Dr Mather is a business owner/manager and retired veterinarian with extensive experience in environment and human/animal ecosystem relationships. He has trained in business and financial management and architectural studies and is a regular river user with an interest in rowing and yachting.

Review of the Swan River Trust

As a result of recommendations of the Machinery of Government Taskforce the Minister for the Environment and Heritage appointed CSIRO Director of the Australian Research Centre for Water In Society, Dr Geoff Syme, to review the functions and structural arrangements of the Trust. The review, which sought public submissions and included consultation with a range of stakeholders in the community as well as local and state government, was completed and provided to the Minister in April 2002.

Organisational Structure

The Swan River Trust has a core staff of 23 provided by the Water and Rivers Commission and receives further administrative and technical support from staff of the Water and Rivers Commission. The Trust is divided into two sections - Assessment and Policy and River Management.

The Assessment and Policy Section evaluates and provides advice on applications for approval of development in and next to the Swan River Trust Management Area. This requires regular consultation with developers, local government and other agencies whose activities impact on the health and amenity of the Swan-Canning river system. Assessments are prepared for the Trust Board and form the basis of its recommendations to the Minister.

This section also prepares policies for the Trust and provides advice on policy development by other agencies. Staff provide advice to members of the public concerning development and land use around the river, assist in interpreting policies and legislation, and support local governments in the preparation of foreshore management plans.

The River Management Section coordinates the substantial Swan-Canning Cleanup Program and supports the development of catchment and foreshore management plans, undertakes environmental investigations and audit and enforcement activities. It also cleans and maintains beaches and foreshores, removes derelict vessels, undertakes pollution investigation and control and provides logistical support for research activities. Its staff work closely with local government, the Water and Rivers Commission, Department for Planning and Infrastructure and the Department of Environmental Protection.

State of the River

Overview

There is a consistent seasonal pattern to changes in water quality and the development of algal blooms in the Swan-Canning river system. Freshwater flows from winter rainfall, the intrusion of saline marine water as these flows decline and warm sunny conditions in summer drive this pattern. In winter, surface and groundwater flows deliver substantial amounts of nutrients to the river system. The annual winter load of nutrients fuels the spring algal blooms in the lower estuary and algal blooms in late-spring and early summer in the upper estuary. The magnitude and timing of these blooms and the incidence of summer rainfall greatly influence the frequency and duration of later summer algal blooms.

The dry winter this year, with rainfall about half of a average year, strongly influenced conditions in the Swan and Canning rivers. In the Swan River saline marine water moved quickly up the river after a short period of fresh water flow and was a significant influence in the upper reaches by late October and early November. In normal years with wetter winters and springs this occurs between December and early January. In the Canning River weir boards, usually installed in the Kent Street Weir in October or November to prevent intrusion of saline water upstream of the weir, were installed in early September.

Nutrient inputs, their average concentrations in the estuarine water column and their availability to plants and biota in 2001-2002 were generally the same as in previous years. This is despite the drought conditions during winter. While the scale of nutrient inputs were generally the same, a greater percentage of nutrients were probably transported into the system by groundwater flows rather than rainfall driven surface flows. Algal bloom responses, succession patterns and the processes affecting nutrient recycling was similar to other years. Although nutrient levels throughout the estuary can vary widely, on average they were not any lower or higher at sites than in previous years.

Although the algal seasonal succession was similar, there were some differences compared to previous years. The uppermost sites in the Canning River had among the lowest algal densities on record and the *Anabaena circinalis* bloom upstream of the Kent Street Weir was the latest in the year so far recorded. Some other differences included the highest level of estuarine dinoflagellates *Karlodinium* cf. *micrum* recorded in autumn and the largest algal bloom of *Prorocerum minimum* recorded in the lower Canning estuary.

In the Swan estuary there was a change from the usual diatom dominance in autumn to dinoflagellate dominance. The diatom concentrations of *Chaetoceros tenuissimus* during spring and summer in the East Perth Water were the highest recorded to date and a very large bloom of the macrolga *Chaetomorpha* occurred along the Como foreshore. An unusually large diatom bloom of *Chaetoceros tenuissimus* was recorded in winter in the upper reaches.

Condition of the catchments

Sixty seven per cent of 15 monitored tributaries had phosphorus levels below the 2020 Swan-Canning Cleanup Program long-term phosphorus target of 0.1 mg/L. In some tributaries phosphorus levels have decreased in the last decade (see Performance Indicator Section on page 65), which is probably due to a combination of community education, catchment management and below average rainfall in the past decade. However there are some key exceptions to this generalisation. For example, phosphorus levels in Ellen Brook have remained high and well above target levels.

Thirty three per cent of the 15 monitored tributaries had total nitrogen concentrations below the 2020 Swan-Canning Cleanup Program long-term nitrogen target of 1.0 mg/L. Many of the tributaries are close to the target and it is expected they will achieve the target by 2020 if current management efforts are maintained (see Performance Indicator Section on page 65). However nitrogen levels in Ellen Brook and Mills Street Main Drain have remained high and well above target levels.

Bringing nutrient levels in Ellen Brook and Mills Street Main Drain down to the target levels requires a combination of significant land use changes in the catchment and concerted efforts in foreshore and catchment restoration. At the same time management of other catchments needs to ensure some improvement or no increase in existing nutrient levels.

Condition of the rivers

Swan River

This year phytoplankton densities (microalgae living and floating in the water) in the Swan River exceeded the bloom criterion of 20 000 cells/mL 36 times out of 52 occasions that they were sampled. No toxic species were observed in substantial numbers or for significant lengths of time throughout the 2001-2002 sampling period. The dry winter this year, with rainfall about half of a normal year, strongly influenced conditions in the Swan and Canning rivers.

Lower Swan

The lower Swan was stratified (fresh to brackish water on the surface, saline water at the bottom) by the end of August (Figure 2). After winter rainfall had ceased, saline marine water entered the estuary so that by November the water in the lower Swan was near marine salinity. The water column was generally well oxygenated with oxygen not falling below 50 per cent saturation (Figure 3). In contrast, last year low oxygen conditions in the bottom water occurred three times.

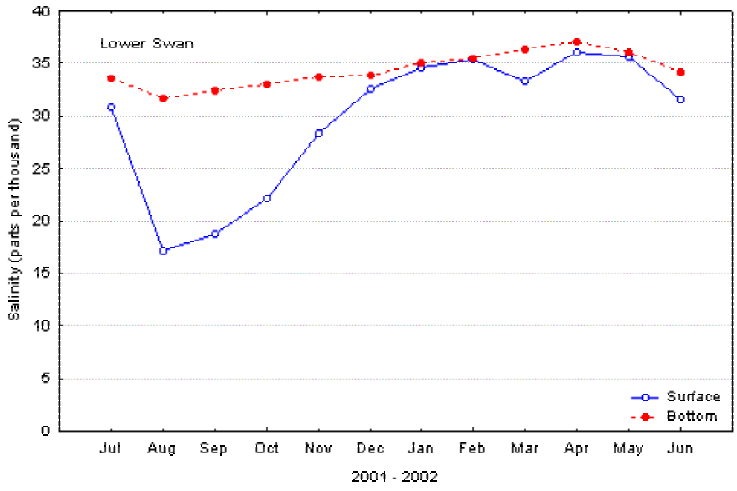


Figure 2: Lower Swan salinity

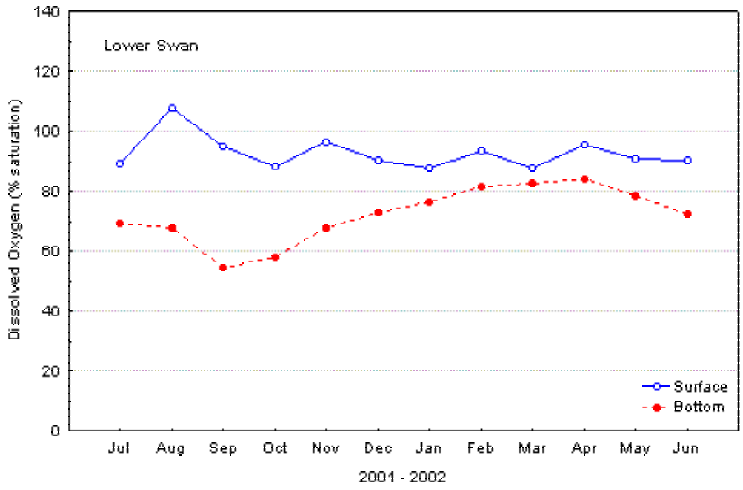


Figure 3: Lower Swan oxygen

By October, phytoplankton had utilised most of the available nitrogen. This is shown by the August-September peak in chlorophyll *a* concentrations (chlorophyll *a* is an estimate of phytoplankton abundance) (Figure 4). This peak was much lower than measured previously for this time of year and was almost half that of earlier years.

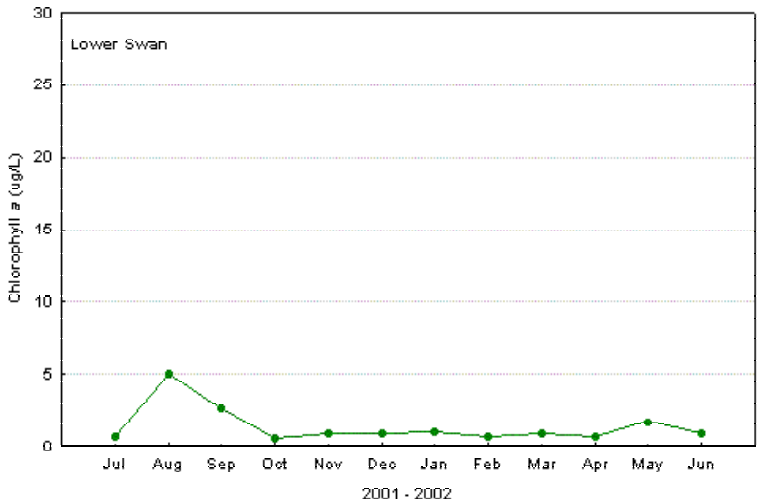


Figure 4: Lower Swan chlorophyll a

Diatoms dominated this springtime peak in phytoplankton activity, predominantly *Skeletonema costatum*. This species is a harmless chain-forming diatom and is an excellent food source for invertebrates such as copepods and mussels. *Skeletonema costatum* usually appears in spring in Melville Water when the estuary becomes more saline after winter freshwater run off subsides.

This spring high levels of phytoplankton activity were restricted to August and September. Generally elevated phytoplankton activity extends throughout November and sometimes into early December.

Upper Swan

Water in the upper reaches of the Swan River was almost fresh between August and September but salinity had increased substantially by November. By February salinities were almost marine throughout the upper region (Figure 5). The rapid changes during spring reflected the relatively fast movement of the saline marine water up river because of the low freshwater flows caused by the dry conditions. However because of the limited freshwater flow the influence of groundwater entering the system was evident in keeping salinities just below marine levels (ie. between 30-34 parts per thousand rather than marine salinity of 35 parts per thousand).

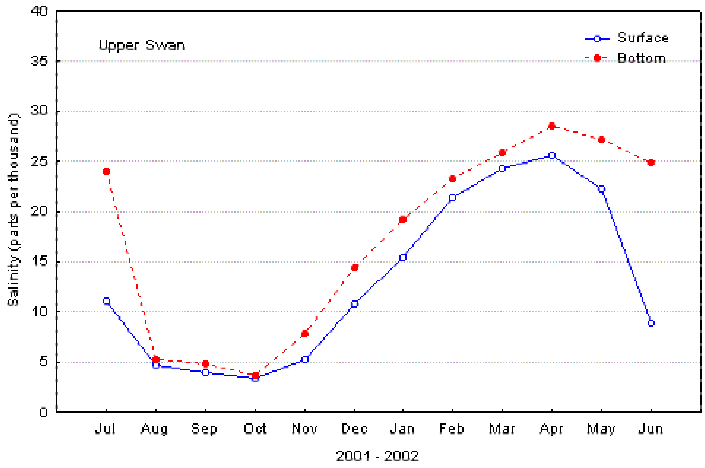


Figure 5: Upper Swan salinity

Oxygen levels were low on the bottom of the upper Swan between October and May in comparison to the rest of the year (Figure 6). This reflected the early arrival of the salt wedge and continuing saline conditions and also the constant level of algal bloom activity during the year. As the blooms collapsed, their cells decomposed on the bottom consuming oxygen. This is a common event in this region that has been recorded for over five years.

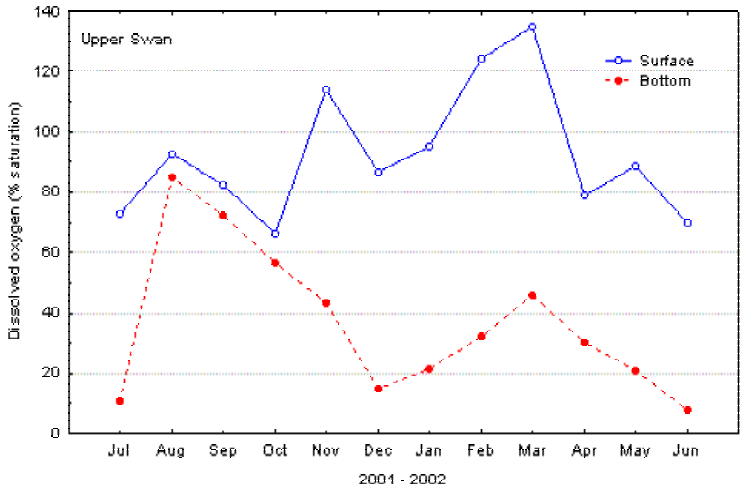


Figure 6: Upper Swan oxygen

In November and December, the upper Swan was dominated by dinoflagellate and diatom phytoplankton, mainly *Prorocentrum minimum* (a red-tide causing alga) and *Gymnodinium* species. Nuisance bloom warnings were issued for these species in September and November. Phytoplankton activity subsided for a short period in December and January and then increased between March and April (see chlorophyll *a* concentrations in Figure 7). In March and April the nuisance alga *Gymnodinium* reached bloom proportions in the middle Swan, including Ray Marshall Park, and areas in Midland.

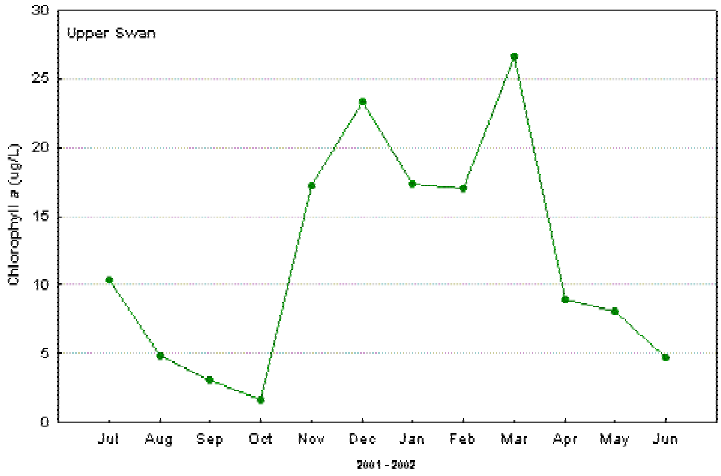


Figure 7: Upper Swan chlorophyll a

Harmless diatoms caused the most extreme phytoplankton blooms this year compared to last year when nuisance dinoflagellates were common. Cell counts in the upper Swan reached 340 000 cell/mL at Ron Courtney Island in the upper Swan. Although none of the blooms posed a public health risk in terms of human toxicity, there were aesthetic impacts as dinoflagellate blooms tended to be slimy and coloured the water orange/brown. Decomposition of the algae resulted in low dissolved oxygen readings, but did not result in the death of fish. Algal numbers generally peaked every other month followed by troughs in low numbers in following months and this cycle occurred consistently throughout the year.

Canning River

The Canning River had over 14 phytoplankton blooms where counts exceeded 20 000 cells /mL out of the 26 times that water quality sampling occurred. The highest cell counts ranged between 100 000 and 250 000 cells/mL. Algal blooms downstream of the Kent Street Weir were mainly diatoms (eg. *Cyclotella*) and dinoflagellates (eg. *Gyrodinium*) while the blue-green, *Anabaena circinalis,* was dominant upstream of the weir.

Salinity and oxygen levels in the Canning River downstream of Kent Street Weir showed similar trends to those of the Swan River. Upstream of Kent Street Weir, the Canning River was fresh [<1parts per thousand (ppt)] throughout the year apart from a few weeks just before the weir boards were installed in September and a similar period after they were removed in May (Figure 8). During these periods bottom waters were slightly saline. The Canning River usually flows freely during the winter months until flows decline and weir boards are installed to prevent intrusion of saline water upstream of the Kent Street Weir. Until installation of the weir boards the water column was well oxygenated, dissolved oxygen ranged between 60 and 80 per cent saturated from the surface to the bottom as indicated by Figure 9.

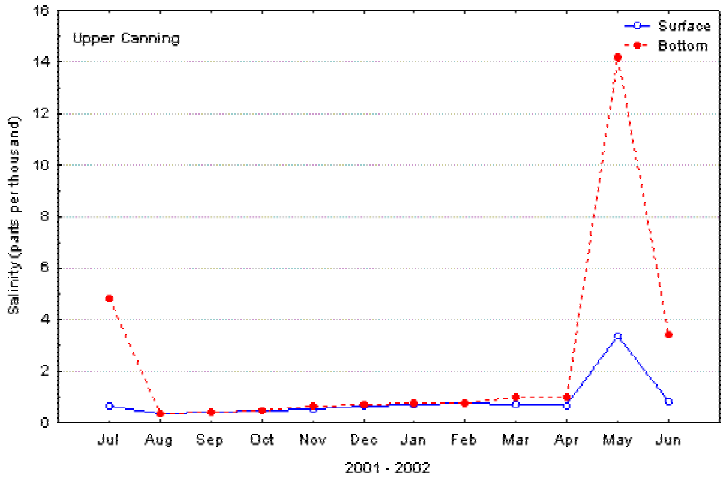


Figure 8: Canning River salinity

After the weir boards were replaced in September and flow ceased the river upstream of the weir became thermally stratified. The high biological oxygenation demand caused by decomposition of material washed into the river and from decomposing plants in the river, and lack of reoxygenation because of the thermal stratification, reduced dissolved oxygen levels on the bottom of the river.

The bottom two metres of water at the Kent Street sampling site ranged from 0 to 50 per cent saturation between November and May (Figure 9). Results from other sampling sites were similar except for the Bacon Street site that was artificially oxygenated by a Swan-Canning Cleanup Program river intervention project (see page 53 for more information on oxygenation of the Canning River) and generally maintained good oxygen levels throughout the summer. Oxygen levels in the surface waters at all Canning River sampling sites upstream of the weir were generally satisfactory. The brief period of supersaturated oxygen levels in March and April was caused by the oxygen production of a toxic blue-green *Anabaena* bloom.

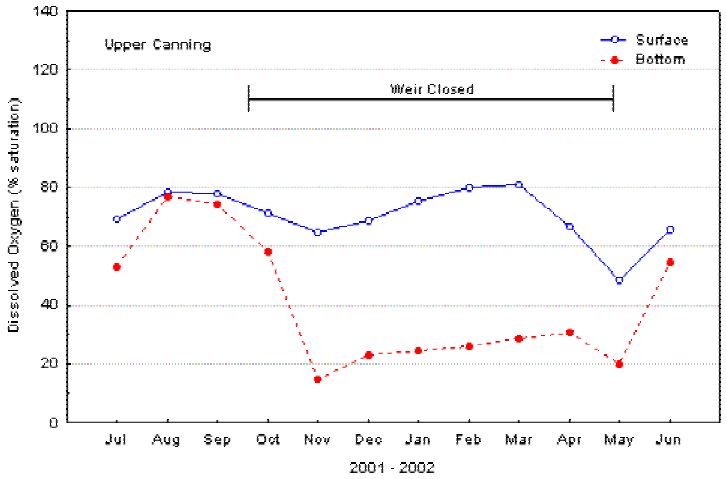


Figure 9: Canning River oxygen

Downstream of the weir, February and March phytoplankton activity was dominated by diatoms and to a lesser extent, dinoflagellates. A variety of non-toxic chlorophytes (eg. *Tetraselmis*) and diatoms (eg. *Cyclotella* and *Thallassiosira*) mainly dominated phytoplankton activity upstream of the weir. Several green to brown coloured blooms of euglenophytes, a small animal-like group that photosynthesise and eat other organisms for food also occurred upstream of the weir. These blooms occurred between late spring and early autumn and were mainly composed of *Trachelmonas* and *Euglena* species.

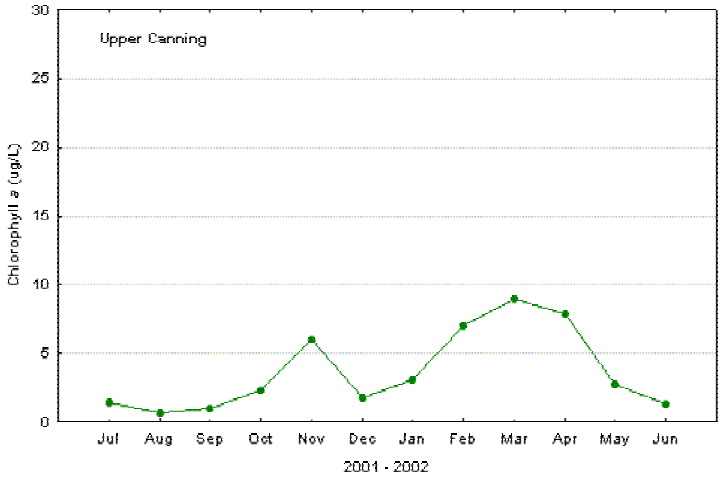


Figure 10: Canning River chlorophyll a

Swan-Canning Cleanup Program

A comprehensive Action Plan for restoring and protecting the Swan-Canning river system was released by the Minister for the Environment and Heritage in June 1999 and has played a central role in shaping the activities of the Trust over the past three years.

