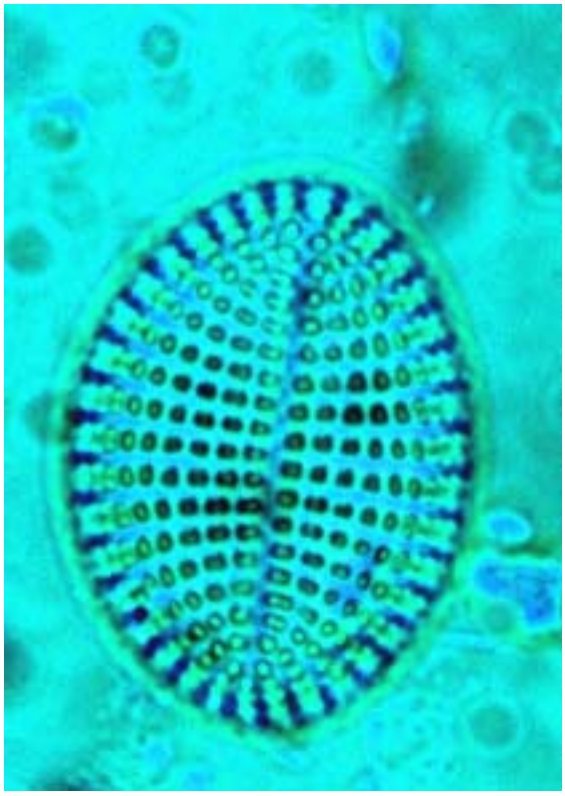
SWAN RIVER TRUST

ANNUAL REPORT

2000–2001



Front cover: *Microscopic view of* Cocconeis*, a diatom algae that attaches itself and grows on other plants (i.e. epiphyte). It occurs mainly in the lower reaches of the Swan River.*

Courtesy Water and Rivers Commission
Phytoplankton Ecology Unit

ANNUAL REPORT

2000 – 2001

Swan River Trust

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ISSN: 1033-9779

Hon Dr Judith Mary Edwards, MB, BS, MLA

Minister for the Environment and Heritage
(formerly Minister for Water Resources)

To the Hon Dr Judith Mary Edwards, MB, BS, 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 13th annual report on the operations of the Swan River Trust for the period 1 July 2000 to 30 June 2001.

Geoff Totterdell
Chairman

31 August 2001

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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.

Operations Summary

Water Information

Aims:

To understand the water quality of the Swan-Canning river system and to establish environmental standards, provide information on whether they are being met, identify hazards to public health and recreational use of the rivers associated with poor water quality and to help assess overall environmental quality.

Achievements:

- Over 14 years continuous monitoring of nutrient levels in key catchment tributaries and seven years monitoring water quality and ecosystem health in the estuarine portions of the Swan-Canning river system
- Continuous monitoring of phytoplankton and micro-algae activity in the Swan-Canning river system and the provision of public health and water quality information to local authorities and the community.
- The Trust adopted estuarine water quality targets for total nitrogen and phosphorus concentrations, oxygen saturation and phytoplankton abundance for the Swan-Canning river system.
- Provision of monitoring, experimental and trial data for reporting on progress of the Swan-Canning Cleanup Program to the wider public community and other government agencies.
- Continued Phoslock™ trials in an 800-metre section of the Canning River in February 2001.
- Conducted oxygenation trials in the Swan River.

Future Directions:

- Increase our knowledge of the factors contributing to phytoplankton blooms and poor water quality, those maintaining good estuarine environmental water quality and, to better appreciate water quality trends and their predictive value.

Riverside Development

Aims:

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

Achievements:

- The Trust considered 223 development applications for developments within and adjoining the Swan River Trust Management Area.
- Reviewed the boundaries of the Trust's Management Area to conform to the current boundaries for local planning authorities and the Metropolitan Region Scheme.
- Completed a review of Trust assessment policies.

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-Canning Precinct Policy Plan progressed through a refinement of the Vision and Guiding Principles that have been adopted by the Trust and the Western Australian Planning Commission.
- Review of existing Trust worm digging guidelines.
- The Trust has developed a draft policy and implementation strategy to phase out discharges of air conditioner wastewater to storm water drains.
- Sixteen local government Environmental Health Officers and seven businesses successfully completed Cleaner Production training.

Future Directions:

- A draft Environmental Management System will be provided to yacht club and marinas for consideration.
- Progress the Swan-Canning Precinct Policy Plan and studies for precincts around the rivers.

Protection of Waterways and Foreshores

Aims:

To protect the Swan-Canning river system from the adverse effects of human activity and to provide facilities for public use that maintain public safety and enjoyment of the river.

Achievements:

- 515 people participated in Property Planning field days, workshops and/or seminars.
- Management Plan for the Canning River developed for public comment.
- Continued oxygenation program in the Canning River.
- 33 beaches and 146 km of foreshores of the Swan and Canning rivers were regularly cleaned and maintained.
- 1821 tonnes of beach sand relocated to replenish eroded public beaches.

Future Directions:

- Work with local government on shoreline restoration, revegetation and weed control.
- Continue to support landowners in adopting Best Management Practices through workshops and farmnotes.
- Launch of Caring for the Canning management plan.

Community Education and Awareness

Aims:

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

Achievements:

- The Swan-Canning Cleanup Program public awareness campaign reached new audiences.
- Thirteen community service announcements achieved a 23 per cent increase of awareness of programs to help keep our rivers healthy.
- A bus shelter advertising campaign was successfully run in March, April and May using a simple but direct visual image.
- The number of schools in the Swan Region registered with Ribbons of Blue increased to 113 with 36 joining this year.
- The number of catchment groups working with Ribbons of Blue schools in the Swan Region rose from eight to 16 this year.
- The Swan River Trust website at www.wrc.wa.gov.au/srt was updated with weekly monitoring results.

Future Directions:

- Continue the public awareness campaign as part of the Swan-Canning Cleanup Program with the aim of changing behaviours to reduce pollutants entering the rivers.

Chairman's Report

Geoff Totterdell

This year has been both challenging and somewhat controversial for the Swan River Trust.

An important activity for the Trust is its involvement in helping regulate riverside development by providing advice on development applications within and adjoining the Trust's Management Area. Planning and development around the rivers is without doubt the most controversial part of the Trust's work. It was this issue that led to the formation of the Swan River Trust in 1988. There is a wide range of views in the community on the desirability of further development around the rivers.

The Trust's responsibility to the community is to make sure its decisions and advice to the Minister for Water Resources consider the best interests of the rivers' health and amenity as well as the values held by the community.

The Trust considered 223 development applications, the more notable including the construction of a public jetty at Minim Cove (recommended), a boat ramp upgrade at Goodwood Parade (recommended), advertising signage on the Swan River (not recommended), and a four storey, three star hotel at Barrack Square (recommended subject to 32 conditions being met).

To improve the level of service and to provide clearer guidance for the public the Trust has completed a review of its development control policies. Once formally adopted they will be published and become available on the Trust's web site.

This year the Swan-Canning Precinct Policy Plan progressed through a refinement of the Vision and Guiding Principles that have been adopted by the Trust and the Western Australian Planning Commission. The Swan-Canning Precinct Policy Plan sets out to balance development expectations, recreational activities and protection of the amenity and environment of the Swan-Canning river system.

The Plan recognises that developments outside of the Trust's Management Area can have a significant impact on the river and its landscape setting. It promotes collaborative planning between State and local government and uses existing statutory planning mechanisms and legislation.

The Swan-Canning Cleanup Program (SCCP) is the Trust's major initiative utilising more than 62% of the total budget. I believe the program is the most significant action to protect the health and quality of the Swan-Canning river system ever embarked upon. It is important that this commitment is sustained in the long term if we are to achieve a reduction of nutrient levels in the river and maintain their environmental amenity.

The second year of the SCCP Action Plan concludes with a strong spirit of cooperation and commitment from everybody involved in the wide range of activities contributing to achieving the program's goals. Several of the Action Plan projects are delivered through other organisations. All have now commenced and most have consolidated and are beginning to show results. A pleasing feature of these arrangements is the way in which State and local government agencies and community groups have also adopted the program's identity and are delivering its messages to the community.

This year SCCP involved 24 major projects with more than 50 people from five agencies working full or part time on them as well as increasing support from numerous community based catchment groups.

Efforts to strengthen and support Integrated Catchment Management have been a priority of SCCP with direct funding to catchment groups totalling $404 000. As well as supporting established catchment groups, the funds also fostered community involvement in other SCCP priority catchments. For example, funds provided to the Blackadder-Woodbridge catchment group contributed toward development of a catchment group in Susannah Brook, a SCCP priority catchment without an active catchment group. The Trust also helped fund the establishment of the Canning Plain Catchment Group.

During the year 515 people participated in Property Planning field days, workshops and/or seminars as part of the SCCP property planning project. These workshops assist landholders to develop and implement Property Plans and adopt best management practices to reduce nutrient losses.

The Trust has also extended its community awareness program. The great challenge is to reach those that are unaware that their activities can and often do impact on the health of the rivers.

With this in mind the Trust has extended its reach (by participating in a number of public events including the Australia Day Lotto Skyworks, both on the river and throughout the metropolitan area and conducted a media campaign to deliver the message HELP KEEP OUR RIVERS HEALTHY to the community).

The Trust continued its extensive water quality monitoring program. Over 14 years of catchment data and seven years of estuarine data have now been collected. This extended data series is vital in understanding the dynamics of the Swan-Canning river system and water quality trends.

Chairman's Report

The recent adoption of water quality targets for the estuarine portion of the Swan-Canning river system by the Trust will help us to better evaluate the effectiveness of SCCP over the coming years.

Work continued on assessing ways of preventing nutrients from being released from river sediments and fuelling algal blooms. This included the second year of trials using the modified clay Phoslock™. It was applied to an 800-metre section of the Canning River in February 2001 with promising results.

The Trust again tested the practical application of oxygenation on the relatively large and hydrodynamically complex Swan River using a prototype mobile oxygenation barge. The results of this trial are still being assessed. The continuation of oxygenation in the Canning River this year was very successful and it is now being evaluated as a long term option for improving water quality upstream of the Kent Street Weir.

The Trust was pleased to receive Commonwealth support for several of its projects through the Coasts and Clean Seas Initiative. This helped support activities such as the mobile oxygenation barge on the Swan River, design and planning for a constructed wetland at the Albion townsite and the drain retrofitting project for the Mills Street Main Drain.

In addition to its work in SCCP, the Trust continued its routine environmental management work, including cleaning beaches, removing debris, reshaping eroded beaches, maintaining foreshore protection works and responding to pollution incidents.

Around 65 tonnes of litter was collected from beaches in the Trust's Management Area, 99 tonnes of logs and timber from fallen trees was removed and 494 tonnes of rotting seaweed was cleared from foreshores.

The Trust also responded to 99 pollution incident reports, which included oil spills, sewage spills, dewatering or waste dumping. The most serious incident occurred when a mobile crushing and screening trailer leaked diesel fuel into a stormwater drain in Belmont. The Trust field operations staff, using absorbent spill booms, successfully contained the majority of the diesel before it entered the Swan River.

This year saw one change to the Board membership with Councillor Marion Blair replacing Councillor Jeff Munn as the local government representative. Councillor Munn made a valuable contribution bringing the local government perspective to the Trust and our thanks are extended for his contribution over his three year term with the Board.

I would like to take this opportunity to thank Board members for their commitment to the good management of the Swan-Canning river system. Dedicated and helpful staff have supported the Board's work and I thank them sincerely for their contribution.

Geoff Totterdell
Chairman

About the Swan River Trust

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.

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, support businesses and tourist enterprises and contribute to surrounding property values.

Careful protection, planning and management are required to ensure that our use of these waterways and shorelines does not result in the loss of their environmental, heritage and amenity values. Work is also required to restore environments that have been degraded.

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 Water Resources on development proposals within the 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 authorities 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

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 Water Resources.

Through the Swan-Canning Cleanup Program, the Trust and the organisations working with it are identifying the sources of the nutrients that support algal blooms and are developing a range of strategies to reduce the frequency and extent of algal blooms. A key component is encouraging the development of 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 leaflets 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 provides leadership in planning, managing and protecting the river system. Every member of the community has a part to play in protecting their heritage and making sure the waters and shorelines of the Swan-Canning river system continue to sustain the city.

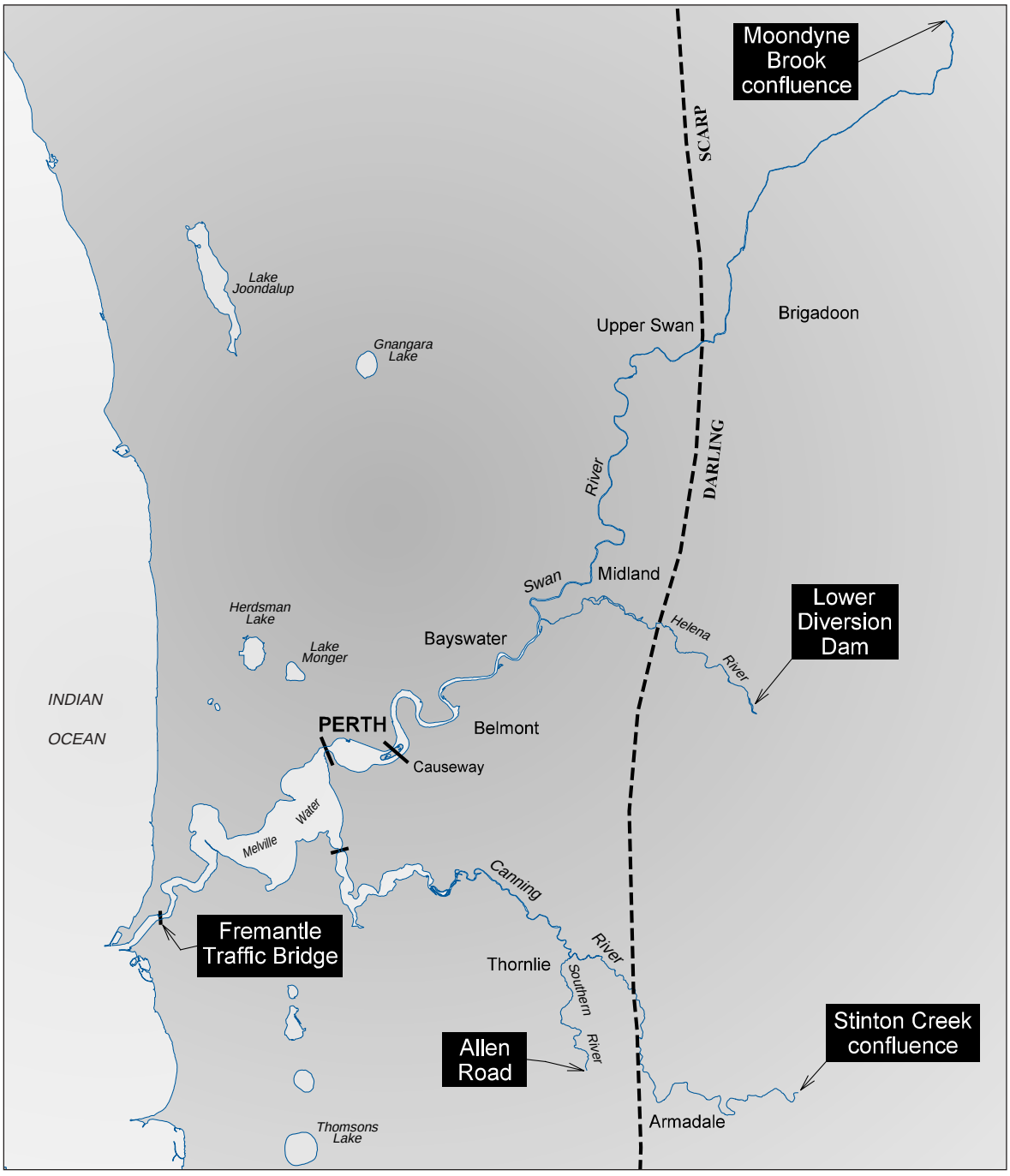


Figure 1: The Swan River Trust Management Area includes the waters of the Swan and Canning rivers and adjoining parks and recreation reservations—extending upstream from the Fremantle Traffic Bridge to Moondyne Brook on the Avon River, to the lower diversion dam on the Helena River, along Southern River 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 Water Resources
- a member of the board of the Water and Rivers Commission
- nominees of the Minister for Planning, the Minister for Transport and the Coordinator of Water Services
- a representative of the Local Government Association of Western Australia appointed by the Minister for Water Resources
- two independent members appointed by the Minister for Water Resources

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

Membership Changes

There was one retirement this year and consequently one new appointment to the Board. Councillor Marion Blair was appointed on 25 September 2000 and replaced Councillor Jeff Munn whose appointment expired on 30 June 2000 and who attended his last meeting on 17 October 2000.