More than $3 million, over 60 per cent of the Swan River Trust 2001-2002 budget, was committed to implementation of the Swan-Canning Cleanup Program (SCCP) Action Plan.

The SCCP Action Plan is focused on reducing nutrient levels in the Swan-Canning river system to limit the frequency and extent of algal blooms and prevent toxic blooms. In this third year of implementing the Action Plan SCCP consisted of 22 major projects, involved more than 50 people from six government agencies as well as increasing participation by community based catchment groups.

A Senior Officers Group and a Project Managers Group coordinate and oversee implementation of the projects and ensure SCCP objectives are achieved. Each of these projects is mentioned in the relevant output section of this annual report. SCCP projects are identified by this symbol:

The approach taken in the Action Plan is to:

1. Support Integrated Catchment Management to reduce nutrient inputs
2. Improve planning and land use management to reduce nutrient inputs
3. Modify river conditions to reduce algal blooms
4. Monitor river health, fill critical gaps in knowledge and report progress to the community.

The Action Plan recognises that coordinated action is essential to effectively protect and manage the Swan-Canning river system. It fosters Integrated Catchment Management where community driven on-ground work is aligned with local government and state and federal government initiatives. It also supports government agencies and other organisations to undertake SCCP projects where these are aligned to their principal roles.

SCCP received a High Commendation at the prestigious 2001 Premier's Awards for Public Sector Management in the Sustainable Environment category introduced in this year's awards. This recognised the development of SCCP to ensure a long-term sustainable environment, combining balanced environmental and economic objectives with transparent and consultative processes, strong partnerships, community participation and cost effective delivery.

A highlight of SCCP this year has again been the teamwork between staff involved in its various projects. In implementing the Action Plan the Trust emphasises the role of each component project in the context of the program and the importance of working with the community. This is achieved through regular meetings of the Project Managers Group, an electronic newsletter directed to officers in each of the SCCP projects, and an annual Community Forum.

The major achievements of the Swan-Canning Cleanup Program in 2001-2002 were:

- Establishment of SCCP short and long-term water quality targets: In the short-term, the SCCP has undertaken to reduce the concentration of phosphorous (P) in freshwater tributaries to 0.2 mg/L (or less), and nitrogen (N) to 2 mg/L (or less). In 2002, for the first time, the Trust will report progress against these short-term targets for N and P in the freshwater tributaries of the Swan-Canning catchment.

  In 2001, the Trust approved the targets for the estuarine basins of the Swan-Canning river system. The targets apply to the surface waters of the estuary, and to oxygen levels in the bottom waters, in each of the basins. In 2002, again for the first time, the Trust will report progress of the SCCP against the estuarine targets.

- Increased landholder participation in better rural property management: This project, delivered through the Department of Agriculture, works directly with landholders to help them reduce nutrient and soil losses while improving the management of rural properties by adopting best management practices. The *Heavenly Hectares* field walks and workshops were attended by 1 776 landholders and covered a wide range of topics including weed identification and control, pasture establishment, revegetation techniques and stock management.

- Expansion of pollution prevention training opportunities for industry: SCCP supported the CSIRO-Curtin Centre for Excellence in Cleaner Production in development of further Cleaner Production training that will act as feeder courses to the Cleaner Production training course developed in 2000. The courses are designed to enable small and medium sized businesses to begin to develop and implement pollution prevention and cleaner production techniques through on-the-job training.

- Increased public awareness of SCCP: The promotion of the SCCP's clean swan logo and slogan "Help keep our rivers healthy" has maintained a consistent public profile throughout the year. SCCP has featured in an increased number of metropolitan and community press articles as well as achieving extensive radio and television coverage as a part of the program's involvement with community and corporate events.

  The *Fertilise Wise* and *Protect Your Profits, Protect Your River* community service announcements (CSAs) focused on managing urban fertiliser use and pollution prevention in light industry. The CSAs reached an average target audience of 93 per cent during five months of viewing on Channel 7.

  The SCCP Drain Game was also successfully launched at the 2001 Perth Royal Agricultural Show and proved highly popular with the community. The colourful, community education activity helps people to understand how their actions affect the health of the rivers.

  During the year corporate care days were organised with four major city-based corporations. This new program connects the corporate sector with community groups undertaking environmental restoration work and gives businesses the opportunity to contribute to environmental restoration projects, as well as learning first hand about protecting and managing the rivers.

- Completion of local government environmental policies and strategies review: SCCP support is enabling the Eastern Metropolitan Regional Council to prepare environmental management policies, guidelines and checklists on different land use activities that can be adopted by local governments and to provide environmental training to local government staff. In 2001-2002 the project completed a review of local government environmental policies and strategies in the Swan-Canning catchment and reached agreement on the range of policies, guidelines and

checklists needed to meet local government environmental management requirements. These will form the basis of a Local Government Natural Resource Management Policy manual.

- Increased support for catchment groups: In 2001-2002, $415 000 was provided to catchment groups to help with operational costs such as employment of coordinators, project officers, administration support and office supplies. An additional $25 000 was provided to the Swan Catchment Council to help catchment groups to continue their activities during the Council's review of catchment group boundaries and operations. As well as supporting established catchment groups, the funds also helped foster community involvement in other SCCP priority catchments.
- Expansion of adult learning and community conservation training: SCCP support enabled the Swan Catchment Centre to promote the use of the Swan River Action Kit (SRAK) in learning circles as a means of raising awareness of environmental issues affecting the rivers. Twenty briefings were provided to key environmental organisations on the use of the kit and 540 people were involved in using the kit in forums and community groups. One hundred and thirty kits have been distributed and 50 people from catchment and other community groups, local and state government and environmental educators were trained in SRAK learning circle facilitation. A network was also established to enable the facilitators to maintain contact.

  SCCP support also enabled the Swan Catchment Centre to coordinate the Skills for Nature Conservation Community Training Program. During 2001 404 participants attended 23 training sessions. The program was awarded *Outstanding Program Award* (West Australian Adult Learners Week Awards, 2001) and was a finalist for the *Westpac Education Award* (State Landcare Conference Landcare Awards).

Water Information

Sound scientific information is essential to determine what condition the rivers are in, what management strategies are needed and how effective they are likely to be and whether they are having the desired effect.

Water quality monitoring and analysis program

Monitoring programs are necessary to track trends in water quality such as nutrient concentrations and oxygen levels and to measure compliance against established targets. They are also vital to provide the data required for computer modelling and to assess whether implementation of the Swan-Canning Cleanup Program Action Plan is making a difference to the health of our river system.

The Swan River Trust and the Water and Rivers Commission have developed an extensive program to provide information on water quality in the Swan-Canning river system. The program is funded by the Swan-Canning Cleanup Program (SCCP).

The aim of this program is to:

- provide chemical, physical and biological information on water quality and information on water quality trends
- assess whether water quality targets are being met
- provide information to help public health authorities assess hazards to public health and recreational use of the rivers associated with algal blooms, and
- help establish environmental standards and assess trends in environmental quality.

Water quality sampling in the Swan-Canning river system involves the use of sophisticated monitoring equipment at a number of sites across the estuarine and freshwater portions of the system. The program measures nutrient levels entering the tributaries of the Swan-Canning river system from 15 key catchments and physical, chemical and phytoplankton aspects of water quality in the estuarine portions of the river system.

There is now eight years' water quality and ecosystem health information for the estuarine portions of the Swan-Canning river system and over 15 years of continuous monitoring of nutrient levels in key catchment tributaries. Two weather stations are located in the Swan River in Maylands and have been operating for five years to provide wind and barometric pressure data to support modelling and understanding of salt wedge movement.

Quality Assurance procedures ensures the standard of monitoring and data analysis is one of the highest in Australia. This high quality and reliable data is essential to measure progress and change.

Five Riverscience publications have been produced this year informing the public of water quality and technical issues associated with SCCP. Three technical reports, summarising catchment nutrient and estuarine water quality trends between 1994 and 2000, were also completed and provide a good basis for reporting on the state of the river.

Estuarine sampling

The sampling network for the estuarine portions of the Swan-Canning river system consists of 10 sites on the Swan River and seven on the Canning River. A wide range of water quality variables are measured at these sites, including salinity, temperature, dissolved oxygen, total suspended solids, turbidity, chlorophyll-a (the photosynthetic pigment in phytoplankton), phytoplankton cell counts, pH and the nutrients nitrogen and phosphorus. These variables are measured on the surface and at half- to one-metre deep intervals until the bottom is reached. Nutrients are measured at the surface and bottom and phytoplankton is measured throughout the water column.

During periods of high phytoplankton activity phytoplankton levels at several other sites on the Canning River and on the Swan River are also monitored. These sites provide additional information to assist assessment of public health risks, to better refine information on algal blooms and for measuring the effectiveness of the SCCP Action Plan.

Information from the estuarine sampling program has recently been used to develop estuarine water quality targets and to assess whether they are being met.

Weekly water quality reports for the estuarine portions of the Swan-Canning river system are available on the Trust's website, allowing the public to view current conditions.

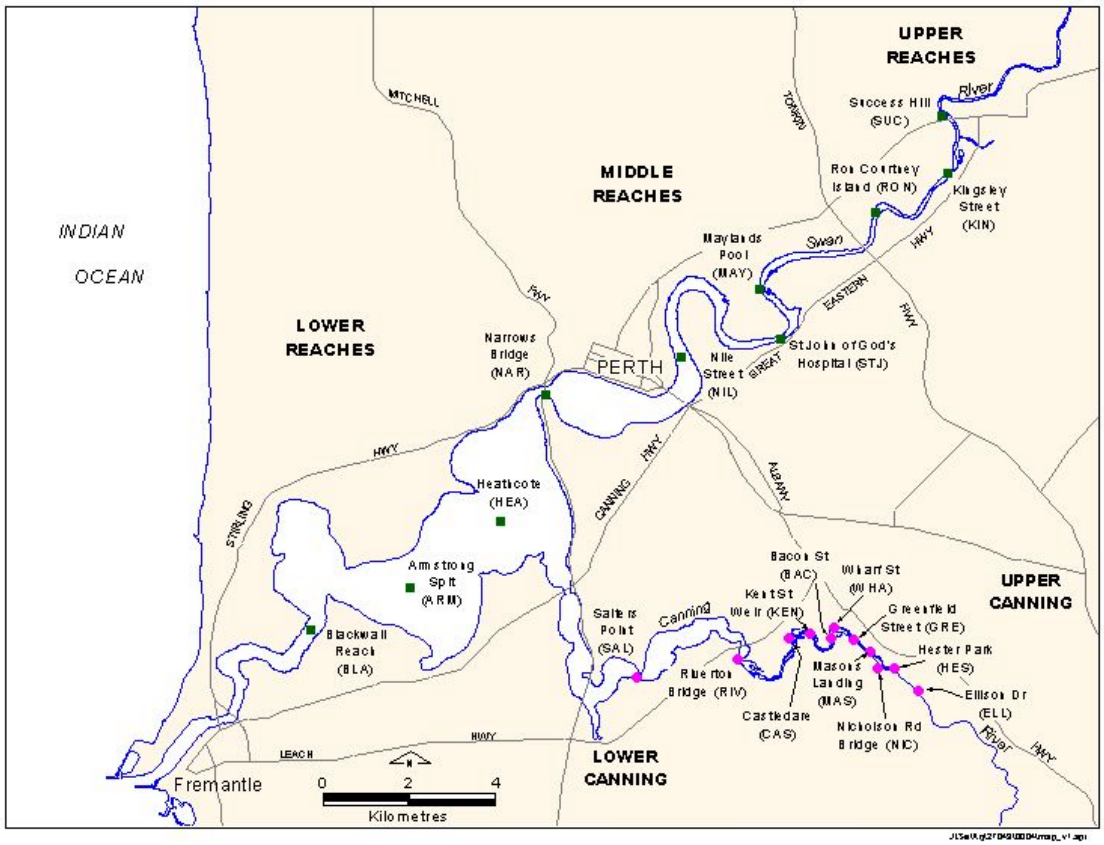


Figure 11: The Swan-Canning river system estuarine sampling sites. A total of 17 sites are sampled regularly over the year with another four sites sampled in the Canning River during the summer and autumn when blooms frequently occur (for a total of 21 sites). One random site is also sampled between January and May. Nutrients, phytoplankton, chlorophyll, dissolved oxygen, salinity and a number of other water quality parameters are sampled weekly.

Catchment sampling

There are 15 sites on tributaries in the Swan-Canning catchment that are sampled fortnightly to provide data on nutrient levels. Flow measurements are also taken at these sites. Nine have continuous flow recording instrumentation and the remainder have staff gauges, which are read fortnightly, and the flow computed from a ratings curve.

Auto samplers located at three sites, Ellen Brook, Mills Street and Walyunga allow nutrient samples to be taken during flows resulting from storm events. This enables nutrient levels to be calculated with known precision. The information is critical to understand how nutrient levels change as flows change so that catchment management can be better targeted.

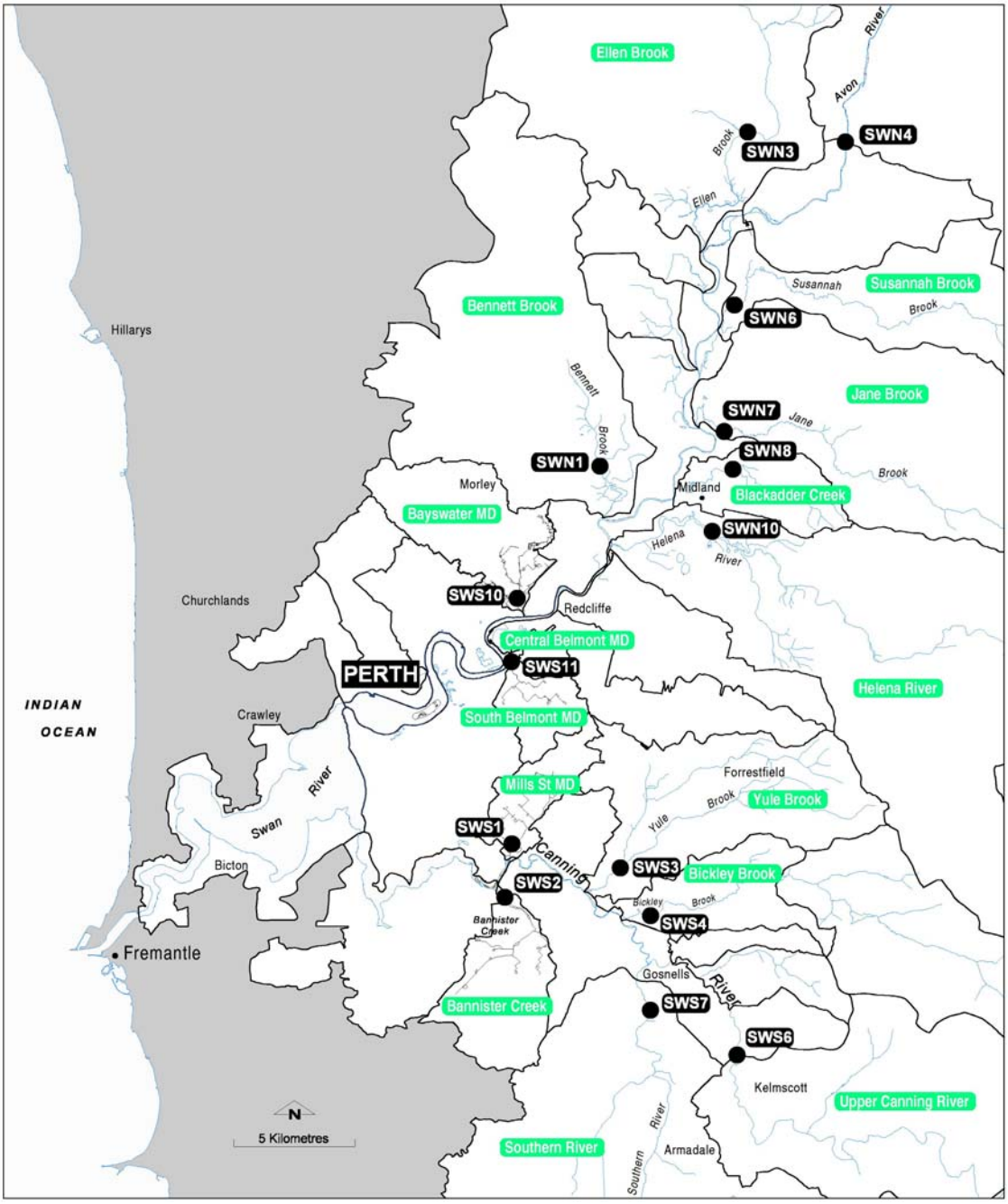


Figure 12: Locality of catchment sampling sites for tributaries and drains in the Swan-Canning catchment. Fifteen sites are sampled for the nutrients nitrogen and phosphorus. Sub-catchment names and sampling site numbers are shown.

Water quality targets

The Swan-Canning Cleanup Program (SCCP) aims to reduce the levels of nitrogen and phosphorus entering the estuary from its freshwater tributaries to limit the extent and frequency of algal blooms and to prevent the occurrence of toxic blooms. The control of nutrients entering the estuary depends on implementing a range of catchment-based activities. The scale of the problem, the changes in land management required, and transmission times for nutrients will mean this will be a long process. Therefore short-term targets have been established to identify when change is occurring and assess progress with long-term targets set to indicate the eventual nutrient levels that are likely to be needed for SCCP aims to be met.

In the short-term the SCCP target for phosphorus in freshwater tributaries is 0.2 mg/L (or less), and for nitrogen is 2 mg/L (or less). In 2002, for the first time, the Trust is reporting progress against these short-term targets (see page 65).

Targets are also needed for the estuarine portions of the Swan-Canning river system as ultimately it is nutrient levels in the estuary that determines the extent, frequency and types of algal blooms. In 2001 the Trust approved the targets for the lower, middle and upper basins of the Swan-Canning river system. The targets apply to nitrogen and phosphorus levels in the surface waters of the estuary, chlorophyll *a* (measures phytoplankton levels) and to oxygen levels at the bottom. Targets for oxygen levels have been set because they influence nutrient availability from river sediments and are critical for the maintenance of benthic organisms that are an essential part of a healthy river ecosystem. In 2002, again for the first time, the Trust will report progress against the targets for the estuary and tidal rivers (see page 65).

Sediment nutrient cycling

Most waterbodies with problems caused by high nutrient levels have accumulated large stores of nutrients in their sediments. These may play an important role in triggering and sustaining algal blooms. The SCCP Action Plan identified that there was a key gap in information essential to understanding the relationship between nutrients in river sediments and the development and maintenance of algal blooms. Research undertaken for the Trust and Water and Rivers Commission by the Australian Geological Survey Organisation, now Geoscience Australia, was completed this year. It has provided important information on the release of nutrients from sediments to trigger and sustain algal blooms and the replenishment of sediment nutrient levels when algal blooms collapse.

The investigation has been conducted over three years to cover a range of waterway conditions at nine sites. Two in the upper estuary, one in Perth Water, three in Melville Water, and three in the Canning River.

The study concluded that sediments of the Swan-Canning river system have little capacity to retain phosphorus and are less efficient at removing nitrogen than those of other Australian estuaries. When oxygen levels in the water near the riverbed decrease as a result of salinity stratification or thermal stratification, phosphorus retention and nitrogen removal is further reduced.

This means that nutrients in the sediments are readily available to trigger and sustain algal blooms and become even more available under the conditions in the estuary and tidal rivers typical during summer and autumn. It also means that as phytoplankton die and sink to the bottom the nutrients are released and again become available to trigger and sustain further algal blooms. In this way nitrogen

and phosphorus is recirculated between phytoplankton and sediments many times before it is eventually washed to the sea.

River intervention

River intervention measures in the estuarine portion of the Swan-Canning river system are necessary to lessen the problems caused by high nutrient levels until changes in catchment management practices reduce the levels of nutrients entering the system.

Oxygenating the Swan River

Artificially increasing oxygen levels in the water on the riverbed has been identified as a way of reducing phosphorus release from sediments and increasing removal of nitrogen to reduce the levels of nutrients available to trigger and support algal blooms.

A prototype mobile oxygenation barge was trialled over the summers of 1999-2000 and 2000-2001 to test the feasibility of using oxygenation in the relatively large and hydrodynamically complex Swan River. BOC Gases and the Commonwealth's Coasts and Clean Seas Initiative provided funding support for this trial. This year effort has been focussed on analysing the data collected during the field trials and producing a report that documents the field trials and discusses the feasibility of oxygenating the Swan River.

The field trials have shown that although the principles of the prototype barge were sound, a system with a much greater oxygen injection capacity would be required to effectively oxygenate a significant length of the Swan River. At present large scale oxygenation of the Swan River is not justified.

Modified clay to bind phosphorus

The development of Phoslock™, a modified clay, as a river intervention tool continued. The modified clay binds phosphorus in the sediment so that it cannot be used by phytoplankton.