Swan River Trust Board

Front (l-r):
Noel Robins,
Pat Hart, Kim Stone.

Back (l-r):
Ray Stokes, Marion Blair,
Geoff Totterdell,
Tim Mather.

Absent: Brian Martin.

Board Members

Mr Geoff Totterdell B.Com, FCPA, CD
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, power boat time trialing and yachting. He holds a Bachelor of Commerce degree (UWA) and is a Fellow of the Australian Society of Certified Practising Accountants.

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 has 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 Minister for Planning

Mr Stokes is a qualified town planner and Fellow of the Royal Australian Planning Institute. He is currently Director Policy and Legislation with the Ministry for Planning.

Mr Kim Stone BE, MBA
Nominee of Minister for Transport

Mr Stone has an extensive background in government engineering and management roles, primarily in the areas of water supply and sewerage. He has also run his own management consultancy business, and is currently Director of Coastal and Facilities Management in the Maritime Division of the Department of Transport.

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 Jeff Munn CMC, JP
Nominee of the Local Government Association

Cr Munn was a Senior Engineering Surveyor with the Water Authority of WA and is now a tutor in surveying at TAFE. He has extensive local government experience, including 18 years as a Councillor with the City of Armadale. His appointment expired on 30 June 2000 and he attended his last meeting on 17 October 2000.

Cr Marion Blair

Nominee of the 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 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 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.

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.

Organisational Structure

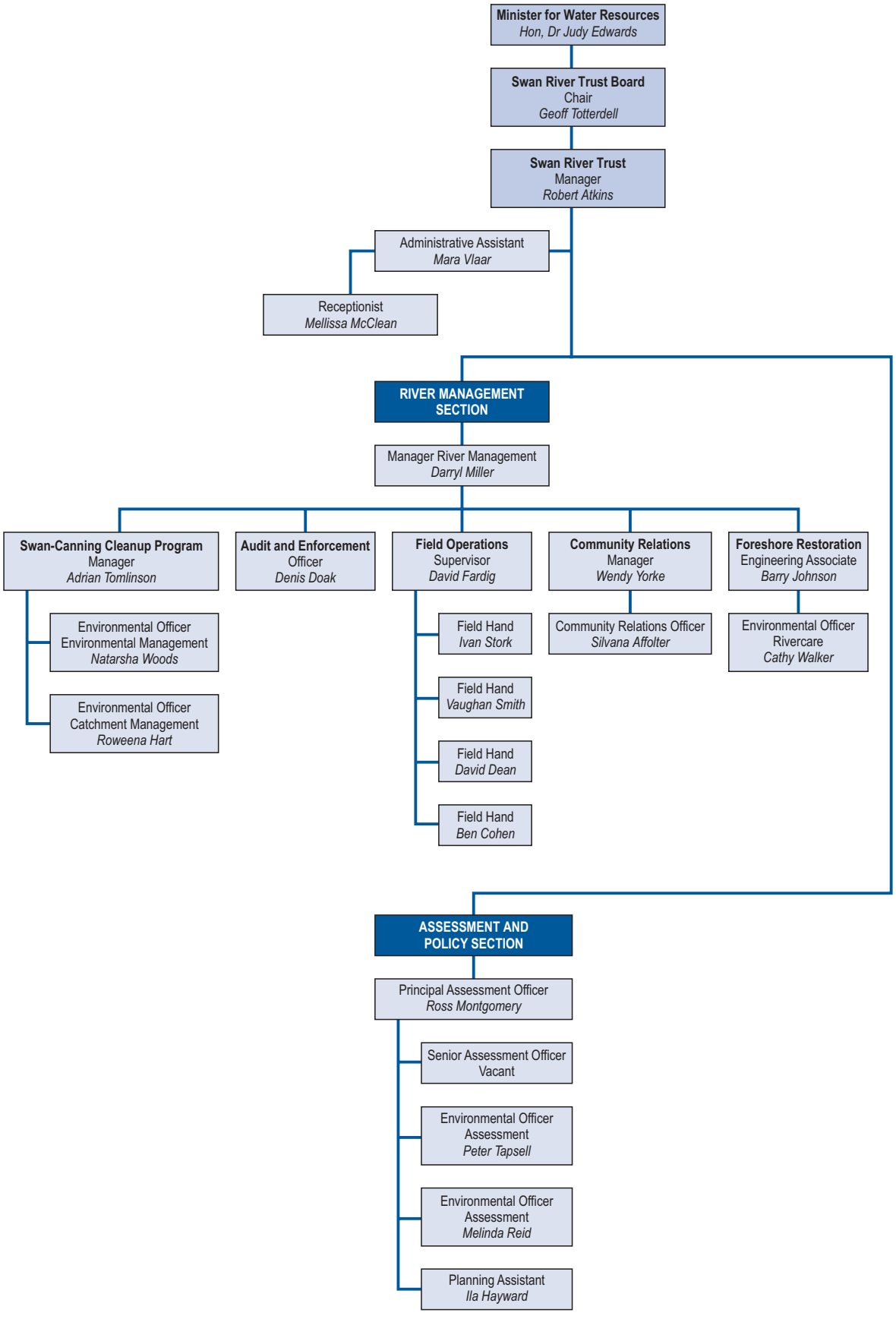
The Swan River Trust has a core staff of 19 and receives further administrative and technical support from staff of the Water and Rivers Commission. The Trust is divided into two sections — Assessment and Policy and River Management.

The Assessment and Policy Section evaluates and provides advice on applications for approval of development within 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 for 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, the Department of Transport and the Department of Environmental Protection.

Adrian Tomlinson, Swan-Canning Cleanup Program Manager was just one of the Swan River Trust staff who volunteered their own time to take part in the National Clean Up Australia's first Business Clean Up Day on 27 February 2001. The group headed down to the Canning River between Cloisters Boat Ramp and the Canning Bridge in Manning and collected 21 bags full of litter from along the river foreshore.



Organisational Structure

State of the River

Overview

The Swan and Canning rivers underwent water quality changes that reflected the short but wet winter experienced between June and August last year. For example, in the Swan River, as fresh water flow diminished, the salt wedge moved relatively quickly up the river and was a significant influence in the upper Swan by mid November rather than by late December to early January which is more common in wetter winter and spring years. In the Canning, weir boards were installed at Kent Street Weir in late October and calm stagnant weir pool conditions became quickly established in the upper Canning River.

The Swan and Canning rivers experienced four main algal alerts. A toxic blue-green algal bloom in the upper Canning between Kent Street and Hester Park from 24 January to 13 February 2001.

A nuisance algal bloom occurred in the upper Swan between the Causeway and Bassendean from mid February to late March and a potentially harmful golden-brown microscopic algal bloom occurred in the Swan River between the Causeway and Middle Swan from 15 May to 24 May 2001.

Algal alerts were also issued for a nuisance algal bloom from 8 June to 24 June 2001 in some areas between Guildford and Midland.

Although the frequency of warnings was low, the period for the warnings at upper Swan and the upper Canning lasted for two months. Algae normally responsible for fish kills and public health alerts were also detected this year but occurred in very low numbers.

Warning signs installed on the foreshore of the Canning River from the Kent Street Weir upstream to Hester Park in Gosnells in January 2001.

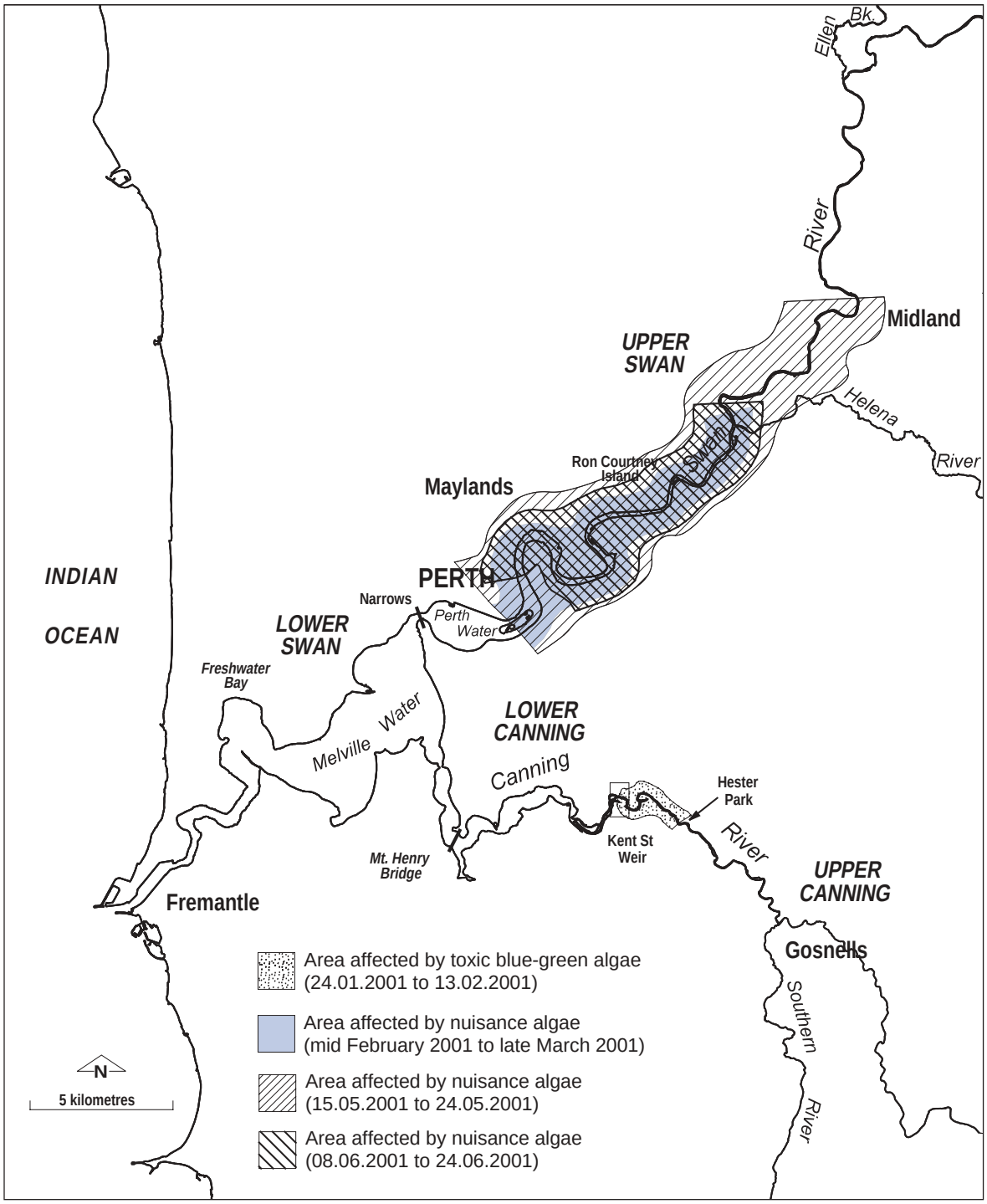


Figure 2: The Swan-Canning river system and locations of problem areas in 2000-2001

Condition of the Catchments

Generally phosphorus levels in tributaries of the Swan-Canning river system are low. In healthy tributaries phosphorus should be less than 0.1 milligrams per litre of water. Monitoring suggests that up to 70 per cent of tributaries in the region are at or below target levels. In some tributaries phosphorus has actually decreased in the last decade, which is probably due to a combination of community education, catchment management and below average rainfall.

However there are some key exceptions to this generalisation. For example, phosphorus levels in Ellen Brook and Mills Street Main Drain remain especially high and well above target levels.

Seven out of 15 monitored tributaries had total nitrogen concentrations above the water quality target of 1.0 mg/L. Nitrogen levels are highest in the Ellen Brook and Mills Street Main Drain. Nitrogen concentrations in these tributaries are difficult to reduce and only concerted and significant catchment land use changes and restoration will bring them down to target levels.

Condition of the Rivers

Swan River

There is a consistent seasonal pattern in water quality and algal succession in the Swan-Canning river system that was observed again this year although rain ceased after early September. Regular winter rainfall and dry warm summers drive this pattern. In winter, surface and groundwater flows deliver substantial amounts of inorganic nitrogen to the river system. This annual winter load of bioavailable nitrogen fuels the spring algal blooms in the lower Swan and late-spring and early summer algal blooms in the upper Swan. The magnitude and timing of the spring blooms and the incidence of summer rainfall greatly influence summer algal blooms.

This year phytoplankton cell numbers in the Swan River exceeded the bloom criterion of 20 000 cells/mL 21 times out of 52 occasions that they were sampled. Fortunately *Microcystis*, the toxic blue-green alga responsible for a summer bloom that closed the Swan River last year, was not observed in any substantial numbers or for any significant length of time throughout the 2000-2001 sampling period.

Lower Swan

The Lower Swan was stratified (fresh water towards the surface, salt water at the bottom) by the end of winter (Figure 3). After winter rainfall had ceased, tidal action increased salinity so that by December the water was almost completely exchanged with marine water. The water column was generally well oxygenated with low oxygen conditions only occurring in the bottom two metres of water during September and December (Figure 4).

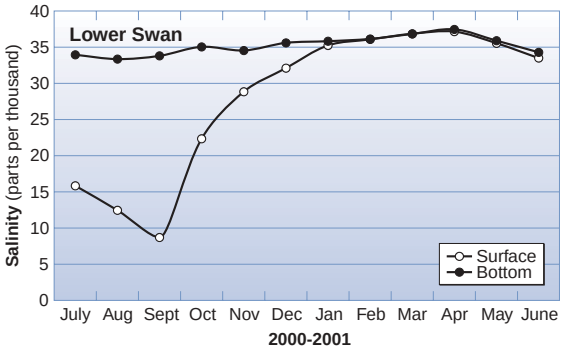


Figure 3: Lower Swan salinity

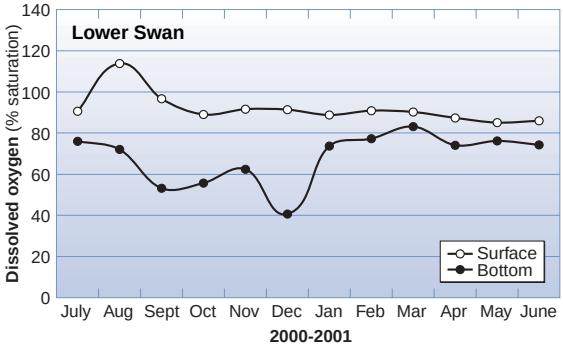


Figure 4: Lower Swan oxygen

In the lower Swan peak phytoplankton activity ocurred in spring. This is shown by the August-September peak in chlorophyll *a* concentrations (Figure 5, chlorophyll *a* is an estimate of phytoplankton abundance).

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 Swan River becomes more saline after freshwater winter run off subsides.

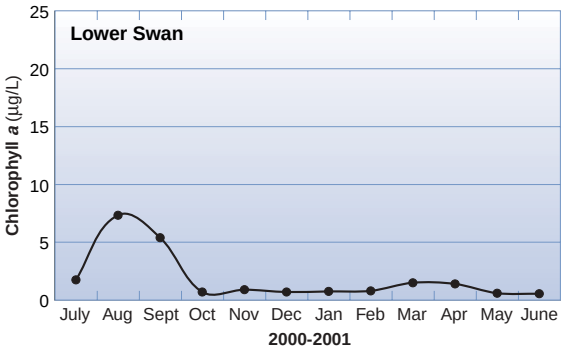


Figure 5: Lower Swan chlorophyll a

This spring phytoplankton activity occurred over a short period mostly in September. In other years, elevated phytoplankton activity extends to November. The reason for this shorter period of elevated phytoplankton activity probably relates to the short and wet winter rainfall season this year and restricted period of nutrient inputs from the upper Swan tributaries.