This was the third year of Phoslock™ trials, and having previously established that it effectively reduces dissolved phosphorus in the water column, the focus was on finetuning the dosage and timing to have maximum effect on inhibiting phytoplankton growth.

Phoslock™ was applied to 1 500 metres of a previously untreated area of the Canning River upstream of the Kent Street Weir. The first application of 30 tonnes was in November to prevent phosphorus release from sediment and was followed by a second application of 10 tonnes in January to further treat the sediment and strip phosphorus from the water column. After the application the treated area had consistently lower phosphorus concentrations than an untreated area used as a control. The results from the 2001-2002 trials will be analysed and a technical report prepared.

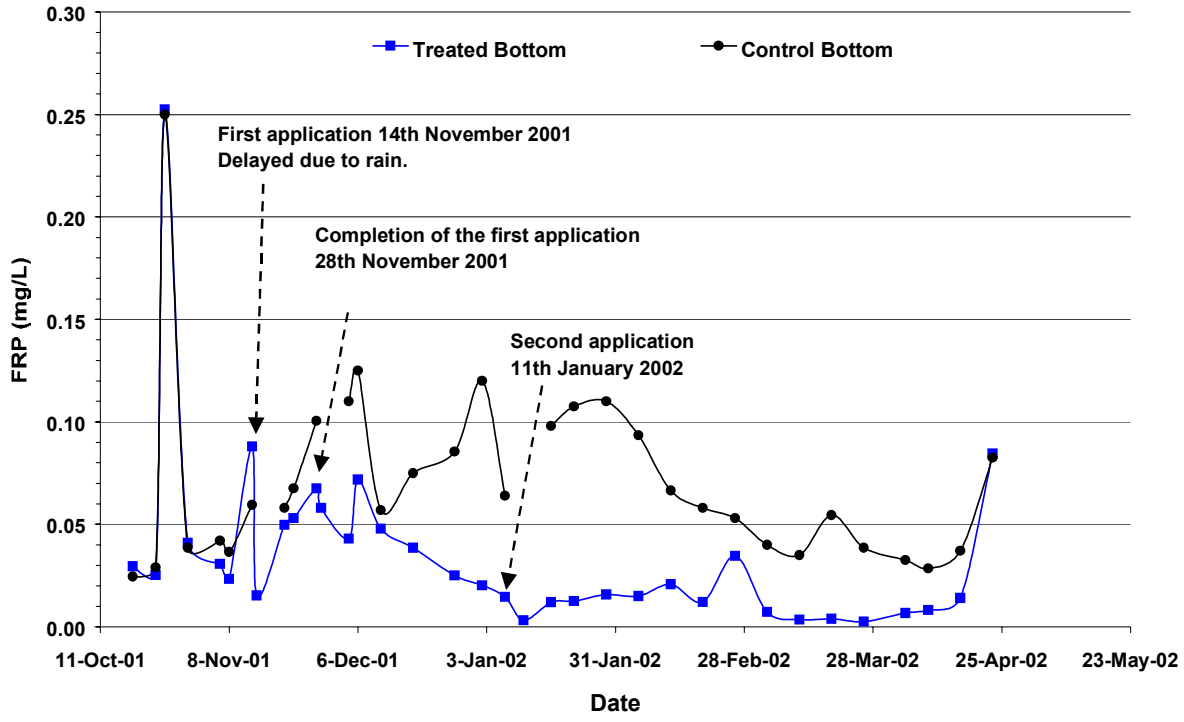


Figure 13: This graph shows the change in filterable reactive phosphorus (FRP) concentrations in bottom waters with time. Note the sudden drop in FRP concentrations on days 27 due to the application of Phoslock™ and the equally sudden increase with the input of runoff from the rain, which occurred on day 31. The second application on day 81 also shows a decrease in FRP.

Computer models to support decision making

Computer modelling of catchment and estuary conditions in the Swan-Canning river system provides an important way of assessing the changes in the estuary likely to occur in response to changes in catchment and estuary water quality. It provides a mechanism for testing the effectiveness and relative cost benefit of different management strategies.

For several years SCCP supported the University of Western Australia Centre for Water Research (CWR) in development of three computer models.

- The Large Scale Catchment Model (LASCAM) models the hydrology, and the associated salt and nutrient loads in the streams and rivers of the catchment.
- The Estuary, Lake and Coastal Ocean Model (ELCOM) models the hydrodynamics of the Swan estuary.
- The Computational Aquatic Ecosystem Dynamics Model (CAEDYM) models the ecology of the Swan estuary.

SCCP has also supported work by the Water and Rivers Commission to collate and verify flow and water quality data for use in calibrating both the catchment and estuarine models to ensure production of meaningful results from use of these models.

Catchment modelling

Modelling of the Avon River and Ellen Brook catchments using LASCAM has been completed. Spatial data sets of the evolution of land use for the coastal plain catchments of the Swan-Canning river system for the years 1964, 1974, 1984, 1995 and 2000 are being created for use by the model. These data are necessary to model the effect of land use changes because of the increased urbanisation of the coastal plain catchments.

WinCMSS was used to model the effect of land use change and land management changes in Ellen Brook catchment. A comprehensive set of possible catchment management strategies including use of soil amendments, different fertiliser management practices, use of perennial pastures, revegetation with deep-rooted perennials and riparian zone management were considered. The results will be valuable in prioritising the management strategies recommended in the Ellen Brook Catchment Management Plan.

Estuarine modelling

Eighteen validation and management scenarios have been developed and will be assessed using ELCOM-CAEDYM modelling. The main aim of this scenario modelling is to determine the reduction in nutrient input required to achieve estuary water quality targets.

A data set consisting of daily flow and nutrient levels was prepared for a total of twenty two catchments of the Swan-Canning river system for 1990-2000 to validate ELCOM-CAEDYM scenario modelling. This data collation required the analysis and a further modelling of changes in nutrient levels in response to variations to catchment flows.

Riverside Planning and Development

The Swan River Trust provides advice to the Minister for the Environment and Heritage on applications for approval of development in and abutting the Swan River Trust Management Area.

The Swan River Trust is responsible for assessing applications under Part 5 of the *Swan River Trust Act 1988*, for developments located entirely within the Trust's Management Area. Planning officers assess applications and advice provided by organisations, local governments and State agencies that may be affected by the development and provide reports used by the Swan River Trust Board as the basis for its recommendations to the Minister for the Environment and Heritage.

Under Clause 30 of the Metropolitan Region Scheme the Swan River Trust also assesses developments located partly inside, or directly abutting the Trust's Management Area. These applications are either jointly determined by the Minister for the Environment and Heritage and the Minister for Planning and Infrastructure; or Trust advice is provided to local government where the determination is made by local government.

Development control

The Trust Board considers development applications twice each month. There are two categories of proposals that constitute development under the *Swan River Trust Act 1988*:

- Construction of buildings, earthworks, structures such as jetties, bridges or other works,
- Operation of commercial activities such as houseboats, ferry services and recreational activities often allied to tourism.

The Trust considered more than 205 development applications during the year. This included 56 applications that were determined by the Minister for the Environment and Heritage, under the *Swan River Trust Act 1988*, with 44 being assessed under Clause 30A of the Metropolitan Region Scheme. The balance were Trust advice to local government.

The following proposals are some of the more notable matters considered by the Trust during the year under the *Swan River Trust Act 1988*:

- Constructed Wetland – Point Fraser, East Perth

  The City of Perth received federal government funding to develop a constructed wetland as a part of a demonstration project for managing stormwater discharge into rivers. The Trust helped the City of Perth to refine their plans and supplement some of the design work with water management regimes complementary to the objectives of stormwater management. The proposal involves the installation of gross pollutant traps and a nutrient irrigation management program to complement the development of the wetland. The completed wetland will feature native plants, and form an adjunct to the riverine habitat.

- Hospital redevelopments – Mercy Hospital, Mount Lawley, and Bethesda Hospital, Claremont.

  Both hospitals overlook the Swan River. The need to manage the scale and bulk of the buildings, combined with the need to increase the scope of activities on-site resulted in discussions with Swan River Trust about the impact of the development on the river landscape. The project architects addressed this issue in their designs for the redevelopments.

- Railway Bridge over the Canning River in Kenwick

  The Trust considered an application from the Department for Planning and Infrastructure for construction of a railway bridge over the Canning River. In its assessment of the proposal the Trust considered:

  - the potential impact of proposed construction techniques
  - the need to ensure sufficient clearance under bridge structures to permit recreational use of the river
  - maintaining the river as a wildlife corridor
  - management of drainage to prevent pollutants reaching the river.

- Restaurant – Mends Street Jetty, South Perth

  The Trust received a proposal to redevelop the Bellhouse Restaurant on the Mends Street Jetty. The proposal was advertised for public comment.

  Comments were received relating to:

  - Scale and bulk of the building
  - Car parking
  - Traffic impacts
  - Landscape impacts
  - Future plans for the South Perth foreshore

  The Trust is awaiting a submission from the City of South Perth before finalising its consideration of the proposal.

- Foreshore Management Plans

  The Trust received several foreshore management plans from local governments, state agencies and private developers. To streamline the approval process for the works proposed within each foreshore plan (for example, boardwalks, dual use paths, fencing, etc.), and to ensure that a holistic approach is taken, the Trust generally assesses foreshore management plans as a single development application. This approach is managed to ensure that the works necessary to implement the Plan are covered by the overall assessment of the Plan.

  The Trust's River Management Section provides advice on revegetation, erosion management, and weed and pest control issues. The Assessment and Policy Section works with the applicant to resolve any issues related to landscaping, aesthetics, traffic management, public safety and access to the river and foreshore. The Trust Board then assesses the foreshore management plans and makes its recommendation to the Minister for the Environment and Heritage.

Foreshore management and restoration plans were received by the Trust and approved by the Minister for the Environment and Heritage for:

- City of Melville – Burke Drive Applecross
- Deepwater Point – Mount Pleasant
- Maylands to East Perth - foreshore pathway system
- Shelley- Rossmoyne foreshore.

- Swan River Trust Development Assessment Policies

  The Trust has completed a review of its development assessment policies. These policies provide guidance on:

  - Development setbacks
  - Design of new buildings, fences and retaining walls to complement the river
  - Specific requirements for the installation of sewage, stormwater, public and private infrastructure and signage
  - Requirements for commercial, residential and marina developments
  - Conservation and landscape protection
  - Acceptable uses of public foreshore areas.

  The reviewed policies are now available to the public on the Trust's website.

Regulatory control

The *Swan River Trust Regulations 1989* require spectator events held on land or waters within the Trust's Management Area to be approved by the Trust. The Trust ensures that public access to the river and foreshores is maintained, appropriate environmental protection controls are in place and the site is cleaned up after the event. During the year the Trust considered about 40 requests.

Management Planning

Effective planning based on sound information is the key to conserving and enhancing the Swan-Canning river system while making provision for appropriate development and recreational use.

There is great community interest in the waterways of the Swan-Canning river system and the adjacent parks and reserves that make up the Swan River Trust Management Area. Activities that affect the waterways and the adjacent parks and reserves come under the jurisdiction of a wide range of State government agencies and local governments. Many activities, while they occur outside of the Management Area and are not under the Trust's direct influence, are critical to the health and amenity of the rivers. Development of plans for the protection and management of the environment and amenity of the waterways and shorelines is a requirement of the *Swan River Trust Act 1988.*

The Trust works in collaboration with other State government agencies, local government and the community to contribute to and assist in the coordination of studies and the preparation of plans for areas both inside and outside the Management Area. This includes activities that are likely to have an impact on the waterways of the Swan-Canning river system or on the adjacent parks and reserves.

Swan and Canning rivers landscape planning

In 1997 the Trust's Swan River Landscape Description identified 23 precincts throughout the Swan-Canning river system. The Swan and Canning Rivers Precinct Planning Project is the outcome of this work. It encompasses the Trust's Management Area and the landscape corridor or "viewshed" beyond.

The project is being carried out by the Trust in partnership with the Western Australian Planning Commission (WAPC) and is to be supported and implemented by a Statement of Planning Policy made under Section 5AA of the *Town Planning and Development Act 1928* to give formal recognition to the project and to incorporate it into the planning process.

The project is required to support Trust advice on riverside development and to ensure that local government and WAPC decisions reinforce the planning objectives to protect the landscape values of the river and its setting by the community. It will help the Trust, the WAPC and local government to ensure that development applications and subdivision of land is considered in a broader strategic planning context with better regard for the landscape resource of the river setting. The project recognises that the character of urban areas adjacent to the river also effects the river and its landscape setting.

Launched in May 2002, the project encourages support from the community and local government to produce plans for each precinct of the river.

Sir James Mitchell Park Management Plan

The Sir James Mitchell Park Management Plan, released in August 2001, covers the Swan River foreshore reserve from Ellam Street in Victoria Park, westwards to just past the Narrows Bridge. This section of the South Perth foreshore is a popular area that provides a pleasant riverside setting, while at the same time giving users an opportunity to appreciate views of the city of Perth and Kings Park. The plan provides a management regime to ensure that any future development complements the visual, recreational and conservation values of this important section of the river.

Bait worm digging policy

Digging for bait worms can have a significant impact on the river shoreline. Digging in or close to the banks can destabilise and erode the riverbanks and can also damage fringing river vegetation.

Previous Trust guidelines permitted digging to occur at six specific locations. The new policy changes its focus from 'where' to dig to 'how' to dig. Digging within the rivers outside of the Swan Estuary Marine Park and the Canning River Regional Park is now permitted providing it is at least five metres away from any banks or vegetation and soil is returned as close as possible to where it was removed. The policy change was made after consulting recreational fishing groups, Fisheries WA and the Department of Conservation and Land Management.

The Canning River Residents Environment Protection Association subsequently alerted the Trust to foreshore damage occurring in Shelley. The pamphlet 'Fishing for a healthy river' was produced as the first step in response to this damage. It has been distributed through tackle stores, by the Volunteer Fisheries Liaison Officers, to 'Swan Fish' competition participants and is available on the Trust's website.

Discharge of cooling tower waste policy

Commercial air-cooling systems generally contain water treatment chemicals that are added to inhibit the growth of potentially harmful bacteria, algae and fungi and to prevent corrosion. The greatest concentration of these systems is in the Perth Central Business District. The wastewater from these systems, including the water treatment chemicals, is generally discharged to stormwater drains that then flow directly into the Swan River.

Working with the Water Corporation, the City of Perth, the Department of Environmental Protection and the Property Council of Australia, the Trust this year finalised the policy and implementation strategy. Implementation of the policy will ensure that new air-cooling systems do not discharge wastewater to stormwater drains and discharge to these drains from existing systems is phased out.

The support and involvement of the Property Council of Australia has contributed to the policy being well received. An implementation plan is now being developed that facilitates compliance, enables accurate measurement of compliance levels and ensures maintenance of effective communications with businesses affected by the policy.

Yacht club and marina environmental management system

The closeness of yacht clubs and commercial marinas to the river means that they have a unique relationship with the river and a responsibility to ensure their activities do not compromise the river environment.

Maintaining, repairing and refitting boats are an essential part of the activities carried out in these facilities. They involve storage and use of paints, solvents and resins, fuel and oil and antifouling agents. Servicing, maintaining and refitting boats also generates wastes. While there is a high level of environmental awareness in yacht clubs and marinas there is a wide variation in the standards of their environmental management.

Yacht clubs and marinas worked with the Trust, the Department of Environmental Protection and Department for Planning and Infrastructure to develop a generic Environmental Management System. A set of generic risks that most of the organisations present to the environment was considered, and management options for reducing these risks were identified. Individual organisations are currently considering the generic system, adding risks specific to them and identifying what management options they will undertake to reduce risks.

Although still in the process of development and adoption, the ethos of a broad-based approach to environmental management is becoming established in yacht clubs.

Swan-Canning industry project

In the past, efforts to reduce pollution have concentrated on large businesses and heavy industry. The Swan-Canning Industry Survey of the potential contribution of light industry to pollution of the rivers conducted in 1996 led to the development of a program of continuing the survey of light industrial premises and providing training in Cleaner Production.

Local governments, the Department of Environmental Protection and the Water and Rivers Commission have collaborated in implementing this project.

This year the Trust has provided support for training in Cleaner Production to ten local government officers and seven catchment group coordinators. This will greatly increase the capacity available to assess premises and encourage businesses to become involved in Cleaner Production.

A survey to assess the effectiveness of previous training provided indicated that there is a considerable need for education and training in Cleaner Production but the training needs to more closely meet industry requirements. Consequently the Cleaner Production Industry Training Package was developed and launched in May 2002. The Industry Training Package was developed in conjunction with the CSIRO-Curtin Centre for Excellence in Cleaner Production. It is made up of a two-tiered training package, which will enable industry to make simple changes to improve their environmental management while acting as a feeder course to the existing Cleaner Production training course developed in 2000.

The 2002 Training Package consists of:

- Level 1 Environmental Awareness Video in Cleaner Production
- Level 2 Environmental Auditing Program for Cleaner Production

The Existing Cleaner Production training, through the Centre for Excellence in Cleaner Production, will be offered as the Level 3 training program, which enables businesses to develop Cleaner Production Environmental Management Action Plans.

Committees

Throughout the year, the Trust was represented on and attended meetings of a wide range of committees that oversee or are involved in initiatives or activities that impact on the Swan-Canning river system.

They included:

- Sir James Mitchell Park Community Advisory Group (City of South Perth)
- Yacht Club/Marina Environmental Management System Steering Committee
- (Swan River Trust)
- Swan Catchment Council
- Helena River Catchment Group
- The Swan and Canning Rivers Precinct Planning Project Steering Committee (Swan River Trust)
- Point Fraser Steering Group (City of Perth)
- Swan-Canning Industry Working Group (Swan River Trust)
- Ellen Brook Integrated Catchment Group
- Ellen Brook Catchment Management Plan Steering Committee (Ministry for Planning)
- Swan-Canning Cleanup Program Project Managers Group (Swan River Trust)
- Burke Drive Concept Plan Working Group (City of Melville)
- Deepwater Point Concept Plan Working Group (City of Melville)
- Review of Swan-Canning Speed Limits Steering Committee (Department of Transport)
- Swan Catchment Urban Landcare Program (Swan Catchment Council)
- Barrack Square/Foreshore Project Liaison Group (City of Perth)
- Recreational Boating Facilities Scheme Metropolitan Assessment
- Committee (Department of Transport)
- CBD A/C Waste Disposal Working Group (Swan River Trust)
- Perth District Emergency Management Advisory Committee (WA Police)
- Bayswater Integrated Catchment Management
- Aboriginal Heritage & Native Title Acts Compliance Committee (Water and Rivers Commission).

Protection of Waterways and Foreshores

Maintaining the environment and amenity values of urban waterways requires a continuous effort to deal with the effects of human activity and the influences of weather and tides. The Trust coordinates the work necessary to balance the use and protection of the waterways and shorelines, and to restore degraded environments. It works with local government and landowners to control shoreline erosion. It also works to prevent pollution, clean up contamination and remove rubbish from the waterways and shorelines.

Waterways and foreshore cleaning

The community places a high priority on ensuring that the Swan and Canning rivers are well maintained and kept free of rubbish, debris and pollution. Cleaning beaches, removing debris, reshaping eroded beaches, foreshore protection works and responding to pollution incidents are all part of the continuous work undertaken by the Trust to meet those expectations.

Table 1: Summary of material removed by field staff from waterways and foreshores.

Material collected	Units	95/96	96/97	97/98	98/99	99/00	00/01	01/02
Domestic rubbish collected from beaches	Tonne	123	80	87	85	46	56	77
Logs and timer from fallen trees	Tonne	253	152	109	150	109	101	121
Rotting weed removed from foreshores	Tonne	347	460	612	350	197	390	529
Tyres	Each	72	68	106	70	60	69	46
Drums assorted	Each	17	38	56	23	14	38	31
Display signs	Each	8	7	9	8	6	22	22
Derelict and abandoned boats salvaged	Each	4	5	6	1	1	3	7
Shopping trolleys	Each	32	28	62	92	81	64	92
Dead fish left by prawning parties	Tonne	12	11	11	10	7	5	4
Dead birds	Each	26	31	176	120	123	158	83
Syringes left on beaches and public places	Each	109	146	242	118	232	169	144
Dead animals (cattle, goats and sheep)	Each	5	9	8	6	4	11	7
White goods (washing machines/fridges)	Each	5	3	4	7	6	10	3
Bamboo removed from foreshores	Tonne	1	15	0	61	0	0	0
Sand renourishment of public beaches	Tonne	88	637	854	533	492	1 712	1 075
Rock renourishment to stop erosion	Tonne	0	16	0	109	38	414	74
Stolen vehicles salvaged from river	each			2	4	1	2	0

Most rubbish, debris and pollution is the result of irresponsible human behaviour.

Waterways and beach cleaning

The Trust field crew maintains 45 river beaches and about 358 kilometres of foreshores in the Swan, Canning, Helena and Southern rivers each year. Beach cleaning and the removal of debris from waterways and foreshores are essential to maintaining enjoyment of the river.

The Trust is unable to resource regular maintenance programs for all of this very large area, so attention is directed to areas of highest priority. The Trust regularly maintains 33 public beaches/foreshores and about 146 kilometres of the total shoreline. The remaining 12 beaches are visited periodically with maintenance undertaken according to the resources available and the scale of the problem.

Vessel and vehicle recovery

Seven derelict vessels were removed from the river during the year. Trust operational staff coordinated the recoveries in collaboration with the Water Police and local government. This cooperation has enabled the recoveries to be undertaken successfully in difficult circumstances without causing environmental damage. This year has been the first on record where no vehicles were recovered from the Swan or Canning rivers. However one vehicle was removed from the Swan River foreshore.

Removal of waterway obstructions

Cleaning and inspection of waterways is carried out by boat to remove floating logs, litter and debris and by vehicle to remove rubbish along shorelines. Any fallen trees or obstructions impeding water flow are noted during these inspections and then scheduled for re-alignment or removal when time permits. Around 121 tonnes of logs and timber from fallen trees was removed over the course of the year.

Provision of facilities

This year the Trust provided eight courtesy moorings at various locations around the Swan River to provide boat users with a safe environmentally friendly way to moor their boats for up to four hours. Boat users have welcomed this initiative and use of the moorings is increasing.

The highly visible orange mooring buoys are clearly labelled with the Trust logo and the conditions of use. The four metre long mooring cable has a flotation collar. The cable bypasses the buoy, ensuring the buoy does not take any of the mooring strain and making it suitable for boats up to 20 metres long. The design also provides an easy pick up system for boats using the moorings.

Courtesy moorings are located near Barrack Square, in Blackwall Reach, Mosman Bay and Matilda Bay.

Foreshore maintenance and restoration

Protecting the amenity and environment of waterways and shorelines is a key role played by the Swan River Trust.

Foreshore maintenance/beach replenishment

Each year in spring, the Trust works to replenish eroded beaches and level all major beaches to remove gullies caused by stormwater discharge from the many drains and run-off flowing over the beaches. This year, 1 075 tonnes of beach sand was recycled from accumulation sites to help restore eroded public beaches.

Walling repairs

The Trust and the City of Nedlands undertook a joint erosion control project at Beaton Park, Nedlands. The wall along a 101 metre section of foreshore had become very unstable. The Trust managed the project for the City of Nedlands.

Ron Courtney Island

The Trust is responsible for the management of Ron Courtney Island, located in the Swan River opposite Garvey Park in Redcliffe, and carries out maintenance four times a year. Clearing the weeds and undergrowth is necessary to stop fires destroying the island's vegetation. In previous years, fires set by vandals have almost wiped out the vegetation.

The maintenance program included mowing to clear the open areas of weeds and removing undergrowth from around trees and reeds. Staff also relocated hollow logs to the island to provide wildlife nesting opportunities.

An ongoing program is carried out to revegetate the island to replace plants lost to poor weather conditions and continuing vandalism. The vegetation is now flourishing and bird life is increasing in numbers despite the vandalism.

Kent Street Weir

The Trust, on behalf of the Water and Rivers Commission, organised the removal and installation of 'stop boards' and fittings at the Kent Street Weir. The replacement maintenance was carried out in accordance with Public Works Department Drawing Specification 28727. Stop boards are removed at the beginning of winter to allow normal river flow. At the end of winter the boards are installed to stop salt-water flowing upstream of the weir and to maintain a constant water level in the Canning River. Without the boards, the area above the weir would return to a salt-water environment.

The boards allow residents with riparian rights to continue to have access to freshwater and protects the freshwater vegetation that has developed upstream of the weir. The weir also maintains a constant water level over summer providing a valuable waterbird refuge and a recreation facility for canoeing.

Shoreline protection and restoration

The Trust has a statutory function to control and provide advice on erosion. Loss of shoreline vegetation is caused by and results in erosion and reduces the nutrient assimilation capacity and amenity of the waterway. Foreshore protection works also require periodic maintenance or replacement and where revegetation alone provides insufficient protection, new works are required. Protection and restoration is essential to reducing erosion damage and restoring shoreline function and amenity as well as protecting shoreline facilities and infrastructure.

In January 2001 Environment and Heritage Minister, Dr Judy Edwards, launched River*bank* as a four-year, $500 000 restoration and revegetation program for the Swan and Canning river shorelines. River*bank* funds are used in cost sharing projects with local government and involve community participation wherever possible.

The cost sharing arrangements are flexible and allow:

- funds available to local government from other sources to be considered as the local government contribution
- River*bank* funds to be provided against a commitment from local government to provide funds in the following years of the program
- local government work at one foreshore site to be considered in cost sharing arrangements for other sites.

The Swan River Trust as well as administering the program initiates projects and provides advice and technical support to local governments in developing and managing restoration projects.

More than a dozen River*bank* projects were undertaken this year.

The work included:

- removal of exotic vegetation and planting of reeds and other native plants
- repair and replacement of limestone river walls
- beach stabilisation
- rock protection of riverbanks
- repair of log walls.

A very successful River*bank* Restoration Workshop was held in June for local government officers. The two-day workshop dealt with the spiritual, physical and ecological values of the river, the impacts of weather patterns and climatic variations as well as restoration techniques. Field trips to four sites were undertaken and restoration plans developed by the participants. Local governments will implement several of these plans in the near future.

Weed management

Following a bulk removal program of the weed *Hydrocotyle* on the Canning River in 1993, the Trust routinely conducts inspections and coordinates a spot-spraying program to control regrowth of *Hydrocotyle* and other serious aquatic weeds. The spraying program continued during the year after re-infestations of *Hydrocotyle* were found in the Trust Management Area.

During 1999-2000, the serious aquatic weeds *Saggitaria* and *Salvinia* were found in several locations in the Canning River and its drainage system. The plants were removed before the infestations could spread and the areas were monitored to enable early detection of any reestablishment. Monitoring to detect further seed germination continued in 2001-2002 to ensure noxious weed infestations are eradicated from the waterways in the Trust's Management Area.

Inspection and enforcement

The Trust has a responsibility to ensure that developments comply with their conditions of approval and the provisions of the *Swan River Trust Act 1988* and its regulations.

Unauthorised development

Trust staff, including field crew and planning officers, check the progress of development works within the Management Area. The Audit and Enforcement Officer also conducts regular site visits and river patrols on the Trust's vessel, the Jack Mattinson. These patrols enable the Trust to identify unapproved developments, damage to vegetation, riverbanks and the riverbed, the use of boats as residences, boats being launched away from authorised boat ramps and pollution incidents.

Wherever possible the Trust provides information on its requirements and seeks voluntary compliance in preference to prosecution.

Pollution response

The total number of complaints received was 231 compared to 225 received last year. Of the 231 complaints received in 2001-2002, a total of 128 were substantiated and 59 were not. The remaining 44 were referred to other agencies to follow up.

Unauthorised developments were the source of most of the complaints received by the Trust. The majority of these were not substantiated, however several resulted in further enforcement action or referred to the Trust's planning officers for assessment.

Damage to foreshore vegetation continues to be a problem throughout the Management Area. The digging up of reeds by recreational fishers searching for bait worms is an ongoing problem in a number of areas. Residents living next to the river have also been responsible for the damaging of riparian vegetation. This year a tree cutting contractor was successfully prosecuted for cutting down a tree within the Trust's Management Area in Bassendean.

Table 2: Reported complaints and incidents 2001-2002

Complaint/Incident	2001-2002
Oil slicks/spills	23
Offensive odour	2
River discolouration	11
Industrial discharge/dewatering	0
Sewage discharge	12
Herbicide/pesticide spraying	0
Chemical spills	4
Waste dump	18
Foaming	2
Watercraft nuisance	21
Algal blooms	2
Aquatic deaths	4
Destruction of vegetation	22
Unauthorised development	33
General complaints	77
TOTAL	**231**

Pollution control

As part of its general role to protect and manage its Management Area the Trust operates under delegated powers to control pollution under Part V of the *Environmental Protection Act (1986).*

The Trust's pollution control strategy has three components:

- Assessing whether activities near of the waterways could be causing pollution
- Working with other agencies, the community and industry to develop and implement ways of preventing pollution
- Responding to pollution incidents to establish and deal with the source and to ensure that pollution that has occurred is cleaned up

The Trust continues to support small industry training and education through the Swan-Canning Industry Project (see page 40).

Table 3: Pollution complaints and incidents by category 2001-2002

Pollution Complaint/Incident	5 Year Average	2001-2002
Oil slicks/spills	23	23
Offensive odour	5	2
River discolouration	9	11
Industrial discharge/dewatering	12	0
Sewage discharge	10	12
Herbicide/pesticide spraying	1	0
Chemical spills	6	4
Waste dump	15	18
Foaming	1	2

The 2001-2002 period saw a significant decrease in the number of pollution complaints with a total of 72 received, compared with 99 last year. The greatest reduction in complaints was in the areas of industrial discharge/dewatering and chemical spills. Large scale construction works that have now been completed were a significant source of dewatering complaints last year.

Pollution response

The Trust's pollution response activities include the containment and clean up of minor oil spills in the Swan-Canning river system. They also assist other agencies operating under the Western Australian Hazardous Emergency Management Plan (WESTPLAN - HAZMAT) and the Western Australian Marine Oil Pollution Emergency Management Plan (WESTPLAN – Marine Oil Pollution).

The Trust's field operations staff are trained and equipped to provide a rapid response to pollution incidents. Their function is to contain and deal with small incidents and, in the case of major incidents, to contain the pollution and help other agencies with specialised resources to deal with the problem. A Pollution Response Plan setting out the operational and management procedures for dealing with pollution incidents guides the Trust's response to pollution incidents.

Oil spills

There have been no incidents this year resulting in major contamination of the Swan-Canning river system from petrol and oil spillage. However, 23 minor incidents of oil slicks in the river were reported. Several required Trust field staff to attend and clean up. The most significant incidents involved the spillage of about 600 litres of diesel into the Swan River at Barrack Square in January and dumping of a small amount of sump oil in the river near the Old Swan Brewery in March. Both were effectively contained and removed by the Trust.

Small clean up operations such as these are a small but important component of the Trust's work and can consume a considerable amount of resources.

Sewage contamination

There were 12 complaints received about sewage spills into the Swan and Canning rivers in 2001-2002, but only seven were confirmed. There was one major sewage spill into the Canning River near the Mount Henry Bridge, Mt Pleasant on 7 December 2001. A component of the Water Corporation oxygenation plant ruptured, resulting in an estimated 160 000 litres of untreated sewage being discharged into the river. The Trust helped the Department of Health to conduct water quality sampling for three days at a number of locations in the Canning River. As a result of the spill the Department of Health closed the Canning River between Salter Point and the Canning Bridge for two days until bacteriological testing confirmed that it was safe for human contact.

Of confirmed complaints four minor incidents from Water Corporation facilities and two incidents from private sewerage drains resulted in a small amount of sewage entering the river. Inspection and water quality testing found that no significant impact was caused as a result of the incidents.

Table 4: Total sewage spill incidents 2001-2002

Date	Location	Estimated Quantity (kL)	Cause	Environmental hazard assessment
2/12/01	Riverside Road, East Fremantle	1	Blockage in private sewer line	Low - contained on-site with no discharge to river
7/12/01	The Esplanade, Mt Pleasant	160	Failure in high pressure component of oxygenation plant	Significant - the river between Canning Bridge and Salter Point was closed to recreational contact. Monitoring conducted by Department of Health. Aquatic biota was not affected
15/02/02	Riverside Drive, Perth	15	Blockage in sewerage system	Low - most of the sewage was pumped out of drainage system, but a small amount entered the Swan River with no observed impact or discolouration
25/02/02	Riverside Drive, Perth	15	Blockage in sewerage system	Low - most of the sewage removed from drain but an unknown volume entered the river. Department of Health conducted testing which showed bacteria levels were satisfactory
22/03/02	Great Eastern Highway, Belmont	1	Blockage in private sewer line	Low - significant dilution with no observed impact or discolouration
16/04/02	Armagh Street, Victoria Park	1	Blockage in sewerage system	Low - no observed impact or discolouration
13/05/02	Great Eastern Highway, Belmont	5	Blockage in sewerage system	Low - no observed impact or discolouration. Monitoring conducted by the City of Belmont

Dredging

During maintenance dredging at the Swan Yacht Club, a spoil storage reservoir burst resulting in water flowing across a beach area near John Tonkin Reserve. The water flow scoured foreshore restoration work carried out by the Trust shortly before the incident. A notice to cease the work was issued until the dredging operation was brought into compliance with the approved management plan for the development.

Pollution investigations

Dewatering, East Fremantle

During removal of underground fuel storage tanks in East Fremantle hydrocarbons and silt contaminated water discharged into the river. Fuel spilled during removal of the tanks had contaminated the ground water. The Trust required dewatering to cease until the water could be treated to a level that was acceptable to discharge into the river.

The tanks were being removed so that they could be replaced with newer and safer facilities.

Tree poisoning, Jerrat Drive, East Fremantle

In October 2001 a substance, later found to be the herbicide Atrazine, was found at the base of several of trees along Jerrat Drive. The trees were showing signs of stress consistent with poisoning. About 20 kg of the material was recovered. However no indication could be found that any of the material had entered the Swan River.

Fish deaths, Caversham

During February 2002 a number of dead fish, predominantly mullet, were found in the Swan River near Lilac Hill Park, Caversham. Analysis of the affected fish showed that they were infected with Myxobolus, a parasite that had been implicated in mullet deaths in the past. Fish deaths are often an indicator of pollution in rivers, so it is important that they are tested to ensure that there has been no chemical contamination.

Supporting Integrated Catchment Management

Reducing levels of nutrients getting into waterways from existing catchment activities and restoring the environment will enable long-term improvements to water quality entering the Swan-Canning river system. These actions rely on the majority of people living in the catchment individually carrying out their activities in a manner that minimises impacts on water quality.

Direct support to integrated catchment groups

Catchment groups are an integral part of the Swan-Canning Cleanup Program (SCCP) strategy. These groups have worked hard throughout the year to raise public awareness, develop relationships with school groups to take catchment management into the class room, develop management plans for catchments and undertake on-ground restoration work. Catchment groups are a key to achieving

the collective community action necessary to effectively improve water quality discharging to the Swan-Canning river system.

In 2001-2002, $440 000 was allocated to help various catchment groups with operational costs such as employment of coordinators, project officers, education officers, administration support and office supplies. The funding targets the priority catchments highlighted in the SCCP Action Plan. By providing support for the logistical components of catchment groups' operations, SCCP aims to give groups security to pursue other funding opportunities and allows officers' to work directly with community members and local authorities in implementing on-ground activities.

This year, funding was allocated as follows:

- $41 832 to Bannister Creek Catchment Group
- $45 586 to Belmont-Victoria Park Catchment Group
- $101 180 to Ellen Brook Integrated Catchment Group
- $41 600 to Bennett Brook Catchment Coordinating Group
- $30 290 to Blackadder-Woodbridge Catchment Group & Susannah Brook Catchment Group
- $47 175 to Upper Canning and Southern-Wungong Catchment Team
- $76 000 to Bayswater Integrated Catchment Management Group
- $31 337 to Canning Plain Catchment Group
- $25 000 to Swan Catchment Council to meet other pressing needs of Catchment Groups in the Swan-Canning Catchment.

As well as supporting established catchment groups, the funds also foster community involvement in other SCCP priority catchments. The employment of a part-time Community Education Officer for the Blackadder-Woodbridge and Susannah Brook Catchments will continue to facilitate development of the newly formed Susannah Brook Catchment Group. The Trust employs a full time SCCP Catchment Management Officer who coordinates administrative and financial support to the catchment groups, oversees monitoring and reporting on catchment management projects and represents the Trust on key committees and catchment management groups.

Swan Catchment Centre

Empowering community groups to undertake on-ground environmental restoration works in the catchment and changes in behaviour in the wider community is a key part of SCCP strategies to reduce nutrient levels entering the Swan-Canning river system.

SCCP support for the Swan Catchment Centre enables essential information, support and resources to be provided to over 250 community conservation groups in the Swan-Canning catchment. This year it included:

- Coordination of 24 Skills for Nature Conservation Community Training Program sessions, which were attended by 423 participants. The program was awarded *Outstanding Program Award* (West Australian Adult Learners Week Awards, 2001) and was nominated as a finalist for the *Westpac Education Award* (State Landcare Conference Landcare Awards).
- Coordination of the "TURFS UP" workshop to enable local and state government officers, catchment group officers, students and turf contractors reduce the levels of nutrient losses from grassed areas.
- Supporting the establishment of the Susannah Brook Catchment Group.

- Promotion of the Swan River Action Kit (SRAK) and the use of learning circles through twenty briefings for key environmental organisations and presentations at forums and community groups involving 540 people. One hundred and thirty kits have been distributed to groups and individuals across the Swan-Canning catchment.
- Holding four workshops, training 50 people in SRAK learning circle facilitation from catchment groups, local and state government, environmental educators, friends groups and other community groups.
- Supporting development of a Catchment Education Strategy for schools in the Perth region.

Restoration training and on-ground works

Clearing, stock access to foreshores, loss of watercourse vegetation and poor fertiliser and waste management practices have led to high nutrient inputs from rural and semi-rural catchments. Similarly, the loss of native vegetation, increased stormwater discharge due to an increase in impervious surfaces, excessive fertiliser use, and poor residential and industrial practices contribute to nutrient inputs from urban areas within the Swan-Canning catchment. In particular, the degradation of foreshore areas has compromised their ability to slow water movement, take up nutrients and filter out suspended sediments.

Farm and property planning

There are about 10 000 rural and semi-rural landholders in the Swan-Canning catchment. Assistance to enable rural landholders to improve their land management to avoid nutrient and soil losses while improving lifestyle and property values is provided through the SCCP Property Planning Project conducted by the Department of Agriculture. This project is becoming increasingly important to SCCP because of the growing number of small landholdings in the Swan-Canning catchment and the potentially significant nutrient losses that can arise from poor land management practices. The number of these small landholdings is forecast to double from 1999 levels by 2005.

2001-2002 was an extremely successful year with 1 776 landholders participating, many through the Heavenly Hectares seminar series. A wide range of topics are covered including weed identification and control, pasture establishment, revegetation techniques and stock management.

Swan Catchment Urban Landcare Program

The Swan Catchment Urban Landcare Program (SCULP), a joint initiative of Alcoa and SCCP, provides funds to community groups and local government for restoration and environmental protection projects. The projects not only contribute to improving the ecological integrity of foreshores and catchments but also serves as important awareness raising activities for the broader community.

In 2001-2002 the Minister for the Environment and Heritage, Dr Judy Edwards, presented cheques to 46 groups to implement a total of 66 restoration projects funded by SCULP. Alcoa contributes $250 000 annually to the program. The SCCP contribution of $100 000 will directly support 31 of these projects. Contributions of both cash and in-kind labour from project partners and community means that the total value of these projects is far greater.

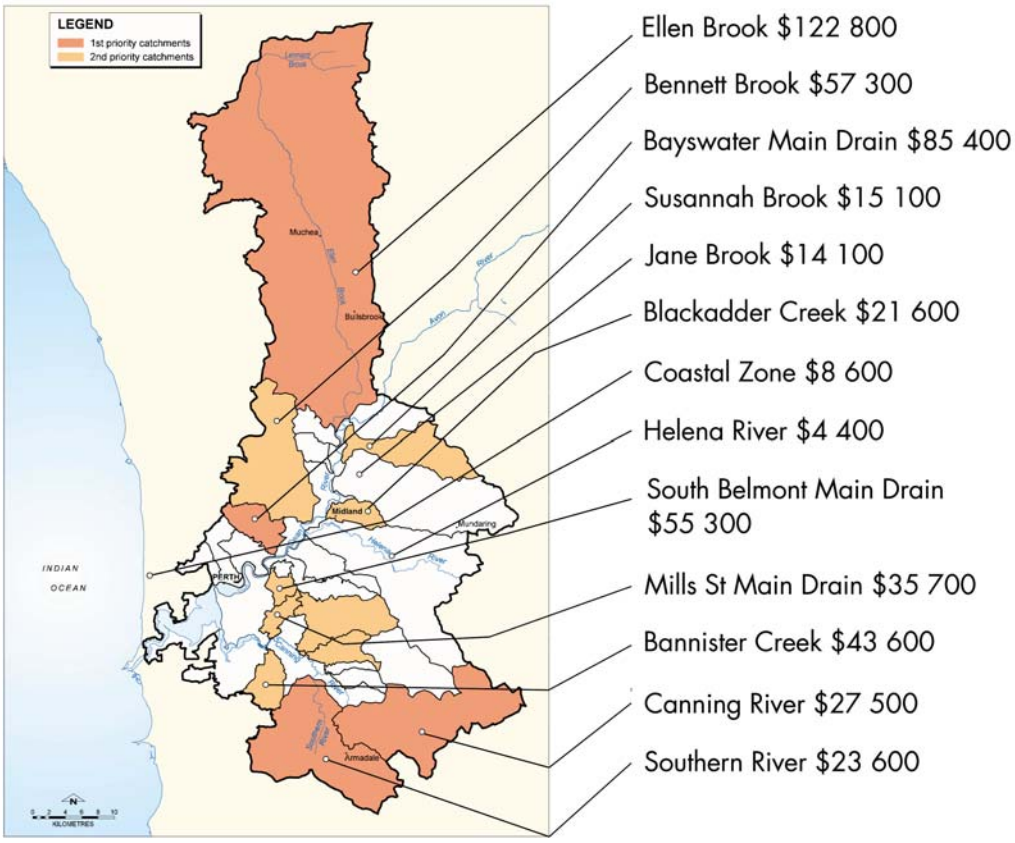


Figure 14: Swan-Canning Cleanup Program direct support for catchment groups and SCULP by sub-catchment 2001-2002.