Upper Swan

In November and December, the upper Swan was dominated by dinoflagellate phytoplankton, mainly *Prorocentrum minimum* (an alga that causes blooms known as red-tide). Nuisance bloom warnings were issued for this species in February. Phytoplankton activity subsided for a very short period in late December and then increased again until late February (see chlorophyll *a* concentrations in Figure 6). In May, a short-lived potentially toxic raphidophyte algal bloom occurred from the Causeway to Guildford and in some areas surface scums reached extremely high densities (> 150 000 cells/mL).

The most extreme phytoplankton blooms occurred during a week in mid February where cell counts exceeded 500 000 cells/mL at three upper Swan sampling sites. Although none of the blooms posed a public health risk in terms of human toxicity, dinoflagellate blooms tend to be slimy and stain swimming bathers a brown-orange colour. Some swimmers at Ray Marshall Park in Midland complained of skin and eye irritation although no direct link to this species was found. The dominance of nuisance dinoflagellates in January and February was followed by a distinct transition from dinoflagellates to diatoms in late March, where *Skeletonema* and *Chaetoceros* spp. were dominant during April.

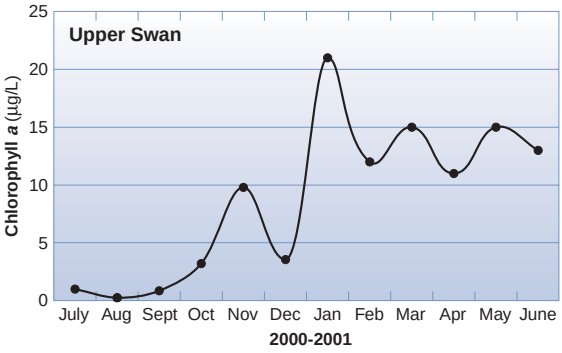


Figure 6: Upper Swan chlorophyll a

Salinities in the upper Swan began to increase from almost fresh water to brackish water starting in October (Figure 7). By February salinities were close to marine water throughout the upper region. The rapid changes during spring reflected the relatively fast movement of the salt wedge up river because of the dry conditions.

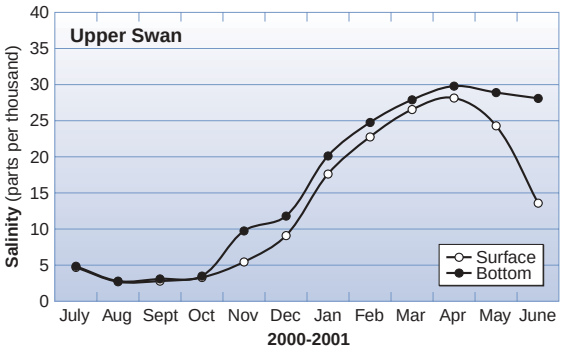


Figure 7: Upper Swan salinity

Oxygen levels were very low on the bottom of the upper Swan throughout summer and autumn. This reflected the early arrival of the salt wedge and continuing saline conditions and also the constant level of algal bloom activity. As the blooms collapsed, their cells decomposed on the bottom consuming oxygen. This is a common feature of this region that the Trust has recorded for over five years.

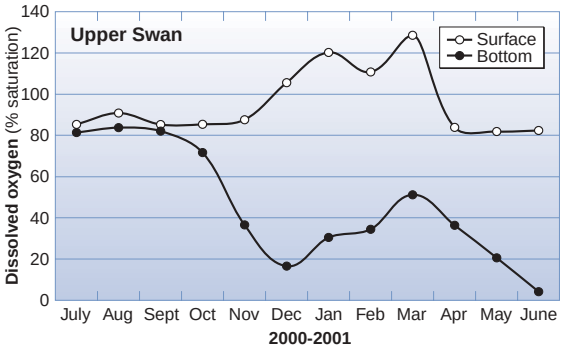


Figure 8: Upper Swan oxygen

Canning River

The lower Canning River between Kent Street Weir and the Canning Bridge had similar water quality to that of the lower Swan and lower regions of the upper Swan.

Upstream of Kent Street Weir, the upper Canning was fresh [< 1 parts per thousand (ppt)] throughout the year. The Canning usually flows freely during the winter months until flows decline and weir boards are put in place usually in October, to prevent the intrusion of saline water upstream of the Kent Street Weir. During the flow season, the water column was well oxygenated, dissolved oxygen was approximately 80 per cent saturated from the surface to the bottom (Figure 9).

After the weir boards were replaced in October 2000 and flow declined, the river became a stagnant pool and due to decomposition of organic material washed into the river from the drains and catchment, dissolved oxygen levels in the bottom waters rapidly decreased.

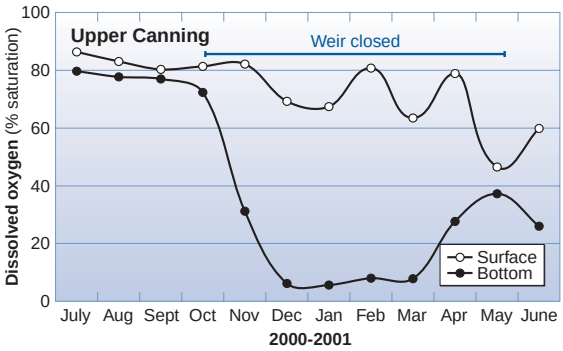


Figure 9: Canning River oxygen

The bottom two metres at the Kent Street sampling site were from 0 to 50 per cent saturated for nearly six months. 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 trial (see page 58 for more information on the oxygenation program) and generally had good oxygen levels throughout the summer. Surface waters at all upper Canning River sampling sites were generally satisfactory with respect to oxygen levels.

Peak phytoplankton concentrations were recorded in November and from February to April (Figure 10). November phytoplankton activity was dominated by a variety of non-toxic chlorophyte (e.g. *Tetraselmis)* and diatom species (e.g. *Cyclotella* and *Thallassiosira*).

The late summer peak in chlorophyll *a* that occurred this year was dominated by a toxic blue-green algae, *Anabaena circinalis*. The upper Canning River from Kent Street Weir to Nicholson Road Bridge was closed to the public for recreational use for approximately eight weeks.

Following the collapse of the *Anabaena* bloom, a harmless chlorophyte bloom occurred from Kent Street to Bacon Street. This was a mixture of chlorophyte species, however the harmless *Carteria* species dominated. The upper Canning also had several green to brown coloured blooms

of euglenophytes, a small animal like group that photosynthesises. These blooms occurred between late spring and early autumn and were mainly composed of *Trachelmonas* and *Euglena* species.

The Canning River had over 30 phytoplankton blooms when counts exceeded 20 000 cells/mL out of approximately 60 times that water quality sampling occurred. The highest cell counts ranged between 250 000 and 1 000 000 cells/mL.

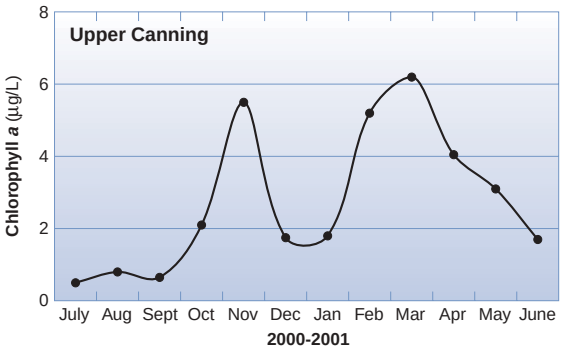


Figure 10: Upper Canning River chlorophyll a

Swan-Canning Cleanup Program

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

$3.5 million, more than half of the Swan River Trust 2000-2001 budget, was directed to implementation of the Swan-Canning Cleanup Program (SCCP) Action Plan.

Excessive levels of nutrients, principally nitrogen and phosphorus, can cause nuisance and toxic algal blooms in the Swan-Canning river system. The nutrients enter the system from both urban and rural areas and pose a major threat to the environmental health of the estuary and its social amenity.

The SCCP Action Plan was released by the Minister for Water Resources in June 1999 and establishes a comprehensive Action Plan for restoring and protecting the Swan-Canning river system.

The Action Plan is focused on reducing nutrient levels in the Swan-Canning river system to avoid the conditions that support development of algal blooms. This year, SCCP involved 24 major projects, more than 50 people from five government agencies as well as increasing support from numerous community based catchment groups.