Caring for the Canning River

The Canning River system, which includes the Southern River and Wungong Brook, is a significant natural asset of the southern suburbs of Perth. It is an important ecological corridor, which provides a source of drinking water as well as recreational opportunities to the people of Perth. It is also of substantial cultural and spiritual significance to Aboriginal communities and historical significance to people in the Canning catchment. However, reduction of flows, sedimentation of river pools, loss of riparian vegetation, weed invasion, elevated nutrient levels and industrial contamination has degraded the Canning River system. Intense, often toxic, algal blooms have been regularly recorded in the river system since 1994.

River management plan

In August 2001, a draft river management plan "Caring for the Canning" was released for public comment. The draft plan received 20 public submissions during the consultation phase. A final plan was completed in June 2002 and will be released in August. Implementation of its recommendations will be undertaken in consultation with the stakeholder Working Group. This group was established to help in developing the goals and recommendations of the plan.

A detailed environmental water requirements study and associated monitoring were also completed. This information will lead to the development of environmental water provisions and a formal water resource allocation plan for the rivers.

Oxygenating the Canning River

Intervention measures in the Canning River are necessary to lessen the symptoms of eutrophication until recommendations of the SCCP Action Plan and the Caring for the Canning management plan are implemented and result in reduced input of nutrients. Oxygenation aims to improve water quality by improving dissolved oxygen concentrations and reducing the supply of nutrients that lead to algal blooms.

The success of the oxygenation trials in the Canning River since 1997 has led to the adoption of this technique in reducing the occurrence of algal blooms in the Canning River. As in last year's application, two oxygenation plants treated 2.3 kilometres of the Canning River upstream of the Kent Street Weir. Phoslock™, a phosphorus binding clay, was also applied to 1 500 metres of the oxygenated area and is a companion treatment with oxygenation (see Water Information section, page 32).

The oxygenation plants work by drawing water low in oxygen from the river bottom, mixing it with dissolved oxygen and then distributing the oxygenated water over the treatment area. Dissolved oxygen sensors in the water and rain gauges are used to automatically control the operation of the plant. Oxygenation is only required over the period that the Kent Street Weir boards are installed. This year the boards went in earlier than usual, (in September) due to the dry winter. The plants operated from early November to April.

During the operation of the plant, chemical and physical parameters are regularly monitored to assess the impact of oxygenation on the river environment. To date monitoring has confirmed the ability of the plant to increase dissolved oxygen concentrations, temporarily suppress nutrient release from sediments and improve conditions for aquatic fauna.

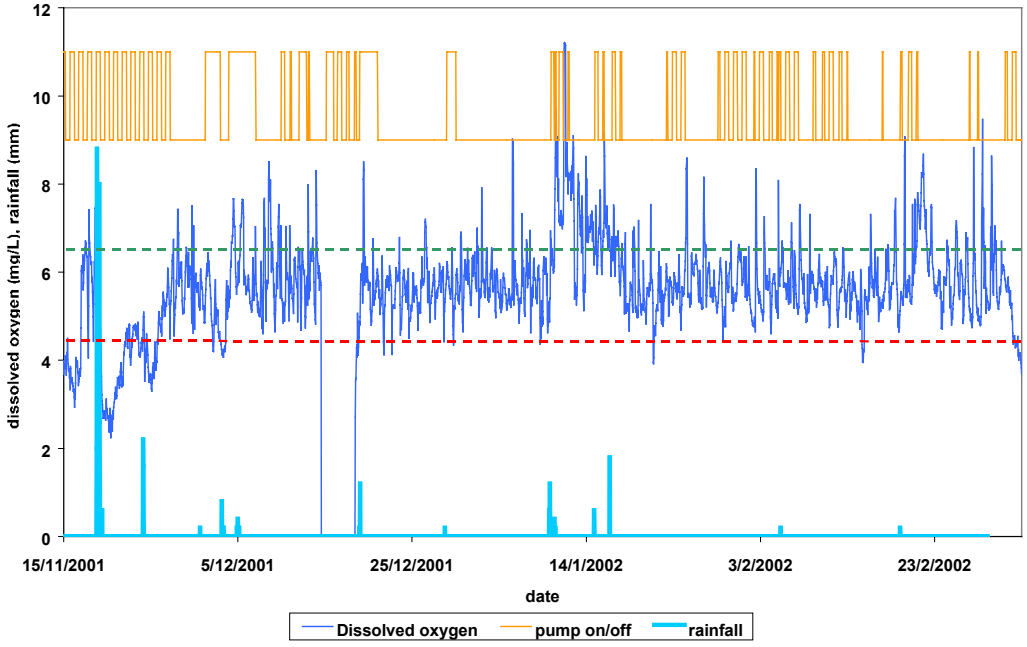


Figure 15: This plot shows how the oxygenation plant managed to keep dissolved oxygen concentrations at a fairly constant level throughout the 2001/2002 summer. This data was recorded by the control probe of the Bacon St oxygenation plant, which operated only at night and was triggered when dissolved oxygen concentrations were less than 4.5mg/L, or when rainfall was measured at a rain gauge on site. The plant automatically turned off when dissolved oxygen concentrations reached 6.5 mg/L. The plant has been successful in preventing anoxia in the Canning and reducing nutrient efflux from sediment.

Removing nutrients from tributaries

Removing nutrients from waterways before they enter the Swan and Canning rivers is an important part of the Swan-Canning Cleanup Program.

Artificial wetlands

Design and planning for an artificial wetland continued this year. The artificial wetland design has various zones that will breakdown and remove nitrogen and phosphorus compounds from stormwater entering from urban developments on the Swan Coastal Plain.

The Department of Housing and Works has included the artificial wetland as part of the Albion Townsite design. Extensive site investigations have been conducted to obtain detailed information on lithology, surface contours, surface features, seasonal variations in the depth to groundwater and spatial patterns in movements of nutrients in groundwater. This information will enable development of a site-specific design, costing and maintenance regime for the wetland suitable for tendering to construction companies and to pursue funding to begin on-ground works.

Advice is also provided to regulatory agencies and the development industry on the siting and design of artificial wetlands for nutrient reduction.

Drain retrofitting – Mills Street Main Drain

The Mills Street Main Drain contributes high levels of nitrogen and phosphorus to the Swan-Canning river system. A drainage improvement strategy has been developed based on detailed spatial snapshots of water and sediment quality throughout the drainage system coupled with analysis of catchment and drainage information.

The strategy includes assessment of options for installation of gross pollutant traps to target sub-catchments with high nutrient loading and identification of revegetation, recontouring and reshaping options for improving the nutrient stripping, ecological and aesthetic functions of the drainage system. The strategy will be packaged as an interactive web-based information system incorporating mapping information to help in the development of the Canning Plain Catchment Management Plan. Consultation with the Canning Plain Catchment Group has been undertaken throughout the process to ensure that this outcome meets the needs of the group.

Statutory mechanisms

Better management of new activities and new approaches to managing the land in the Swan-Canning catchment can have a great effect on reducing the nutrients entering the river system. The Swan-Canning Cleanup Program (SCCP) has started a number of projects to develop new policies, statutory mechanisms and drain licensing to achieve better management.

Local Government Natural Resource Management Policy

Local government can play an essential role in reducing nutrient levels and other pollutants entering waterways through controlling development, managing current land use and ensuring town planning schemes enable effective management of future land use.

SCCP support is enabling the Eastern Metropolitan Regional Council to help local governments in the Swan-Canning catchment to increase the effectiveness of their involvement in environmental management. This includes providing environmental management policies, guidelines and checklists for direct adoption by local governments as well as provision of training in environmental management to local government staff.

In 2001-2002 the project:

- Completed a review of existing local government policies and strategies in the Swan-Canning catchment
- Gained agreement between local governments and state agencies on the range of policies, guidelines and checklists that will be prepared to meet local government environmental management requirements
- Developed draft guidelines for stormwater management based on Australian best practice
- Developed draft guidelines for intensive animal industries.

Planning and policy

Ensuring future development is designed, located and managed to minimise its impact on water quality is fundamental to achieving the long-term aims of SCCP. The SCCP Action Plan recommended using the regional planning framework to set the land use patterns in the Swan-Canning catchment and provide guidance to local government on measures that need to be incorporated into town planning schemes to keep rivers healthy. Critical areas of land planning legislation include land zoning, assessment of development applications and subdivision proposals.

The Department for Planning and Infrastructure, the Water and Rivers Commission and the Trust are working together to determine the most effective means of influencing development. The project expanded this year to assess the opportunities for directly using the State's regional town planning legislation.

Investigation into licensing drains

The Water Corporation and local governments operate significant drainage networks in the Perth area to manage groundwater levels and stormwater flows. While the drainage networks have an

important function in ensuring suitability of land for its intended purpose the water carried by the networks is a significant source of nutrients entering the Swan-Canning river system.

In 2000-2001 the Department of Environmental Protection provided a draft report, which found there is potential to better manage water quality from drains. In 2001-2002, the Trust's River Management Committee considered the approaches recommended in the draft report and the report has now been finalised.

A key consideration of the Trust's River Management Committee was that establishment of a working group with broad stakeholder participation was needed to ensure the right mix of regulatory and non-regulatory approaches and broad stakeholder commitment to the initiative. Ensuring formation of the working group to progress this important area of work will be a priority in 2002-2003.

Community Awareness, Education and Involvement

Communicating with stakeholders

Public understanding of the importance of protecting and managing the river system is vital to the Trust's work. Production of environmental reports and information leaflets for shoreline residents, community groups, boat owners and recreational anglers make sure people know and care about the Swan-Canning river system.

Phone survey

A telephone survey was carried out in February 2002 to assess awareness of the Trust and its role, perceptions of the state of the river, and people's satisfaction with how it is managed. The survey of more than 400 people indicated that most (82 per cent) are aware of the Trust. The major issues of concern were water cleanliness, appropriate recreational facilities for users and range of dining outlets along foreshores. The results are the basis for assessing performance of the Trust (see Performance Indicators section on page 65).

This fifth survey continues to build on a benchmark study conducted in 1998. The survey was expanded this year to assess Perth metropolitan residents' awareness and knowledge of the Swan-Canning Cleanup Program (SCCP). The results indicated that 65 per cent of respondents were aware of SCCP with 55 per cent correctly identifying algal blooms as the problem targeted by the program.

Website

The Swan River Trust website is continuously updated with new information. This year saw the expansion of the River Science site, which makes available results of scientific investigations that are a part of SCCP. The site now also includes guidelines to help fishers to avoid damaging riverbanks and an algal alert section to provide information on algal blooms to the public. Whenever possible, all Trust publications can be downloaded from the website.

Publications

The Trust's regular newsletter 'RiverView' is the common information link between the various stakeholder groups involved in river management and protection. It provides information about the Trust, SCCP and community group activities. Four editions of RiverView were published during the year.

The Trust this year also published:

- Swan River Trust Annual Report, 2000-2001
- Sir James Mitchell Park Foreshore Management Plan, Report No. 32, April 2001

- Fishing for a Healthy River: Advice for recreational fishers to protect the Swan and Canning rivers, November 2001
- Swan and Canning Rivers Boating Guide, Department for Planning and Infrastructure and Swan River Trust, March 2002
- Introducing the Swan and Canning Rivers Precinct Planning Project, Western Australian Planning Commission and Swan River Trust, May 2002
- Swan and Canning Rivers Precinct Planning Project: Vision Statement and Guiding Principles, Western Australian Planning Commission and Swan River Trust, May 2002
- Swan and Canning Rivers Precinct Planning Project: Precinct Plan Handbook, Western Australian Planning Commission and Swan River Trust, May 2002
- Swan-Canning Cleanup Program Year Two in Review, Swan River Trust, August 2001
- Caring for the Canning: A plan to revitalise the Canning, Southern and Wungong rivers (draft), August 2001
- Caring for the Canning: A plan to revitalise the Canning, Southern and Wungong rivers (draft) summary, August 2001
- The Derivation of Percentile Quality Criteria for the Swan-Canning Estuary: A Binominal Approach, October 2001
- Seasonal water quality patterns in the Swan River Estuary, 1994-1998, technical report, November 2001
- Cleaner Production Training: Protect your Profits. Protect your River, Water and Rivers Commission and Swan River Trust, May 2002
- River Science Issue 15, Report on the 1999/2000 Swan barge oxygenation trial, December 2000
- River Science Issue 17, Phosphorus in the Canning - 1999/2000 Phoslock trials, June 2001
- River Science Issue 18, Report on the 1999/2000 Canning River oxygenation project, December 2000
- River Science Issue 19, Aquatic plants in the Canning River, April 2001

Motivating behavioural change

One of the core tasks of the Swan River Trust is to raise awareness about issues affecting the river and increase community involvement in river and catchment restoration projects.

The Swan-Canning Cleanup Program (SCCP) community awareness campaign continued to successfully raise awareness of river and catchment issues and generate community and corporate involvement in activities that contribute to the protection of the Swan-Canning river system.

Entertaining learning

The SCCP Drain Game was successfully launched at the 2001 Perth Royal Agricultural Show and proved highly popular with children and adults. Since its launch the Drain Game has featured at 16 community events. The colourful, interactive activity provides an entertaining way for people to understand how their actions affect the health of the rivers. It also teaches people how to dispose of their rubbish properly by not letting it go down the drain into the river. A children's activity sheet

was also developed to reinforce the messages of the game and carry river management messages into households.

Corporate involvement

During the year the Trust's first four corporate care workdays were organised with businesses. This new program connects the corporate sector with the community in the catchment and gives businesses the opportunity to contribute to environmental restoration projects, as well as learning first hand about river management issues. The success of this new Corporate Care Day Program is evident as businesses are now approaching the Trust seeking involvement.

Yacht club participation

A new display system purchased this year enabled the Trust to provide more detailed information at the opening of season events at eight river-based yacht clubs. The display gave members, their families and crews, the opportunity to increase their awareness about the work of the Trust and in particular that of the Swan-Canning Cleanup Program. They were able to register their interest in participating in restoration and revegetation projects, or to help community groups in catchment restoration and waterways rehabilitation work.

Public participation

Throughout the year the Trust and SCCP have been represented at an increasing number of public and audience specific events, where detailed information has been distributed and Trust staff have talked to the public about river management issues. They included SCCP sponsored public events focused on the river:

- The Swan-Canning Cleanup Program Air Show and Water Display providing public entertainment during the Australia Day celebrations on the Swan River
- The third Autumn River Festival 2002, working in partnership with the Shire of Swan, and the Cities of Bayswater, Belmont, Bassendean, and Guildford as well as with the local community catchment groups
- Sponsoring community participation in the second Canning River Festival held on the shores of the Canning River to highlight local environmental issues.
- Co-sponsorship with the City of Perth of the Lord Mayor's Cup Corporate Rowing Challenge.

The Trust was involved with both the Clean Up Australia Business Day in February as well as the Clean Up Australia Community Day in March 2002. These events presented the SCCP to new audiences and gained media coverage. A significant increase in volunteers taking part is evidence of the success of these strategies.

Increased media exposure

Positive media exposure provides the Trust and SCCP with valuable opportunities to raise public awareness and generate involvement. SCCP has featured in an increased number of metropolitan and community press articles as well as receiving extended radio and television coverage as a direct result of the program's increased involvement with community and corporate events. It has also resulted in feature articles in the West Australian, the Environmental Health Journal, the Urban Hills LCDC Environment Page, Hills Gazette, and the Western Suburbs Weekly.

Community service announcements

The Trust and Channel 7 collaborated this year to produce two new television community service announcements (CSAs).

The first, "Fertilise Wise", was aimed at urban householders and focussed on urban garden fertiliser use. It went to air at the beginning of February 2002. The CSA invited people to call 1800 062 549 as a means for distributing a "Fertilise Wise" package of information.

The second CSA was aimed at light industry and went to air at the beginning of May. "Protect Your Profits. Protect Your River" dealt with the environmental benefits to the rivers and economic benefits to businesses of adopting pollution prevention and cleaner production practices. Businesses calling 1800 062 549 were provided with an Industry Education brochure developed as part of the SCCP Industry Project's Education Kit.

On going strategies

The Trust has continued to produce information for specific audiences and is increasing distribution of information to the community through other organisations. Community groups and other organisations are requesting the Trust's involvement with their own events, particularly for the use of the Drain Game and are also taking SCCP messages out into the community.

Ribbons of Blue

Ribbons of Blue/Waterwatch WA is an environmental water quality monitoring network which, through environmental education, raises awareness, develops skills and understandings about water quality in a whole of catchment context. Through this education, groups are lead to initiate and participate in on-ground action for a better environment. Ribbons of Blue/Waterwatch WA were initiated as a school environmental water-quality monitoring program in 1989. Since becoming part of the Australia-wide Waterwatch network in 1994, the strong association with schools has been retained, while the program has expanded to include greater community involvement.

SCCP continued its support in 2001-2002 enabling the program to expand its community education outcomes, organise training and hold data workshops. The program continues to successfully engage schools. Twenty-seven new school groups registered this year, bringing the total to 140 participating in the Swan Region. There was greater emphasis to use the data collected and link with other schools, community and government groups in their local area.

A highlight for the year was the Swan Region Ribbons of Blue 'AquaFest' held during National Water Week. School and community groups throughout the Perth metropolitan area came together to discuss water and environmental projects at the inaugural event. The audience of 300 was enthralled with the creative and innovative presentations incorporating the school or group's knowledge and awareness of water quality monitoring and catchment management issues.

Throughout the last 12 months, emphasis was placed on helping schools and community groups to expand the usage of their water quality data. Two workshops titled "Data to Action" were conducted to help groups to consolidate their existing programs, improve on procedures, interpret and present data and explore community awareness raising activities and on-ground action.

The Minister for the Environment and Heritage, Dr Judy Edwards, helped Ribbons of Blue/Waterwatch WA to launch the "Indicator Aquatic Macrinvertebrates – an identification key for students" on 5 June 2002 – World Environment Day. The day was a joint celebration of the Environment with Airwatch, Wastewise and Murdoch University all taking part at Piney Lakes Environmental Education Centre. Following the formal proceedings, local school groups were invited to participate in various educational activities that were on offer, including macroinvertebrate sampling and identification using the new Identification Key or 'Flipchart'.

The Identification Key is used to help students and community in classification of aquatic macroinvertebrates through asking a series of 'True' and 'False' questions regarding its appearance. After the elimination process, the student ends at a page where they can select the macroinvertebrate that they have found. The Identification Key will be distributed throughout the state via Ribbons of Blue/Waterwatch WA Regional Coordinators to registered groups involved in monitoring and educational programs.

Some of the other highlights this year included:

- The Swan Region Schools, Langford Primary School Pre-primary, Parkwood Primary School and Kelmscott Senior High School scoop the pool in the State-wide Ribbons of Blue competition "Living Water"
- Bayswater Integrated Catchment Management group winning the National Waterwatch Competition (Community/Individual Category) "Race Around the Catchment"
- A Floatwell competition was run to paint two floatwells (gauging stations) at Kent Street Weir. The winners were Lynwood Primary School and Parkwood Primary School
- Another successful National Macroinvertebrate Snapshot event involving 31 groups.

The Ribbons of Blue network in the Swan Region continues to grow and strengthen. The Swan Region's focus will continue to be on school groups, and with the extra support from SCCP to accommodate our community and local government groups needs.

Output Measures

OUTPUT 1: Collect water information to support state planning, agencies and community

Output description: Provision of research and information for estuary and river restoration and management

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Quantity				
Area of waterway and catchment monitored km^2	2116	2116	2116	
Number of R&D projects	4	3	3	
Quality				
Extent to which the monitoring network covers the waterway and catchment	92%	90%	88%	
Reliability of monitoring information	95%	95%	95%	
Per cent of project milestones met	100%	80%	100%	
Level of community satisfaction with water cleanliness	59%	60%	68%	
Timeliness				
Per cent waterway and catchment monitoring reports completed on time	94%	80%	93%	
Projects completed on time	4	3	3	

OUTPUT 2: Regulate riverside development

Output description: Assess applications for development, planning schemes and policy

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Quantity				
Management area subject to development control policy and advice (km^2)	69	69	69	
Number of development applications assessed	223	NR	205	
Quality				
Acceptance of recommendations on development	100%	95%	100%	

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Acceptance of recommended approval conditions	100%	NR	99%	
Level of community satisfaction with land development and landscapes around the river reflecting community expectation	69%	70%	74%	
Timeliness				
Average number of days to process planning and development applications	65	55	59	
NR = not reported				

OUTPUT 3: Management plans

Output description: Prepares management programs (often jointly with local government) for the management of the waterways and the management area. Includes catchment management plans.

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Quantity				
Production of management plans and strategies	2	1	1	
Quality				
Stakeholder acceptance of management plans and strategies	60%	80%	N/A	Process of obtaining comment on the Precinct Planning Project Handbook is continuing
Level of community satisfaction with availability of public access to rivers and provision of sufficient facilities for community use	69%	70%	73%	
Timeliness				
Plans prepared within timeframe	2	1	1	

OUTPUT 4: Protection of waterways and foreshores

Output description: Maintenance and restoration of waterway and foreshores. Audit and enforcement of the Act and regulations.

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Quantity				
Length of foreshore subject to maintenance and restoration (km)	146	146	146	

	2000-2001 Actual	2001-2002 Target	2001-2002 Actual	Reason for variation
Management area subject to waterway and foreshore protection (km^2)	69	69	69	
Area of the waterway and catchment impacting on water quality management (km^2)	2116	2116	2116	
Quality				
Length of foreshore scheduled for maintenance and restoration as percentage of total foreshore	41%	41%	41%	
Per cent of sub-catchments within phosphorus input target	60%	65%	67% (93%)	This is the first year that the Trust will be reporting against SCCP short-term targets that are shown in brackets. Targets for 2002-2003 will be changed to SCCP short-term targets.
Per cent of sub-catchments within nitrogen input target	47%	25%	33% (93%)	This is the first year that the Trust will be reporting against SCCP short-term targets that are shown in brackets. Targets for 2002-2003 will be changed to SCCP short-term targets.
Level of community satisfaction with the condition of the waterway and foreshores	67%	70%	68%	
Timeliness				
Per cent of achievement of scheduled maintenance and restoration program completed on time	90%	85%	100%	The level of support provided to research and investigation projects fell this year and a greater proportion of field operations efforts was directed towards scheduled maintenance and restoration.
Mean time taken to resolve complaints (days)	1.5	1.5	1.2	
Per cent of water quality improvement projects achieving milestones on time	87%	80%	93%	

Performance Indicators

Opinion of the Auditor General

AUDITOR **GENERAL**

To the Parliament of Western Australia

SWAN RIVER TRUST
PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 2002

Matters Relating to the Electronic Presentation of the Audited Performance Indicators
This audit opinion relates to the performance indicators of the Swan River Trust for the year ended June 30, 2002 included on the Trust's web site. The Board is responsible for the integrity of the Trust's web site. I have not been engaged to report on the integrity of the Trust's web site. The audit opinion refers only to the performance indicators named below. It does not provide an opinion on any other information which may have been hyperlinked to or from these performance indicators. If users of this opinion are concerned with the inherent risks arising from electronic data communications, they are advised to refer to the hard copy of the audited performance indicators to confirm the information included in the audited performance indicators presented on this web site.

Scope
I have audited the key effectiveness and efficiency performance indicators of the Swan River Trust for the year ended June 30, 2002 under the provisions of the Financial Administration and Audit Act 1985.

The Board is responsible for developing and maintaining proper records and systems for preparing and presenting performance indicators. I have conducted an audit of the key performance indicators in order to express an opinion on them to the Parliament as required by the Act. No opinion is expressed on the output measures of quantity, quality, timeliness and cost.

My audit was performed in accordance with section 79 of the Act to form an opinion based on a reasonable level of assurance. The audit procedures included examining, on a test basis, evidence supporting the amounts and other disclosures in the performance indicators, and assessing the relevance and appropriateness of the performance indicators in assisting users to assess the Trust's performance. These procedures have been undertaken to form an opinion as to whether, in all material respects, the performance indicators are relevant and appropriate having regard to their purpose and fairly represent the indicated performance.

The audit opinion expressed below has been formed on the above basis.

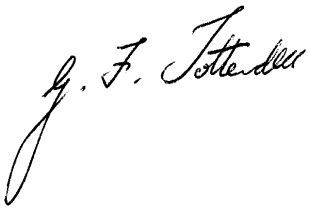
Audit Opinion
In my opinion, the key effectiveness and efficiency performance indicators of the Swan River Trust are relevant and appropriate for assisting users to assess the Trust's performance and fairly represent the indicated performance for the year ended June 30, 2002.

K O O'NEIL
ACTING AUDITOR GENERAL
November 18, 2002

4th Floor Dumas House 2 Havelock Street West Perth 6005 Western Australia Tel: 08 9222 7500 Fax: 08 9322 5664

Certification of Performance Indicators

We hereby certify that the Performance Indicators are based on proper records, are relevant and appropriate for assisting users to assess the Swan River Trust's performance, and fairly present the performance of the Swan River Trust for the year ended 30 June 2002.



_____ CHAIRMAN _____MEMBER

DATE: 28 August 2002

The Swan River Trust's Role

Outcome

Conservation and management of the Swan-Canning river system.

Objectives

The key objective of the Swan River Trust is to conserve or enhance the environmental quality of the Swan-Canning river system managed by the Trust, against standards consistent with the community's long-term expectations.

Goals

As a result of the Trust's work towards the achievement of its outcome and key objective, these goals are sought:

- The system is clean and healthy and accessible to the public through the provision of foreshore reserves and public amenities.
- The system is used in a sustainable manner, which retains the balance between conservation and development and reflects community values.

The Trust is not directly responsible for many factors, which affect the health and good management of the system it is required to manage. For example, it cannot directly control a land use or industry in the catchment, which pollutes a river or estuary, nor does it have the responsibility for deciding where this industry in located. However, the Trust wants to consider all factors, which affect the waterways in its report and performance indicators. In other words, it must be recognised that in reporting on the Outcome and Goals above, many of the inputs are not under the Trust's control.

Key Effectiveness Indicator 1

Key Effectiveness Indicators are the extent to which water quality targets are achieved. The Effectiveness Indicators are:

- total nitrogen and total phosphorus concentration in 15 tributaries of the Swan-Canning catchment compared to targets levels.
- chlorophyll-a concentration and dissolved oxygen saturation in surface waters of the Swan-Canning estuary compared to target levels.

To assess and report on its effectiveness, the Swan River Trust will compare nutrient concentrations in tributaries of the Swan-Canning catchment. Excess nitrogen and phosphorus entering the Swan-Canning river system have led to nuisance and toxic algal blooms. Controlling nutrients entering the system is essential to decrease the frequency of algal blooms and further deterioration in the water quality. The catchment targets specify the median total nitrogen and total phosphorus concentration in Swan-Canning tributaries. In recognition of the long timeframes required for catchment management to affect nutrient levels in tributaries both short-term and long-term target nutrient concentrations have been developed.

This year for the first time, the Trust will also report progress against water quality targets developed for the Swan-Canning estuary. The estuary targets are for the 90-percentile chlorophyll-a concentration and a fifth-percentile dissolved oxygen saturation in the estuary. Reporting in 2002 will be against the estuary targets for the lower, middle and upper basins of the Swan River arm of the estuary. It is planned to report against targets for the Canning River arm of the estuary in 2003.

The Swan-Canning catchment targets

The concentration of nitrogen (N) and phosphorus (P) in the tributaries of the Swan-Canning catchment will be used by the Trust as an indicator of this decrease in load. The Swan-Canning Cleanup Program's short and long-term targets for N and P concentration in tributaries are shown in Table 5.

Table 5: Cleanup Program nitrogen and phosphorus targets for tributaries of the Swan-Canning catchment

Target	Total N concentration	Total P Concentration
Short-term	2.0 mg/L	0.2 mg/L
Long-term	1.0 mg/L	0.1 mg/L

Monitoring in the Swan-Canning catchment

Regular sampling of nutrient concentrations in the tributaries and estuary allows comparison to Cleanup Program targets. A single sample is collected every two weeks between the months June to November from sites located on 15 tributaries. Reporting against the 2002 Key Effectiveness Indicators uses data collected up to and including November 2001 (many tributaries cease to flow after November and only commence to flow with June rainfall). The data from three consecutive years, or a total of 30 samples, will be used to compare total N and P concentration in the rivers with the Cleanup Program targets.

Currently, N and P concentration in some tributaries of the Swan-Canning catchment are above both short and long-term target levels, other tributaries are between the two targets or below both targets. If quality in any of the tributaries is already better than the short-term target then the data will be used to assess progress towards meeting the long-term target. If quality is currently better than the long-term target then the data will be used to assess that quality has not degraded.

Performance 2002: Swan-Canning catchment targets

Data presentation

The data from each of the monitored tributaries are compared to the effectiveness indicators in Tables 6 and 7. The colour of the cells in the Tables indicate which target the catchment data is being compared with, the long-term target or short-term target. A black cell indicates that the tributary nutrient data are being assessed against the short-term target. Grey means that the tributary is currently better than the short-term target but higher than the long-term target, and is therefore being assessed against the long-term target. A white cell means that tributary quality is currently better than both targets, and the data are being used to make sure that the tributary continues to meet its target.

The numbers in the cells of the Tables show how the data are interpreted by the Trust to conclude that the relevant targets have been achieved or not. The number within the brackets is the maximum number of 'high' samples expected to occur if the target is met (derived statistically by calculating the probability of various outcomes). The number outside the bracket is the actual number of samples from the tributaries that were found to contain more nitrogen or phosphorus than the target levels shown in Table 5. If the number outside the bracket is higher than the number inside the bracket the Trust will conclude the target is not achieved.

Table 6: Compliance of monitored tributaries discharging into the Swan-Canning estuary with short and long-term nitrogen targets.

Tributary	1998	1999	2000	2001	2002
Ellen Brook	(10) 14	(11) 16	(12) 19	(12) 18	(12) 17
Mills Street Main Drain	(11) 26	(11) 20	(12) 17	(12) 13	(12) 12
Bannister Creek	(7) 11	(11) 13	(12) 14	(12) 10	(12) 30
Bayswater Main Drain	(11) 30	(11) 30	(12) 32	(12) 30	(12) 27
Southern River	(11) 30	(11) 27	(12) 29	(12) 26	(12) 23
Bickley Brook	(7) 17	(11) 26	(12) 27	(12) 25	(12) 21
Bennett Brook	(7) 17	(11) 24	(12) 24	(12) 22	(12) 21
Yule Brook	(11) 23	(11) 18	(12) 17	(12) 16	(12) 18
Blackadder Creek	(6) 16	(11) 22	(12) 20	(12) 16	(12) 14
Canning River	(11) 20	(11) 17	(12) 19	(12) 15	(12) 12
Helena River	(11) 21	(10) 15	(11) 15	(11) 13	(11) 14
South Belmont Main Drain	(7) 13	(11) 15	(12) 11	(21) 5	(21) 5
Avon River	(20) 16	(20) 14	(21) 14	(21) 14	(21) 10
Susannah Brook	(12) 8	(18) 10	(19) 11	(19) 10	(18) 9
Jane Brook	(13) 8	(19) 11	(20) 11	(19) 8	(19) 7
Short-term target met(%)	80	80	80	87	93
Long-term target met (%)	20	20	27	27	33

Key to interpreting the Catchment Performance Indicator results in Table 6 and 7.

	Tributary fails both long and short-term targets
	Tributary meets short-term target but fails long term target
	Tributary meets both short-term and long term targets

Table 7: Compliance of monitored tributaries discharging into the Swan-Canning estuary with short and long-term phosphorus targets.

Tributary	1998	1999	2000	2001	2002
Ellen Brook	(10) 29	(11) 29	(12) 32	(12) 30	(12) 30
Mills Street Main Drain	(11) 19	(11) 16	(12) 15	(12) 11	(12) 29
Southern River	(11) 12	(11) 8	(12) 26	(12) 25	(12) 27
South Belmont Main Drain	(7) 15	(11) 17	(12) 16	(12) 17	(12) 19
Bannister Creek	(7) 14	(11) 21	(12) 22	(12) 19	(12) 17
Yule Brook	(21) 8	(21) 8	(21) 4	(21) 7	(21) 11
Bayswater Main Drain	(20) 3	(21) 8	(21) 11	(21) 12	(22) 10
Bickley Brook	(14) 6	(21) 9	(21) 5	(21) 6	(21) 6
Blackadder Creek	(14) 2	(20) 3	(21) 1	(21) 2	(21) 2
Jane Brook	(13) 0	(19) 0	(20) 1	(19) 2	(19) 2
Avon River	(20) 3	(20) 2	(21) 1	(21) 0	(21) 0
Bennett Brook	(14) 5	(21) 5	(21) 2	(21) 0	(21) 0
Canning River	(21) 0	(21) 0	(21) 0	(21) 0	(22) 0
Helena River	(19) 0	(19) 0	(20) 0	(20) 0	(20) 0
Susannah Brook	(12) 0	(18) 0	(19) 0	(19) 0	(18) 0
Short-term target met (%)	80	87	87	93	93
Long-term target met (%)	67	67	67	67	67

Results 1998 -2002

The data in Tables 6 and 7 covers a five-year period going back to 1998. This allows trends in the achievement of targets for each tributary to be assessed over time. With effective management the concentration of nitrogen (N) and phosphorus (P) in the Swan-Canning tributaries will be maintained or begin to decline.

Total nitrogen concentration

Table 6 shows that there has been an improvement in the levels of nitrogen in Swan-Canning tributaries over the last 5 years.

There has been an improvement in the number of tributaries achieving the short-term nitrogen target. At the start of the reporting period 80 per cent of tributaries had met the short-term nitrogen target. In 2001 Bannister Creek began to meet the short-term target for the first time. With Bannister Creek meeting the short-term target in 2001, 87 per cent of tributaries had achieved the Trust's short-term nitrogen target. In 2002, the concentration of nitrogen in the Mills Street Main Drain fell below 2.0 mg/L and met the Trust's short-term target for the first time. This meant that as of 2002, 93 per cent of monitored tributaries in the Swan-Canning catchment have now achieved the Trust's short-term target. Only nitrogen concentrations in Ellen Brook continues to exceed the short-term target.

In 1998 only 20 per cent of the monitored tributaries had met the Trust's long-term target for nitrogen. In 2000, nitrogen concentrations in the South Belmont Main Drain met the long-term target for the first time. This improvement meant that in 2000, the proportion of tributaries that have met the long-term nitrogen target increased to 27 per cent. The nitrogen concentrations in the Canning River fell below 1.0 mg/L in 2002 and began to meet the Trust's long-term target for the first time. In 2002, 33 per cent of the monitored Swan-Canning tributaries had achieved the long-term target for nitrogen (up from the 20 per cent in 1998).

Total phosphorus concentration

Table 7 shows that there has also been a slight improvement in phosphorus concentrations in the Swan-Canning tributaries in the 1998-2002 reporting period.

At the start of the reporting period, 80 per cent of the monitored tributaries had met the short-term phosphorus target. In 1999, phosphorus concentrations in the Southern River fell below 0.2 mg/L meeting the short-term target. This meant that the proportion of tributaries meeting the short-term targets increased to 87 per cent in 1999. In 2001, phosphorus concentrations in the Mills Street Main Drain also fell below 0.2 mg/L and 93 per cent of monitored tributaries had met the Trust's short-term phosphorus target. Of the monitored tributaries only phosphorus in Ellen Brook continues to be higher than the short-term target.

There has been no change in the number of Swan-Canning tributaries meeting the long-term phosphorus target.

The Swan-Canning estuary targets

The key performance indicators used by the Swan River Trust for the Swan-Canning estuary are the concentration of chlorophyll-a and dissolved oxygen in surface waters (Table 8). The estuary targets represent only the first management objective for chlorophyll -a and dissolved oxygen in the Swan River estuary. They are possibly only the first in a sequence of important quality benchmarks along the path of continual improvement.

Table 8: Quality Targets for the Swan-Canning estuary

Estuary Basin	Chl-a Target (μg/L)	Surface DO (% saturation)
Lower Swan-Canning	3.55	82.1
Middle Swan	8.75	75.1
Upper Swan	19.98	81.2

Monitoring in the Swan-Canning estuary

To compare the quality of the Swan River estuary with the estuary targets, one sample is taken every week between January and May from each of the three Swan basins. This regime of monitoring results in 20 samples per year. These data are pooled over three consecutive years so a total of 60 samples are used to compare chlorophyll -a and dissolved oxygen levels concentration in the Swan River estuary with the effectiveness indicators in Table 8. The 2002 reporting against the targets uses data collected up to and including May 2002.

There is only two years of data available from the Swan-Canning estuary to compare quality against the estuary targets. Therefore the main interest is to confirm that the natural variation in the number of 'high' samples in the estuary basins is occurring within the range expected when the targets were first developed. If they are not within the expected range the targets levels may have to be reviewed and changed accordingly.

Performance 2002: Swan-Canning estuary targets

Data presentation

The monitoring data from each of the main estuary basins are compared to the targets in Table 8. The estuary target system does not use the long/short-term system used with the tributaries. With the estuary data there are only two possible conclusions. The estuary basin either meets its target or it does not. With the estuary results, black cells means the target is not met and white cells means the basin meets the target (Tables 9 and 10).

The numbers in the table cells are interpreted as with the tributary results tables. The number within the brackets is the maximum allowable number of samples, the number outside the bracket is the actual number of samples that were found during monitoring to contain more than the targets (high samples). If the number outside the bracket is higher than the number inside the bracket the Trust will conclude the target is not achieved.

Table 9: Chlorophyll-a concentration in the basins of the Swan-Canning Estuary compared to the targets.

Basin	2001	2002
Upper Swan	(2) 15	(2) 18
Middle Swan	(2) 18	(2) 18
Lower Estuary	(9) 6	(9) 4

Key to interpreting the Estuary Performance Indicator results in Table 9 and 10.

	Target not met
	Target met

Table 10: Dissolved oxygen saturation in the basins of the Swan-Canning Estuary compared to the targets

Basin	2001	2002
Upper Swan	(0) 21	(0) 20
Middle Swan	(0) 14	(0) 11
Lower Estuary	(5) 7	(5) 2

Results 2001 - 2002

Chlorophyll-a concentration

In both years, the number of samples collected from the lower estuary basin that contained more chlorophyll-a than the target levels was less than the maximum allowed number of high samples (Table 9). Therefore the lower basin met the Cleanup Program targets in both years. Monitoring in the middle and upper basins of the estuary found that between 15 and 18 samples contained more that the target concentrations of chlorophyll-a. The middle and basins therefore did not meet the target in either year.

Oxygen saturation

In 2001 monitoring in the lower basin found that seven of the measurements were below 82.1 per cent saturation. The maximum number of recordings that can be below 82.1 per cent saturation and still meet the target is five (Table 10). Therefore the lower basin did not meet the oxygen target in 2001. In 2002, there were only two recordings below 82.1 per cent and therefore the lower basin met the target. In both the middle and upper basins in 2001 and 2002, between 11 and 20 measurements of oxygen saturation were below the respective targets. Therefore the middle and lower basins failed to meet the target oxygen levels in both years.

Significance of results

Swan-Canning catchment

The levels of nitrogen and phosphorus concentrations in the Swan-Canning tributaries are low to moderate and have fallen over the 1998-2002 reporting period. Nitrogen concentrations in the South Belmont Main Drain, the Helena River and Canning River, fell below 1.0 mg/L meeting the Trust's long-term target. Phosphorus in Mills Street Main Drain began to meet the short-term target in 2001 and continued to do so in 2002. In addition nitrogen in the Mills Street Main Drain met the short-term target for the first time in 2002.

While the results are encouraging, the improvements in nutrient levels from 1998 to 2002 were relatively small and may be climatic in origin. Nutrients entering the Swan-Canning tributaries from the catchments tends to be relatively low in periods of low rainfall. It is significant however, that nitrogen and phosphorus levels in Ellen Brook remain high. This tributary discharges directly to the upper Swan River and has a significant influence on phytoplankton growth in the middle and upper basins of the Swan estuary. Judging by the 2002 numbers (17 of 30 samples containing > 0.2 mg/L nitrogen; 30 of 30 > 0.1 mg/L phosphorus), it is unlikely that Ellen Brook will begin to meet either target in the very near future.

Swan-Canning estuary

The estuary targets were developed so that the lower basin would meet the chlorophyll-a and oxygen targets, and the middle and upper areas would breach the targets until there was an improvement in quality. The main concern initially is that the targets were set at levels that are within current natural variation. If this is the case, natural variation may influence the compliance decision when the intent is that they measure only a real and persistent change in quality. In general to 2002, the compliance scheme, the data and the targets are performing as expected. However, it is apparent that the target levels for oxygen in the lower basin are within or too close to the upper bounds of natural levels. The lower basin did not meet the Cleanup Program target in 2001. The target was set originally so the lower basin would meet the targets. The target levels may have to be reviewed and possibly adjusted slightly to better account for natural variation.

Phytoplankton, and to some extent oxygen, in the estuary during summer is primarily influenced by the seasonal and long-term store of nutrients in the bottom sediments. This means that there will be a lag between achieving SCCP's catchment targets and seeing the desired change in the estuary. The length of the time between fixing the catchments and seeing the benefits in the estuary is not currently known and is the subject of on going research.

There is no evidence that phytoplankton biomass or oxygen in the middle or upper estuary basins has improved this year from the previous reporting period. It is unlikely that the improvements in nutrient levels in the tributaries reflect a decrease in the amount of nutrients entering the estuary that is large enough to significantly affect phytoplankton biomass or frequency of blooms. On the positive side nor is there evidence that the quality of water in the lower basin has declined this year.

Key Effectiveness Indicator 2

The extent to which the planning and development recommendations of the Trust are accepted and implemented.

Measure: Level of acceptance of conditions recommended by the Trust for developments.

Conditions placed on approved developments work towards achieving a goal of the Outcome of the Trust to maintain the balance between conservation and development and reflect the community's values.

These data reflect the level of acceptance of recommendations by the Trust to the Minister. Development requiring Ministerial approval is dealt with under Part 5 of the *Swan River Trust Act 1988* and under Clause 30A(1) a of the *Metropolitan Region Scheme*.

The Trust makes recommendations to the Minister on applications to commence development within and affecting the management area. The Minister determines refusal or approval of the Part 5 applications, and whether the recommendation is acceptable to be forwarded to the Minister for Planning and Infrastructure in the case of Clause 30A applications. The Trust's recommendations aim to ensure that development complements the rivers' amenity and does not have a detrimental impact on the environment.

Table 11: The level of acceptance of conditions recommended by the Swan River Trust to the Minister for the Environment and Heritage for developments.