Each of these projects will be mentioned in the relevant outputs section of this annual report. SCCP projects will be identified by the symbol:

A Senior Officers Group and a Project Managers Group coordinate and oversee implementation of the projects and ensure SCCP objectives are achieved.

The Action Plan makes 10 major recommendations within a four-point plan:

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 a coordinated approach is essential to effectively secure the Swan-Canning river system and action is necessary in all areas for effective changes. It fosters Integrated Catchment Management where community driven on-ground work is aligned with local government and state and federal government initiatives.

In managing the program a significant focus is to recognise the role of each component project in the context of the program. This is achieved through regular meeting of the project managers group, an electronic newsletter directed to officers in each of the SCCP projects, and an annual information sharing day.

The major achievements of SCCP in year two were:

- The adoption of estuarine water quality targets for total nitrogen and phosphorus concentrations, oxygen saturation and phytoplankton abundance for the Swan and Canning rivers.

- 515 people participated in Property Planning field days, workshops and/or seminars as part of the property planning project. These workshops assist landholders to develop and implement Property Plans and adopt best management practices.
- The cross-media public awareness campaign reached new audiences—with the SCCP logo being flown over the Swan River during two major public events, sponsored as part of the continuing strategy to increase public recognition of the logo that identifies SCCP activities. A bus shelter advertising campaign was successfully run in March, April and May using a simple but direct visual image.

To reinforce the SCCP key message to the public a bus shelter advertising campaign was implemented.

- Sixteen local government Environmental Officers and seven businesses completed industry training in Cleaner Production. This training was designed to give local government Health Officers an overview of Cleaner Production practices and to assist them to conduct environmental audits of industrial premises. The seven businesses developed a practical 'Cleaner Production' action plan. The action plans will enable them to implement Cleaner Production options that will lead to the minimisation of pollution, waste and emissions.
- The number of schools in the Swan Region registered with Ribbons of Blue increased to 113 with 36 joining this year.

Landholders participate in a field day run by Agriculture Western Australia. By the end of this financial year, 515 people participated in Property Planning field days, workshops and/or seminars.

Wembley Primary School students sampling for aquatic macroinvertebrates at Herdsman Lake.

Wilson Wetland Action Group community volunteers revegetating banks of the Mills Street Main Drain as part of their Swan Catchment Urban Landcare Program funded restoration project.

- 16 catchment groups are working together with Ribbons of Blue schools in the Swan Region with eight joining this year.
- The Department of Environmental Protection provided a draft report funded by SCCP examining options for managing nutrient inputs from drains to the Swan-Canning river system.
- As well as supporting established catchment groups, direct funding to catchment groups totalling $404 000 also fostered community involvement in other SCCP priority catchments. For example, funds provided to the Blackadder-Woodbridge catchment group contributed toward initiating interest in a catchment group in Susannah Brook, a SCCP priority catchment without an active catchment group. SCCP funds assisted establishment of the Canning Plain Catchment Group.
- The Swan River oxygenation trial tested the practical application of dissolved oxygen on the relatively large and hydrodynamically complex Swan River using a prototype mobile oxygenation barge operating from November to February near Ron Courtney Island and the Guildford Road traffic bridge.
- Phoslock™ was applied to an 800-metre section of the Canning River in February 2001. Phosphorus concentrations were reduced by 76% after the application of the Phoslock™ and remained lower than phosphorus concentrations in an untreated control area over the next seventy days.

Water Information

Monitoring programs are necessary to measure compliance against targets and to track trends in concentrations. They are also vital to measure whether Swan-Canning Cleanup Program (SCCP) implementation is making a difference to the health of our waterways.

Water Quality Monitoring and Analysis Program

The Swan River Trust and the Water and Rivers Commission have developed an extensive water quality monitoring and analysis program to provide information on Swan-Canning river system water quality. The program is fully funded by SCCP.

The aim of this program is to:

- understand and monitor water quality in the Swan-Canning river system;
- establish environmental guidelines and assess whether they are being met;
- identify hazards to public health and recreational use of the rivers associated with poor water quality;
- help assess trends in environmental quality.

The Swan River and lower Canning River are now sampled at 10 sites weekly (Figure 11). An additional site in Melville Water at Heathcote was added to allow better tracking of salt wedge movement. Three random sites are also sampled between January and May. The upper Canning River is sampled weekly at seven regular sites. A further four sites are sampled during summer and autumn in the upper Swan when nuisance or toxic algae are observed in water samples.

The Trust now has over 14 years of continuous monitoring of nutrient levels in key catchment tributaries and seven years of monitoring water quality and ecosystem health in the Swan and Canning rivers. Two weather stations are located in the Swan River in Maylands to provide wind and barometric pressure data in support of modelling and understanding of salt wedge movement.

The Trust also continuously monitors microalgae (phytoplankton) and their numbers in the Swan and Canning rivers and provides public health and water quality information to health and local government and the community. For example four warnings were issued this year, two for nuisance algae in the upper Swan, one for toxic algae in the upper Canning and the third for a potentially harmful bloom of golden-brown algae in the upper Swan between the Causeway and Bassendean.

This year better identification and monitoring procedures for potentially harmful phyto-plankton species were established and this will assist in better surveillance and warnings for future years.

Trust staff continued to sample 15 sites in the Swan-Canning catchment on a fortnightly basis (Figure 12). Water and Rivers Commission staff from the Swan Region also undertake flow measurements at these sites. Nine sites have continuous flow recording instrumentation and the remainder have staff gauges, which are read fortnightly, and flow computed from a ratings curve established by a series of flow-discharge measurements. As funds become available these latter sites will be instrumented to record flow continuously with a consequent increase in accuracy. This year the staff gauge site on Bennett Brook was upgraded to continuous flow.

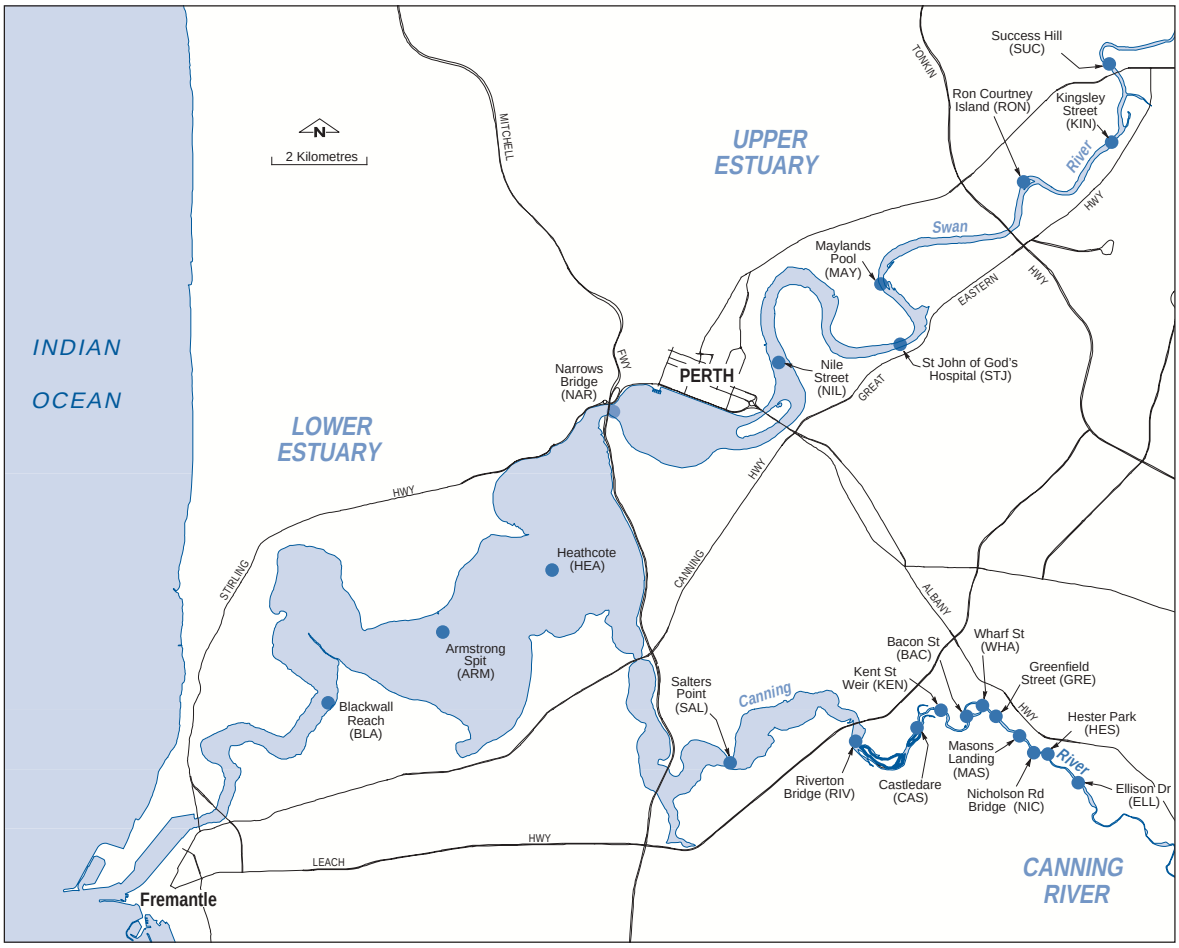


Figure 11: Locality of sampling sites on the Swan and Canning rivers. A total of 17 sites are sampled regularly over the year with another four sites sampled in the Canning River during the summer and autumn when blooms frequently occur (for a total of 21 sites). Three random sites are also sampled between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

The Water Corporation operates three gauging sites and the data are used in the SCCP monitoring program.

Autosamplers located at three sites, Ellen Brook, Mills Street and Walyunga allow storm events to be sampled so that nutrient loading can be calculated with known precision. This information is critical to understand nutrient changes through different stages of the flow regime so that catchment management can be better targeted. For example, even though phosphorus and nitrogen concentrations in flow from the Avon River meet the SCCP water quality guidelines, the high flow volumes mean that small changes in nutrient concentration may have a significant impact on the Swan River.

The Trust provided monitoring, experimental and trial data and analysis for reporting on the progress of SCCP to government agencies, scientific bodies and the wider community. For example reports and analyses were provided for oxygenation, sediment remediation and nutrient-water quality flux experiments. Over a dozen talks were also given to community groups, symposia and workshops.

RiverScience was established as a publication series to communicate the science behind SCCP

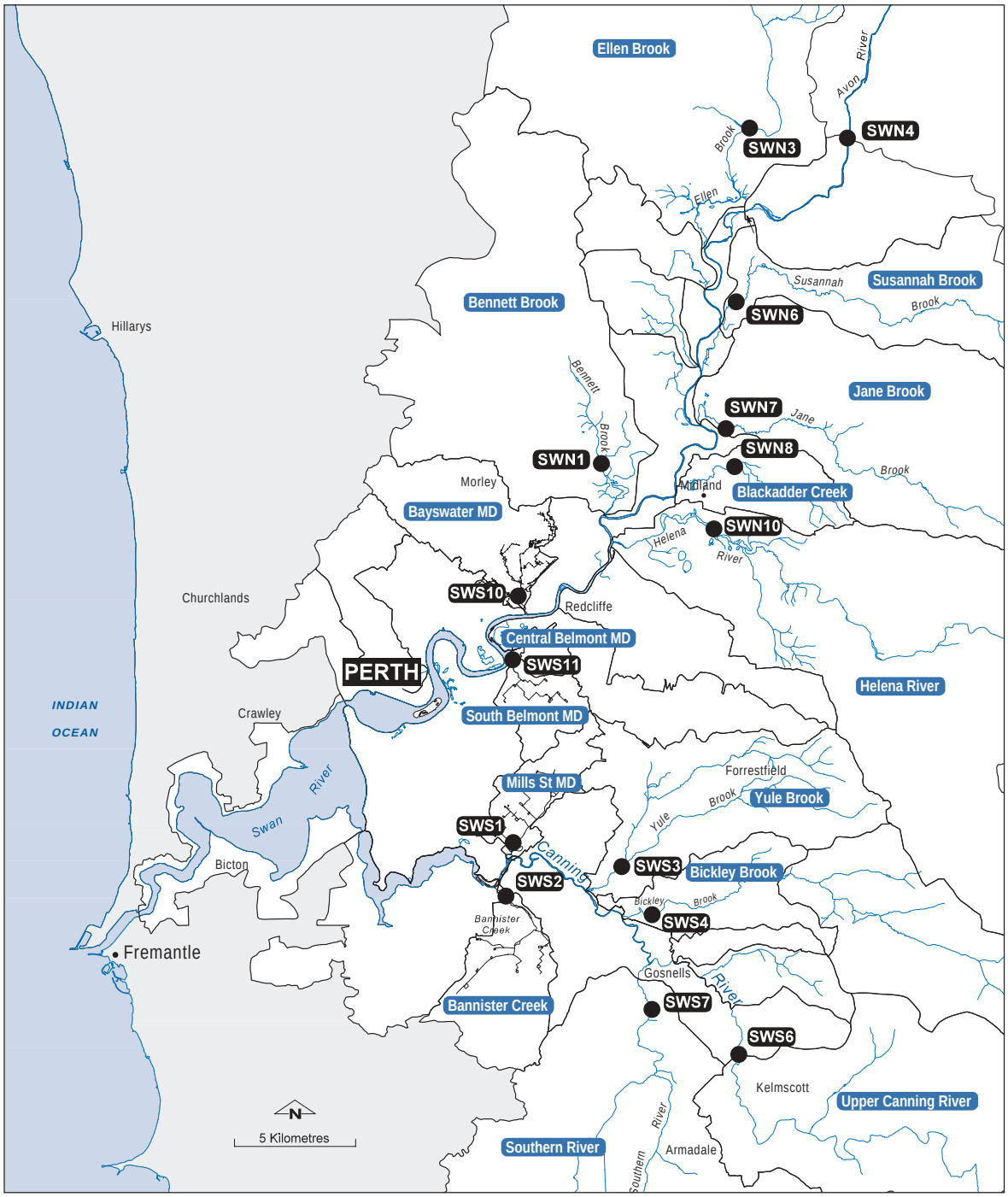


Figure 12: Locality of sampling sites for tributaries in the Swan-Canning river system. Fifteen sites are sampled for the nutrients nitrogen and phosphorus. Sub-catchment names and sampling site numbers are shown.

to a wider audience. The series are numbered so that when placed in order they read like chapters in a book. Six issues have been completed along with nine technical reports on the catchment, rivers and estuary.

Water quality and management information was also published on the toxic *Microcystis* phytoplankton bloom that occurred last year in the Swan River.

Water Quality Targets

In 1999, the SCCP Action Plan recommended targets be developed for the nutrients nitrogen and phosphorus in the tributaries of the Swan-Canning river system. In addition it was also recommended that nutrient targets be developed for the estuarine portion of the Swan and Canning rivers along with targets levels for phytoplankton abundance and oxygen levels. A project team was subsequently established with the task of deriving these water quality targets.

In 2001, the Trust approved estuarine water quality targets for total nitrogen and phosphorus concentrations, oxygen saturation and phytoplankton abundance (i.e. chlorophyll *a*) for the Swan and Canning rivers. Now that these targets have been accepted, testing against them as a key effectiveness indicator will be incorporated in the next annual report. Currently, the targets apply only to surface waters however targets for dissolved oxygen in bottom waters in each of the reaches are being derived.

Table 1: Targets for the estuarine portion of the Swan and Canning rivers (L—lower reaches, M—middle reaches, U—upper reaches, S—surface waters).

Estuary	Estuary basin	Variable	Depth	Target
Swan	L	nitrogen	S	509.0 mg/L
Swan	M	nitrogen	S	807.0 mg/L
Swan	U	nitrogen	S	1009.0 mg/L
Canning	M	nitrogen	S	870.0 mg/L
Canning	U	nitrogen	S	1300.0 mg/L
Swan	L	phosphorus	S	58.0 mg/L
Swan	M	phosphorus	S	119.0 mg/L
Swan	U	phosphorus	S	119.3 mg/L
Canning	M	phosphorus	S	160.0 mg/L
Canning	U	phosphorus	S	300.0 mg/L
Swan	L	oxygen	S	82.1% saturation
Swan	M	oxygen	S	75.1% saturation
Swan	U	oxygen	S	81.2% saturation
Canning	M	oxygen	S	51.1% saturation
Canning	U	oxygen	S	19.0% saturation
Swan	L	chlorophyll *a*	S	3.5 mg/L
Swan	M	chlorophyll *a*	S	13.0 mg/L
Swan	U	chlorophyll *a*	S	19.9 mg/L
Canning	M	chlorophyll *a*	S	10.0 mg/L
Canning	U	chlorophyll *a*	S	40.0 mg/L

Sediment Nutrient Cycling

The SCCP Action Plan identified a key gap in our understanding of the role of sediments in the Swan and Canning rivers in supplying nutrients to algal blooms. Information is needed to assess effective methods and the cost effectiveness of reducing sediment nutrient sources. Understanding nutrient release rates from sediment will guide the development of sediment remediation options and the rate at which nitrogen is returned to the atmosphere. These are a key indicator of river health.