Year	1997 – 98	1998 – 99	1999 - 2000	2000-2001	2001-2002
% Accepted	96%	100%	99%	100%	99%
% Modified	2%	0%	0%	0%	1%
% Rejected	2%	0%	1%	0%	0%

Key Effectiveness Indicator 3

In early 2001 a consultant commissioned by the Trust conducted a telephone poll of 401 Perth residents to ascertain their views on the condition of the rivers and the facilities provided. The survey error was +/- 5 per cent – with a response rate of 35 per cent.

The measures have been compared to previous surveys conducted in 1998-1999,1999-2000 and 2000-2001.

Note: that of the 401 residents surveyed 15 per cent were undecided on the following measure.

Measure: Level of community satisfaction with the availability of public access to the Swan-Canning river system.

Survey	1998-1999	1999-2000	2000-2001	2001-2002
Level of satisfaction	67%	70%	71%	75%

Note: that of the 401 residents surveyed 13 per cent were undecided on the following measure.

Measure: Community assessment of whether sufficient facilities are provided for their use.

Survey	1998-1999	1999-2000	2000-2001	2001-2002
Level of satisfaction	64%	68%	68%	72%

Survey questions in all four years assessed satisfaction with the following aspects of public access; navigation aids, pedestrian walkways/cycle paths, car parking, information and signage, jetty and public boat ramp number and access and access to shoreline reflecting community needs.

Because the changes in the level of satisfaction fall within the +/- 5 per cent survey error rate, they are not considered statistically significant.

Measure: Total number of pollution complaints/ incidents.

The Trust works towards the sustainable use of the system while retaining the balance between conservation and development that reflects community values. This is a key management goal for the river system. Response to pollution complaints aims to reduce the impact of incidents and protect the waterways. Environmental quality, aesthetics, access and use are values placed on the Swan and Canning rivers by the community.

The 2001-2002 period saw a decrease in the number of pollution complaints in relation to last year and the five year average.

Non-pollution related complaints were reports of algal blooms, destruction of vegetation, animal carcases, nuisance watercraft, illegal developments and general complaints.

Year	Number of complaints
1996-1997	96
1997-1998	97
1998-1999	86
1999-2000	82
2000-2001	99
2001-2002	72
5 year average	**87**

Key Efficiency Indicators

OUTPUT 1: Collect water information to support state planning, agencies and community

Output description: Provision of research and information for estuary and river restoration and management

	2000-2001	2001-2002	2001-2002
	Actual	**Target**	**Actual**
Cost/unit			
Cost of waterway monitoring and reporting per km^2 of catchment and waterway	$415	$450	$391
Average cost per project of research and development	$227 595	$164 000	$140 000

The Swan River Trust funds the Water and Rivers Commission to undertake waterway monitoring and reporting on its behalf. This year opportunities to undertake this work in conjunction with other Water and Rivers Commission activities enabled increases in efficiency in delivery of service to the Swan River Trust.

An additional research project was carried out to investigate transfer of nutrients between the water and river sediments. The addition of this project reduced the average expenditure per project.

OUTPUT 2: Regulate riverside development

Output description: Assess applications for development, planning schemes and policy

	2000-2001	2001-2002	2001-2002
	Actual	**Target**	**Actual**
Cost/unit			
Cost of development control policy and advice per km^2 of management area	$7 326	$7 681	$7 130

OUTPUT 3: Management plans

Output description: Prepares management programs (often jointly with local government) for the management of the waterways and the management area. Includes catchment management plans.

	2000-2001	2001-2002	2001-2002
	Actual	**Target**	**Actual**
Cost/unit			
Average cost of production of management plan or strategy	$52 445	$183 000	$56 000

The need to prepare a manual to guide development of individual precinct policy plans and delays in launching the project meant that expenditure on development of precinct policy plans has been deferred to 2002-2003.

OUTPUT 4: Protection of waterways and foreshores

Output description: Maintenance and restoration of waterway and foreshores. Audit and enforcement of the Act and regulations.

	2000-2001	2001-2002	2001-2002
	Actual	**Target**	**Actual**
Cost/unit			
Cost of maintenance and restoration per km of foreshore	$3 338	$3 924	$4 924
Cost of waterway and foreshore protection per km^2 of management area	$2 148	$2 282	$2 777
Cost of water quality improvement projects per km^2 of waterway and catchment	$1 274	$1 331	$1 320

Additional funding was provided in the 2001-2002 budget for foreshore restoration activities. However the 2001-2002 target was not adjusted to reflect the increase in funding.

Waterway and foreshore protection activities are largely reactive depending on the level of activity required to deal with pollution incidents and ensure compliance with the *Swan River Trust Act* and regulations. This year there were increases in the cost of responding to pollution incidents and undertaking enforcement activities.

Continuation of Natural Heritage Trust funding to the Swan Catchment Centre reduced the support required from the Swan River Trust and difficulties in negotiating arrangements and gaining approvals to use the site proposed for constructed wetlands contributed to reducing the level of expenditure.

Financial Statements

Opinion of the Auditor General

AUDITOR **GENERAL**

To the Parliament of Western Australia

SWAN RIVER TRUST
FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 2002

Matters Relating to the Electronic Presentation of the Audited Financial Statements
This audit opinion relates to the financial statements of the Swan River Trust for the year ended June 30, 2002 included on the Trust's web site. The Board is responsible for the integrity of the Trust's web site. I have not been engaged to report on the integrity of the Trust's web site. The audit opinion refers only to the statements named below. It does not provide an opinion on any other information which may have been hyperlinked to or from these statements. If users of this opinion are concerned with the inherent risks arising from electronic data communications, they are advised to refer to the hard copy of the audited financial statements to confirm the information included in the audited financial statements presented on this web site.

Scope
I have audited the accounts and financial statements of the Swan River Trust for the year ended June 30, 2002 under the provisions of the Financial Administration and Audit Act 1985.

The Board is responsible for keeping proper accounts and maintaining adequate systems of internal control, preparing and presenting the financial statements, and complying with the Act and other relevant written law. The primary responsibility for the detection, investigation and prevention of irregularities rests with the Board.

My audit was performed in accordance with section 79 of the Act to form an opinion based on a reasonable level of assurance. The audit procedures included examining, on a test basis, the controls exercised by the Trust to ensure financial regularity in accordance with legislative provisions, evidence to provide reasonable assurance that the amounts and other disclosures in the financial statements are free of material misstatement and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Accounting Standards and other mandatory professional reporting requirements in Australia and the Treasurer's Instructions so as to present a view which is consistent with my understanding of the Trust's financial position, its financial performance and its cash flows.

The audit opinion expressed below has been formed on the above basis.

4th Floor Dumas House 2 Havelock Street West Perth 6005 Western Australia Tel: 08 9222 7500 Fax: 08 9322 5664

Swan River Trust
Financial statements for the year ended June 30, 2002

Audit Opinion
In my opinion,

(i) the controls exercised by the Swan River Trust provide reasonable assurance that the receipt, expenditure and investment of moneys and the acquisition and disposal of property and the incurring of liabilities have been in accordance with legislative provisions; and

(ii) the Statement of Financial Performance, Statement of Financial Position and Statement of Cash Flows and the Notes to and forming part of the financial statements are based on proper accounts and present fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia and the Treasurer's Instructions, the financial position of the Trust at June 30, 2002 and its financial performance and its cash flows for the year then ended.

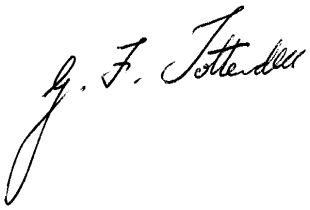
K O O'NEIL
ACTING AUDITOR GENERAL
November 18, 2002

4th Floor Dumas House 2 Havelock Street West Perth 6005 Western Australia Tel: 08 9222 7500 Fax: 08 9322 5664

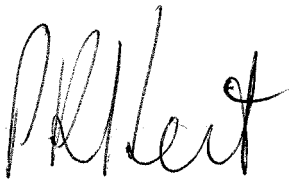
Certification of Financial Statements

The accompanying financial statements of the Swan River Trust have been prepared in compliance with the provisions of the *Financial Administration and Audit Act 1985* from proper accounts and records to present fairly the financial transactions for the year ending 30 June 2002 and the financial position as at 30 June 2002.

At the date of signing, we are not aware of any circumstances, which would render the particulars included in the financial statements misleading or inaccurate.



CHAIRMAN: Geoff Totterdell



PRINCIPAL ACCOUNTING OFFICER: Peter Kent

MEMBER: Timothy Mather

DATE: 28 August 2002

Statement of financial performance for the year ended 30 June 2002

	Note	2001-02 $	2000-01 $
COST OF SERVICES			
Expenses from ordinary activities			
Employee expenses	2	818,846	1,059,947
Supplies and services	3	3,323,861	3,833,358
Depreciation expense	4	46,272	52,552
Borrowing costs expense	5	12,468	14,138
Grants & subsidies	6	731,123	502,348
Goods & materials	7	171,545	65,710
Asset revaluation decrement	8	-	68,000
Capital user charge	9	39,385	-
Other expenses from ordinary activities	10	119,943	111,508
Net loss on disposal of non-current assets	11	2,776	23,162
Total cost of services		5,266,219	5,730,723
Revenues from ordinary activities			
Commonwealth grants and contributions	12	28,350	39,750
Other revenues from ordinary activities	13	118,139	47,119
Total revenues from ordinary activities		146,489	86,869
NET COST OF SERVICES		**5,119,730**	**5,643,854**
REVENUES FROM GOVERNMENT	14		
Output appropriation [(a)]		5,185,000	5,206,000
Contribution from State Government Agency		81,041	-
Resources received free of charge		26,815	16,196
Total revenues from Government		5,292,856	5,222,196
TOTAL CHANGES IN EQUITY OTHER THAN THOSE RESULTING FROM TRANSACTIONS WITH WA STATE GOVERNMENT AS OWNERS		**173,126**	**(421,658)**

(a) Appropriation included capital in 2001

The Statement of Financial Performance should be read in conjunction with the accompanying notes

Statement of financial position as at 30 June 2002

	Note	2001-02 $	2000-01 $
Current Assets			
Cash assets	25(a)	213,194	306,372
Restricted cash assets	15	10,000	10,000
Receivables	16	91,297	69,535
Amounts receivable for outputs	17	85,000	-
Other assets	18	492	569
Total Current Assets		399,983	386,476
Non-Current Assets			
Amounts receivable for outputs	17	71,000	-
Property, plant and equipment	19	431,458	404,512
Total Non-Current Assets		502,458	404,512
Total Assets		902,441	790,988
Current Liabilities			
Payables	20	143,745	34,336
Interest bearing liabilities	21	49,191	7,902
Provisions	22	-	144,455
Other liabilities	23	10,000	10,000
Total Current Liabilities		202,936	196,693
Non-Current Liabilities			
Interest bearing liabilities	21	119,453	168,689
Provisions	22	-	86,680
Total Non-Current Liabilities		119,453	255,369
Total Liabilities		322,389	452,062
NET ASSETS		**580,052**	**338,926**
Equity	24		
Contributed equity		68,000	-
Accumulated surplus/(deficiency)		512,052	338,926
TOTAL EQUITY		**580,052**	**338,926**

The Statement of Financial Position should be read in conjunction with the accompanying notes

Statement of cash flows for the year ended 30 June 2002

	Note	2001-02 Inflows (Outflows) $	2000-01 Inflows (Outflows) $
CASH FLOWS FROM GOVERNMENT			
Output appropriations		5,029,000	5,126,000
Capital contributions (2001 appropriation)		68,000	80,000
Contributions from State Government Agencies		81,041	-
Holding account drawdowns		-	-
Net cash provided by Government		5,178,041	5,206,000
Utilised as follows:			
CASH FLOWS FROM OPERATING ACTIVITIES			
Payments			
Employee costs		(1,051,016)	(978,288)
Supplies and services		(3,478,090)	(3,976,873)
Grants & contributions		(731,123)	(502,348)
Borrowing costs		(12,391)	(14,115)
Capital user charge		(39,385)	-
GST payments on purchases		(400,087)	(424,345)
Receipts			
Other receipts		131,047	43,408
Commonwealth grants and contributions		28,350	19,750
GST receipts on sales		9,076	5,981
GST receipts from taxation authority		356,341	378,449
Net cash provided by/(used in) operating activities	25(b)	(5,187,278)	(5,448,381)
CASH FLOWS FROM INVESTING ACTIVITIES			
Proceeds from sale of non-current physical assets		7,956	10,496
Purchase of non-current physical assets		(83,950)	(5,039)
Net cash provided by/(used in) in investing activities		(75,994)	5,457
CASH FLOWS FROM FINANCING ACTIVITIES			
Repayment of borrowings		(7,947)	(7,770)
Net cash provided by/(used in) in financing activities		(7,947)	(7,770)
Net increase/(decrease) in cash held		**(93,178)**	**(244,694)**
Cash assets at the beginning of the financial year		316,372	561,066
CASH ASSETS AT THE END OF THE FINANCIAL YEAR	25(a)	**223,194**	**316,372**

The Statement of Cash Flows should be read in conjunction with the accompanying notes

Notes to the financial statements for the year ended 30 June 2002

1 SIGNIFICANT ACCOUNTING POLICIES

The following accounting policies have been adopted in the preparation of the financial statements. Unless otherwise stated these policies are consistent with those adopted in the previous year.

General Statement

The financial statements constitute a general purpose financial report which has been prepared in accordance with Australian Accounting Standards, Statements of Accounting Concepts and other authoritative pronouncements of the Australian Accounting Standards Board, and Urgent Issues Group (UIG) Consensus Views as applied by the Treasurer's Instructions. Several of these are modified by the Treasurer's Instructions to vary application, disclosure, format and wording. The Financial Administration and Audit Act and the Treasurer's Instructions are legislative provisions governing the preparation of financial statements and take precedence over Australian Accounting Standards, Statements of Accounting Concepts and other authoritative pronouncements of the Australian Accounting Standards Board, and UIG Consensus Views. The modifications are intended to fulfil the requirements of general application to the public sector, together with the need for greater disclosure and also to satisfy accountability requirements.

If any such modification has a material or significant financial effect upon the reported results, details of that modification and where practicable, the resulting financial effect, are disclosed in individual notes to these financial statements.

The statements have been prepared on the accrual basis of accounting using the historical cost convention, except for certain assets and liabilities, which as noted, are measured at valuation.

(a) Output Appropriations

Output Appropriations are recognised as revenues in the period in which the Trust gains control of the appropriated funds. The Trust gains control of appropriated funds at the time those funds are deposited into the Trust's bank account or credited to the holding account held at the Department of Treasury and Finance.

(b) Contributed Equity

Under UIG 38 "Contributions by Owners Made to Wholly-Owned Public Sector Entities" transfers in the nature of equity contributions must be designated by the Government (owners) as contributions by owners (at the time of, or prior to transfer) before such transfers can be recognised as equity contributions in the financial statements. Capital contributions (appropriations) have been designated as contributions by owners and have been credited directly to Contributed Equity in the Statement of Financial Position. All other transfers have been recognised in the Statement of Financial Performance. Prior to the current reporting period, capital appropriations were recognised as revenue in the Statement of Financial Performance. Capital appropriations which are repayable to the Treasurer are recognised as liabilities.

(c) Grants and Other Contributions Revenue

Grants, donations, gifts and other non-reciprocal contributions are recognised as revenue when the Trust obtains control over the assets comprising the contributions. Control is normally obtained upon their receipt.

Contributions are recognised at their fair value. Contributions of services are only recognised when a fair value can be reliably determined and the services would be purchased if not donated.

(d) Revenue Recognition

Revenue from the sale of goods and disposal of other assets and the rendering of services, is recognised when the Trust has passed control of the goods or other assets or delivery of the service to the customer.

(e) Acquisition of Assets

The cost method of accounting is used for all acquisitions of assets. Cost is measured as the fair value of the assets given up or liabilities undertaken at the date of acquisition plus incidental costs directly attributable to the acquisition.

Assets acquired at no cost or for nominal consideration, are initially recognised at their fair value at the date of acquisition.

(f) Depreciation of Non-current Assets

All non-current assets having a limited useful life are systematically depreciated over their useful lives in a manner which reflects the consumption of their future economic benefits.

Depreciation is calculated on the straight line basis, using rates which are reviewed annually. Useful lives for each class of depreciable asset are:

Plant and Equipment	5-7 years

(g) Cash

For the purpose of the Statement of Cash Flows, cash includes cash assets and restricted cash assets. These include short-term deposits that are readily convertible to cash on hand and are subject to insignificant risk of changes in value.

(h) Receivables

Receivables are recognised at the amounts receivable as they are due for settlement no more than 30 days from the date of recognition.

Collectability of receivables is reviewed on an ongoing basis. Debts which are known to be uncollectable are written off. A provision for doubtful debts is raised where some doubts as to collection exists and in any event where the debt is more than 60 days overdue.

(i) Payables

Payables, including accruals not yet billed, are recognised when the Trust becomes obliged to make future payments as a result of a purchase of assets or services. Payables are generally settled within 30 days.

(j) Interest-bearing Liabilities

Bank loans and other loans are recorded at an amount equal to the net proceeds received. Borrowing costs expense is recognised on an accrual basis.

(k) Employee Entitlements

All employees performing the functions of the Trust are employees of the Water & Rivers Commission. Therefore the Trust has no liability in relation to employee entitlements. Liability for employee entitlements rests with the Water & Rivers Commission.

(l) Resources Received Free of Charge or For Nominal Value

Resources received free of charge or for nominal value which can be reliably measured are recognised as revenues and as assets or expenses as appropriate at fair value.

(m) Valuation of Non Current Assets

The Trust has a policy of reporting land at fair value. Certain non-current assets have been revalued from time to time as disclosed in the financial statements. Increments are taken to asset revaluation reserve. Decrements have been offset against previous increment (if any) relating to the same assets and the balance (if any) charged against profits.

Other assets are recognised at cost.

(n) Comparative Figures

Comparative figures are, where appropriate, reclassified so as to be comparable with the figures presented in the current financial year.

(o) Rounding

Amounts in the financial statements have been rounded to the nearest dollar, or in certain cases, to the nearest thousand dollars.

		2001-02 $	2000-01 $
2	**EMPLOYEE EXPENSES**		
	Salaries	1,049,981	961,529
	Change in employee entitlements	(231,135)	98,418
		818,846	1,059,947
3	**SUPPLIES AND SERVICES**		
	Service related expenses include professional and non-professional service contracts, leases, chemical analysis, legal charges, consultants, advertising, and other service related expenses.	3,323,861	3,833,358
4	**DEPRECIATION EXPENSE**		
	Buildings	-	527
	Plant, machinery & equipment	46,272	52,025
		46,272	52,552
5	**BORROWING COST EXPENSE**		
	Interest paid	12,468	14,138
6	**GRANTS & SUBSIDY PAYMENTS**		
	Expenses incurred for the year	731,123	502,348

	2001-02 $	2000-01 $
7 GOODS & MATERIALS		
Goods and materials include office supplies, library acquisitions, laboratory supplies, motor vehicle running expenses, utilities and other consumable equipment and materials.	171,545	65,710
8 ASSET REVALUATION DECREMENT		
Revaluation of land at fair value 30 June 2000. See note 1(m)	-	68,000
9 CAPITAL USER CHARGE	39,385	-

A capital user charge rate of 8% has been set by the Government for 2001-02 and represents the opportunity cost of capital invested in the net assets of the Trust used in the provision of outputs. The charge is calculated on the net assets adjusted to take account of exempt assets. Payments are made to the Department of Treasury and Finance on a quarterly basis.

10 OTHER EXPENSES FROM ORDINARY ACTIVITIES		
Other operating expenses include communication expenses, asset maintenance costs and other sundry operating expenses.	119,943	111,508
11 NET LOSSES ON DISPOSAL OF NON CURRENT ASSETS		
Profit on Sale of Non-current Assets		
Plant and equipment	(7,956)	-
Loss on Sale of Non-current Assets		
Computing equipment	1,548	-
Plant and equipment	9,184	-
Buildings	-	23,162
Net loss	2,776	23,162
Gross proceeds on disposal of asset	7,956	10,496
12 COMMONWEALTH GRANTS & CONTRIBUTIONS		
National Heritage Trust Fund	28,350	39,750
13 OTHER REVENUES FROM ORDINARY ACTIVITIES		
Sundry revenue	118,139	47,119

	2001-02 $	2000-01 $
14 REVENUES (TO)/FROM GOVERNMENT		
Appropriation revenue received during the year:		
Output appropriations [(a)]	5,185,000	5,126,000
Capital appropriations [(b)]	-	80,000
	5,185,000	5,206,000
Contributions received from other government agencies		
Water and Rivers Commission [(c)]	81,041	-
Resources received free of charge [(d)]		
Determined on the basis of the following estimates provided by agencies:		
Office of the Auditor General	11,000	7,500
Department of Land Administration	693	2,016
Crown Solicitors Office	15,122	6,680
	26,815	16,196

(a) Output appropriations are accrual amounts as from 1 July 2001, reflecting the full price paid for outputs purchased by the Government. The appropriation revenue comprises a cash component and a receivable (asset). The receivable (holding account) comprises the depreciation expense for the year and any agreed increase in leave liability during the year.

(b) Capital appropriations were revenue in 2001 (year ended 30 June 2001). From 1 July 2001, capital appropriations, termed Capital Contributions, have been designated as contributions by owners and are credited straight to equity in the Statement of Financial Position.

(c) Return of unspent funds for activities formerly administered by Water & Rivers Commission now undertaken by the Trust.

(d) Where assets or services have been received free of charge or for nominal consideration, the Trust recognises revenues equivalent to the fair value of the assets and/or the fair value of those services that can be reliably determined and which would have been purchased if not donated, and those fair values shall be recognised as assets or expenses, as applicable.

15 RESTRICTED CASH ASSETS		
Current		
Developer Bonds	10,000	10,000

The cash held in this account are to be used in repaying bond monies.

16 RECEIVABLES		
Trade debtors	17,674	30,582
GST receivable	73,623	38,953
	91,297	69,535

	2001-02 $	2000-01 $

17 AMOUNTS RECEIVABLE FOR OUTPUTS

Current	85,000	-
Non-current	71,000	-
	156,000	-

This asset represents the non-cash component of output appropriations. It is restricted in that it can only be used for asset replacement or payment of leave liability.

18 OTHER ASSETS

Prepayments	492	569
	492	569

19 PROPERTY, PLANT AND EQUIPMENT

Plant, machinery & equipment at cost	487,048	529,176
Accumulated depreciation	(267,590)	(336,664)
	219,458	192,512
Freehold land at fair value [(a)]	212,000	212,000
	212,000	212,000
	431,458	404,512

(a) The revaluation of freehold land was performed in June 2000 in accordance with an independent valuation by the Valuer General's Office. Fair value has been determined on the basis of current market buying values. The valuation was made in accordance with a regular policy of annual revaluation. Note that prior to 2001 land was carried at a mixture of cost and valuation. On the initial application of AASB 1041 (AAS 38) in 2001 land was revalued to fair value.

Reconciliations

Reconciliations of the carrying amounts of property, plant and equipment at the beginning and end of the current financial year are set out below.

2002	Plant, machinery & Equipment $	Land $	Total $
Carrying amount at start of year	192,512	212,000	404,512
Additions	83,950	-	83,950
Disposals	(10,732)	-	(10,732)
Revaluation increments/(decrements)	-	-	-
Depreciation	(46,272)	-	(46,272)
Carrying amount at end of year	219,458	212,000	431,458

		2001-02 $	2000-01 $
20 PAYABLES			
Trade payables		-	8,545
Accrued expenses		143,745	25,791
		143,745	34,336
21 INTEREST BEARING LIABILITIES			
Borrowings from WA Treasury Corporation			
Balance of Loan 30 June 2002	Current:	49,191	7,902
	Non-current:	119,453	168,689
		168,644	176,591
22 PROVISIONS			
Current			
Annual leave		-	106,277
Long service leave		-	38,178
		-	144,455
Non-current			
Long service leave		-	86,680
Employee Entitlements			
The aggregate employee entitlement liability recognised and included in the financial statements is as follows:			
Provision for employee entitlements:			
Current		-	144,455
Non-current		-	86,680
		-	231,135
23 OTHER LIABILITIES			
Developer bond		10,000	10,000
		10,000	10,000
24 EQUITY			
Contributed equity			
Opening balance		-	-
Capital contributions [(a)]		68,000	-
Closing balance		68,000	-
(a) From 1 July 2001, capital appropriations, termed Capital Contributions, have been designated as contributions by owners and are credited straight to equity in the Statement of Financial Position.			
Accumulated surplus/(deficiency)			
Opening balance		338,926	760,584
Change in net assets resulting from operations		173,126	(421,658)
Closing balance		512,052	338,926
Total equity		580,052	338,926

	2001-02 $	2000-01 $

25 NOTES TO THE STATEMENT OF CASH FLOWS

(a) Reconciliation of cash

Cash at the end of the financial year as shown in the Statement of Cash Flows is reconciled to the related items in the Statement of Financial Position as follows:

Cash assets	213,194	306,372
Restricted cash assets	10,000	10,000
	223,194	316,372

(b) Non-cash financing and investing activities

During the financial year, there were no assets/liabilities transferred/assumed from other government agencies not reflected in the Statement of Cash Flows.

(c) Reconciliation of net cost of services to net cash flows provided by/(used in) operating activities.

Net cost of services	(5,119,730)	(5,643,854)
Non-cash items:		
Depreciation expense	46,272	52,552
Resources received free of charge	26,815	16,196
Asset revaluation decrement	-	68,000
Loss on sale of non-current assets	2,776	23,162
(Increase)/decrease in assets:		
Receivables	12,908	(62,663)
Other assets	77	23
Increase/(decrease) in liabilities:		
Payables	109,409	6,544
Provisions	(231,135)	98,417
Other liabilities	-	(6,758)
Change in GST in receivables/payables	(34,670)	-
Net cash provided by/(used in) operating activities	**(5,187,278)**	**(5,448,381)**

26 COMMITMENTS OF EXPENDITURE

The Trust has no commitments of expenditure at 30 June 2002.

27 CONTINGENT LIABILITIES

The Trust has no contingent liabilities at 30 June 2002.

28 EVENTS OCCURRING AFTER REPORTING DATE

No events have occurred after reporting date which would materially impact on the financial statements.

29 EXPLANATORY STATEMENTS

a) Significant variations between actual revenues and expenditures for the financial year and revenues and expenditures for the immediately preceding financial year

Details and reasons for significant variations between actual results with corresponding items of the preceding year are detailed below. Significant variations are considered to be those greater than 10% or $200,000.

	Note	2001-02 Actual $	2000-01 Actual $	Variance $	Variance %
COST OF SERVICES					
Expenses from ordinary activities					
Employee expenses	(i)	818,846	1,059,947	(241,101)	-23%
Supplies and services	(ii)	3,323,861	3,833,358	(509,497)	-13%
Depreciation expense	(iii)	46,272	52,552	(6,280)	-12%
Borrowing costs expense	(iv)	12,468	14,138	(1,670)	-12%
Grants & subsidies	(v)	731,123	502,348	228,775	46%
Goods & materials	(vi)	171,545	65,710	105,835	161%
Asset revaluation decrement		-	68,000	(68,000)	-100%
Capital user charge		39,385	-	39,385	n/a
Other expenses from ordinary activities		119,943	111,508	8,435	8%
Net loss on disposal of non-current assets		2,776	23,162	(20,386)	-88%
Total cost of services		5,266,219	5,730,723	(464,504)	
Revenues from ordinary activities					
Commonwealth grants and contributions	(vii)	28,350	39,750	(11,400)	-29%
Other revenues from ordinary activities	(viii)	118,139	47,119	71,020	151%
Total revenues from ordinary activities		146,489	86,869	59,620	
NET COST OF SERVICES		**5,119,730**	**5,643,854**	**(524,124)**	

Explanation of Variances

(i) Employee expenses

The variance is due to the write-back of the Provision for Employee Entitlements that should be recognised in the financial statements of the Water and Rivers Commission.

(ii) Service related expenses

The variance is due to a number of factors in relation to recoups from other departments:

	$
- Activities formerly performed by Water & Rivers Commission now undertaken by the Trust during the financial year.	(345,414)
- Changing activity level during the life of the Sediment Remediation project.	(270,000)
- Statutory referrals partly sourced in-house.	(14,286)
- Swan Oxygenation project completed in the previous financial year.	(90,000)
- Additional professional services paid to the Eastern Metropolitan Regional Council for NRM Policy Development.	172,500
- Other	37,703
	(509,497)

(iii) Depreciation expense

The variance is due to a number of assets disposed during the financial year, reducing the asset base of the Trust.

(iv) Borrowing cost expense

The variance is due to falling interest rates charged by WA Treasury Corporation.

(v) Grants & subsidies

A number of factors contributed to the increase in grants and subsidy payments:

	$
- Increase in Priority Catchment Funding.	36,000
- Unspent grants allocated in 2000/01 paid during this financial year.	22,500
- A grant to Swan Catchment Council.	25,000
- Additional SCULP grant payment.	100,000
- Grants to local government for foreshore protection works.	54,252
- Other	(8,977)
	228,775

(vi) Goods & materials

The variance is due to additional purchases incurred during the financial year.

(vii) Commonwealth grants and contributions

The variance is due to a reduction of grants received from National Heritage Trust Fund.

(viii) Other revenues from ordinary activities

The variance is due to the following:

	$
- Expenses capitalised during the financial year.	20,000
- Additional grants received for the Landscape Precinct Policy Plan.	45,454
- Other	5,566
	71,020

b) Significant variations between estimates and actual results for the financial year

Details and reasons for significant variations between actual results with corresponding items of the preceding year are detailed below. Significant variations are considered to be those greater than 10% or $200,000.

Output	Note	2001-02 Actual $'000	2001-02 Estimate $'000	Variance $'000	Variance %
Collect water information to support state planning, agencies and community		1,248	1,280	(32)	-3%
Regulate riverside development		492	530	(38)	-7%
Management plans	(ix)	56	183	(127)	-69%
Protection of waterways and foreshores		3,704	3,547	157	4%
		5,500	5,540	(40)	

Explanation of Variances

(ix) Management plans

The variance is due to delays in establishing the Landscape Precinct Policy Plan project to be undertaken by the Trust and the Western Australian Planning Commission. This also contributed a reduction in the allocation of Corporate Service and Community Awareness costs to this output.

	2001-02 $	2000-01 $

30 FINANCIAL INSTRUMENTS

(a) Interest Rate Risk Exposure

The following table details the Trust's exposure to interest rate risk as at the reporting date:

			Fixed interest rate maturities				
	Weighted average effective interest rate	Variable Interest Rate	Less than 1 Year	1 to 5 Years	More that 5 Years	Non-Interest Bearing	Total
2002	%	$'000	$'000	$'000	$'000	$'000	$'000
Financial Assets							
Cash assets		-	-	-	-	213	213
Restricted cash assets		-	-	-	-	10	10
Receivables		-	-	-	-	91	91
		-	-	-	-	314	314
Financial Liabilities							
Payables		-	-	-	-	144	144
WATC/Bank loans	6.87	-	65	60	44	-	169
		-	65	60	44	144	313
2001							
Financial assets		-	-	-	-	387	387
Financial liabilities	7.15	-	6	34	137	277	454

(b) Credit Risk Exposure

The Trust does not have any significant exposure to any individual customer or counter party. Amounts owing by other government agencies are guaranteed and therefore no credit risk exists in respect to those amounts. In respect of other financial assets the carrying amounts represent the Trust's maximum exposure to credit risk in relation to those assets. All financial assets are unsecured.

The following is an analysis of amounts owing within the categories of government and private sector:

Western Australian Government agencies	17,553	30,582
Private Sector	121	-
Commonwealth Govt - ATO (GST)	73,623	39,915
Total	91,297	70,497

(c) Net Fair Values

The carrying amounts of financial assets and financial liabilities recorded in the financial statements are not materially different from their net fair values, determined in accordance with the accounting policies disclosed in note 1 to the financial statements.

	2001-02 $	2000-01 $

31 REMUNERATION OF MEMBERS OF THE ACCOUNTABLE AUTHORITY AND SENIOR OFFICERS

Remuneration of Members of the Accountable Authority

The number of members of the Accountable Authority, whose total of fees, salaries, superannuation and for the financial year, fall within the following bands are:

$	2002	2001
0 - 10,000	3	4
10,001 - 20,000	1	1

The total remuneration of the members of the Accountable Authority is:	28,713	30,043

The superannuation included here represents the superannuation expense incurred by the Authority in respect of members of the Accountable Authority.

No members of the Accountable Authority are members of the Pension Scheme.

Remuneration of Senior Officers

The number of Senior Officers other than senior officers reported as members of the Accountable Authority, whose total of fees, salaries, superannuation and other benefits for the financial year, fall within the following bands are:

$	2002	2001
80,001 – 90,000	1	-
100,001 – 110,000	-	1

The total remuneration of senior officers is:	89,186	101,983

The superannuation included here represents the superannuation expense incurred by the Trust in respect of senior officers.

One senior officer is a member of the Pension Scheme.

32 RELATED AND AFFILIATED BODIES

The Trust does not provide any assistance to other agencies which would deem them to be regarded as related or affiliated bodies under the definitions included in Treasurer's Instruction 951.

	2001-02 $	2000-01 $

33 SUPPLEMENTARY INFORMATION

Write Offs

Receivables written-off	-	12,648

Losses through theft, defaults and other causes

The Trust had no losses through theft, defaults and other causes during the financial year.

Gifts of Public Property

The Trust had no gifts of public property during the financial year.

34 OUTPUT INFORMATION

	Collect Water Information	Regulate Riverside Development	Management Plans	Protection of Waterways and Foreshore	Total
	2002	2002	2002	2002	2002
	$000	$000	$000	$000	$000
COST OF SERVICES					
Expenses from ordinary activities					
Employee expenses	7	232	17	563	819
Supplies and services	1,123	210	34	1,957	3,324
Depreciation expense	11	4	-	31	46
Borrowing costs expense	3	1	-	8	12
Grants & subsidies	2	-	-	729	731
Goods & materials	29	12	1	130	172
Asset revaluation decrement	-	-	-	-	-
Capital user charge	8	4	-	27	39
Other expenses from ordinary activities	13	7	-	100	120
Net loss on disposal of non-current assets	1	-	-	2	3
Total cost of services	1,197	470	52	3,547	5,266
Revenues from ordinary activities					
Commonwealth grants and contributions	6	3	-	19	28
Other revenues from ordinary activities	26	11	1	80	118
Total revenues from ordinary activities	32	14	1	99	146
NET COST OF SERVICES	1,165	456	51	3,448	5,120
REVENUES FROM GOVERNMENT					
Output appropriation	1,177	463	53	3,492	5,185
Contribution from State Government Agency	18	7	1	55	81
Resources received free of charge	7	2	-	18	27
Total revenues from Government	1,202	472	54	3,565	5,293
Change in net assets	37	16	3	117	173

Reporting Requirements

Under arrangements provided for by Section 31 (2) of the *Swan River Trust Act* the Water and Rivers Commission provides the Trust with corporate services. Water and Rivers Commission outcomes for Disability Services, Equal Employment Opportunity, Cultural Diversity and Language Services, and Youth are applicable to the Swan River Trust and can be found in the Water and Rivers Commission Annual Report.

Conflict of interest

The Trust has procedures for identifying, preventing and resolving conflicts of interest. These procedures are outlined in the Swan River Trust Meeting Procedures 1996 and the Swan River Trust Code of Conduct 2000. Cr Marion Blair declared a conflict of interest on two occasions when considering matters before the Board, and did not vote on those occasions. Mr Geoff Totterdell declared a conflict of interest on one occasion when considering a matter before the Board and did not vote on that occasion.

Freedom of information

The Trust received four applications for information under the provisions of the *Freedom of Information Act 1992*. Of these, one was fully transferred to Department for Planning and Infrastructure, one was given full access and two applications had edited access. Fees totalling $120 were received for the processing of these applications.

Advertising and marketing

Expenditure incurred by the Swan River Trust during 2001-2002 in relation to section 175 ZE of the *Electoral Act* was as follows:

Class of Expenditure	Expenditure	Name of Person/Agency where annual payment was greater than $1 600
Media advertising agencies	$53 186	Media Decisions
Advertising agencies	$14 149	Marketforce Productions
Market research organisations	$9 125	Hides Consulting Group
TOTAL EXPENDITURE	$76 460	

Waste paper recycling

In 2001-2002, the Trust's Hyatt office recycled 1.2 tonnes of waste paper.

The Trust continue to recycle plastic, aluminium and steel cans, glass and milk cartons.

Corporate Governance

The Board

The Board of the Swan River Trust is accountable for the performance of the Trust and is responsible for its corporate governance. The Board formulates strategic direction, establishes policies, provides advice on development applications to the Minister for the Environment and Heritage sets the budget and programs and monitors achievements against agreed targets and outcomes.

Written reports on the Trust's activities and financial statements are provided to the Board each month, and performance evaluations are carried out on 31 December and 30 June each year.

The four Board members appointed by the Minister for the Environment and Heritage are appointed for three year terms. The term of appointment of the other four members is at the discretion of the Minister or agency nominating them. The Board meets twice a month, while its River Management Committee holds monthly meetings. The River Management Committee, which reports to the Board, comprises four Board members, five agency representatives and two advisers.

The Board operates in accordance with the *Public Sector Management Act 1995*, the Swan River Trust Code of Conduct 2000 and the Swan River Trust Meeting Procedures 1996.

Remuneration for the Board includes an annual fee of $17 100 for the Chairman and sitting fees for members of $266 for full day meetings, or $176 for half day meetings.

In 2001-2002, there were 23 Board meetings, with attendance by Board members shown below:

Member	Number Attended	Maximum Possible Attended
Geoff Totterdell	17	23
Noel Robins	18	23
Ray Stokes	11	23
Kim Stone	4	4
Brian Martin	18	23
Pat Hart	21	23
Timothy Mather	21	23
Marion Blair	18	23
Cleve Flottmann	17	19

Strategic plan

The Strategic Plan developed by the Trust for 1999-2000 remained relevant and continued to be applied in 2001-2002.

Internal audit

The Water and Rivers Commission provides corporate services for the Trust. The Trust relies upon the internal audit of the Water and Rivers Commission for assurance of compliance with the *Financial Administration and Audit Act*, Regulations and Treasurer's Instructions.

In addition, the Trust established it's own audit committee last year which focused more on compliance with the Trust's own enabling legislation and internal policies and procedures. The first of these audits was carried out in June 2002 by the accounting firm Hall Chadwick.

Asset management

The Trust has assets worth approximately $431 458 under its control, and has undertaken the following steps to ensure effective management of those assets. We have complied with all Treasurer's Instructions, have carried out a stocktake, undertaken capital asset planning, and complied with all relevant accounting standards.

Risk management

Swan River Trust operations are covered under Water and Rivers Commission risk management strategies.

Performance monitoring and reporting

The Swan River Trust provides written monthly reports on its activities and financial statements to the Board. Additionally, performance is evaluated at 31 December and 30 June each year. Annual performance is reported to the Minister and Parliament in the Trust's Annual Report.

Code of conduct

Swan River Trust staff operate under a Code of Conduct, as required by the Western Australian Public Sector Code of Ethics. Because staff are provided by the Water and Rivers Commission, the Trust has adopted the Commission's Code of Conduct.

All staff have access to the Code of Conduct on the Intranet and are regularly reminded of its application.

Customer service charter

In delivering its services, the Trust seeks to:

- Involve stakeholders and the community
- Be professionally objective on the basis of the best scientific information and professional advice available

- Make sure our services are cost effective
- Respond to enquires promptly and courteously
- Return calls within 24 hours if telephone enquires cannot be dealt with immediately
- Meet deadlines for responses to statutory referrals
- Maintain an average development application processing time of no more than 60 days
- Ensure people reporting pollution and making complaints are advised of the outcome of their complaint
- Ensure that all information is, to the best of our knowledge, accurate and up-to-date
- Uphold the *Freedom of Information Act*
- Consider the needs of people with disabilities and other special needs.

Ministerial directions

Under Section 7 (3) of the *Swan River Trust Act 1988*, the Minister may give directions in writing to the Trust, generally with respect to the performance of its functions. The Trust is to give effect to any such direction. No such directions were given by the Minister during the period under review.

Industrial agreements

Swan River Trust staff are provided by the Water and Rivers Commission and are subject to industrial agreements negotiated with the Commission.

Executive remuneration is paid in accordance with public service conditions, and reflecting the Water and Rivers Commission industrial agreements.

Workers' compensation statistics

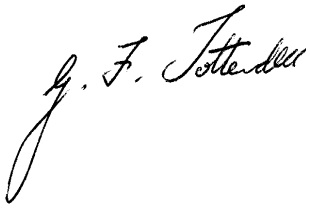
The Commission provides the Trust with the staff and corporate services necessary for the Trust to carry out its functions therefore reporting workers' compensation statistics are covered within the Water and Rivers Commission Annual Report.

Compliance with legislation

In the performance of its functions, the Swan River Trust has exercised all reasonable care to comply with the following relevant written laws, as amended from time to time:

- Swan River Trust Act 1988
- Freedom of Information Act 1992
- Public Sector Management Act 1994
- Financial Administration and Audit Act 1985
- Equal Opportunity Act 1984
- Aboriginal Heritage Act 1972-80

- Conservation and Land Management Act 1984
- Control of Vehicles (Off Road Areas) Act 1978
- Disability Services Act 1993
- Environmental Protection Act 1986
- Fisheries Act 1905
- Government Employees Superannuation Act 1987
- Heritage of WA Act 1990
- Industrial Relations Act 1979
- (Employment Acts) 1991
- Interpretation Act 1984
- Jetties Act 1926
- Land Act 1933
- Local Government Act 1995
- Local Government by-laws
- Marine Act, Health (Food Standards) (General) Regulations 1987
- Marine and Harbours Act 1981
- Metropolitan Region Town Planning Scheme Act 1963
- Minimum Conditions of Employment Act 1993
- Native Title Act 1993
- Navigation Act, Navigable Waters Regulations
- Occupational Safety and Health Act 1984
- Parliamentary Commissioner Act 1971
- Pollution of Waters by Oil and Noxious Substances Act 1987
- Public and Bank Holidays Act 1972
- Rights in Water and Irrigation Act 1914
- State Supply Commission Act 1991
- Town Planning and Development Act 1928
- Water Corporation Act 1995
- Water and Rivers Commission Act 1995
- Workers' Compensation and Assistance Act 1993



Geoff Totterdell, Chairman

Darryl Miller, A/Manager