Between March 2001 and April 2001 a team of seven scientists and technicians from the Australian Geological Survey Organisation (AGSO) completed an intensive three-week field program studying the sediment geochemistry of the Swan-Canning river system. This was the second year of a three-year program to capture a range of river conditions. Last year the survey was conducted immediately after the February bloom in the Swan River when there was strong salinity stratification. This year the work was undertaken in a well-mixed river.

AGSO focused effort on six sites in the Swan and three in the Canning. At each of those sites benthic chamber experiments were undertaken and sediment cores were collected. Surface sediment samples were collected from another 30 sites between Guildford and Fremantle on the Swan and upstream to the Kent Street Weir in the Canning. Sample analysis from the field program was completed and a preliminary progress report was prepared.

Modify River Conditions to Reduce the Occurrence of Algal Blooms

River intervention measures in the Swan-Canning river system are necessary to lessen the symptoms of eutrophication until changes in catchment management practices result in reduced input of nutrients into the system.

Oxygenating the Swan River

The Swan River oxygenation trial aims to use a prototype mobile oxygenation barge to assess the practicality of oxygenating 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.

Last year, in the first year of the project, a Swan River Trust barge 'The Seagull' was converted into a mobile oxygenation plant. The barge has similar equipment to the static oxygenation plants running in the Canning River (see page 58 for more on oxygenating the Canning River), but can move to problem areas as required. The barge was upgraded over winter to increase the oxygen delivery capacity.

This year, in the second and final year of field trials of the project, the barge operated from November to February in the river near Ron Courtney Island and the Guildford Road bridge. While in operation the barge operated 24 hours per day, seven days per week. The impact of the barge on river conditions was monitored carefully.

The field trials have shown that although the principles of the prototype barge were sound, to properly oxygenate a significant length of the Swan River would require a system with a much greater capacity. A full analysis of the two years data is being completed prior to the development of recommendations on what would be required

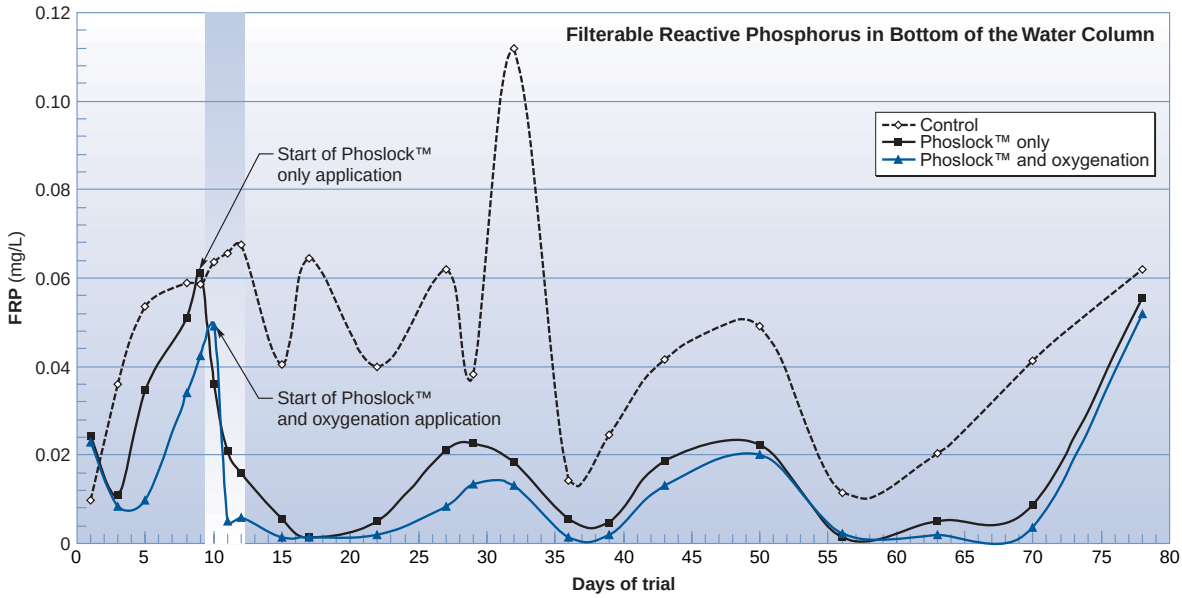


Figure 13: This graph shows the change in filterable reactive phosphorus (FRP) concentrations in bottom waters with time. Note the sudden drop in FRP concentrations on days 9-11 due to the application of Phoslock™, and the consistently lower FRP concentrations in the treated areas, compared to the control area after the application.

to oxygenate the Swan River and cost effectiveness of such an approach.

Modified Clay to Bind Phosphorus

This project continues the development of Phoslock™, a modified clay treatment, as a river intervention tool. The modified clay binds phosphorus in the sediment so that it is not available to support algal blooms.

Last year Phoslock™ was applied to the Canning River in what was the first large scale application of this product. Initial results were very promising but unseasonal rain complicated the interpretation of the trial results.

In a repeat of that trial 20 tonnes of Phoslock™ were applied to an 800 metre section of the Canning River in February 2001. Filterable reactive phosphorus (FRP) concentrations were reduced by 76% after the application of the Phoslock™ and remained lower than concentrations in an untreated control area over the next 70 days (Figure 13). FRP is the dissolved fraction of phosphorus that is immediately available to phytoplankton.

In this year the project has also progressed the approval of Phoslock™ by regulatory agencies for use in natural waterways and continued to assist CSIRO and industry partners with the commercialisation of Phoslock™. It has also been established through extensive ecotox testing that Phoslock™ has negligible toxicity on the species on which it was tested. The results from the 2000 trial have been analysed and technical reports prepared. Data collected during the 2001 trial is currently being analysed.

Computer Models to Support Decision Making

A major project to evaluate a range of catchment and estuarine computer models and assess their suitability as tools for a river management decision support system continued this year. Computer modelling can help define issues and assess the effectiveness of possible solutions. Two catchment models have been used in the Ellen Brook catchment to simulate the likely impacts of land use change and land management practices on nutrient levels in Ellen Brook. This approach is being expanded to derive a model, which may be applied to all of the catchments within the Swan-Canning river system.

Catchment Modelling

The Catchment Management Support System (CMSS) is a catchment-scale empirical model that may be used to analyse the likely impacts of land use change and land management practices on nutrient loads.

This year, all available local literature on nutrient export rates was reviewed and collated. As there is little Western Australian data, eastern states and overseas data were also included. CMSS was used to model the Ellen Brook and Southern River catchments.

The Large Scale Catchment Model (LASCAM) was used in conjunction with the modelling group at Centre for Water Research (CWR) to model Ellen Brook catchment.

LASCAM will be used to model catchments of the Avon River, Ellen, Jane and Susannah Brooks, the Southern and upper Canning rivers and Bayswater and Mills Street main drains. The Avon River has been modelled previously. Work is progressing on the remaining catchments. These will be completed next year and regionalised parameters will be obtained to derive a model for the catchments of the Swan-Canning river system to determine the effects of land use change and land management practices.

Estuary Modelling

A second modeller, employed to work on the estuary modelling started work in September 2000.

The models being implemented are the Estuary, Lake and Coastal Ocean Model (ELCOM), a three-dimensional hydrodynamic model and the Computational Aquatic Ecosystem Dynamics Model (CAEDYM), which models the ecology of the estuary. Both models are being continually improved at the CWR, at the University of Western Australia.

At this stage the Trust has a working version of CAEDYM, which is being driven by DYRESM, a one-dimensional hydrodynamic model. The task of evaluating and understanding CAEDYM is in progress. CAEDYM/DYRESM is being applied to the Canning River above Kent Street Weir. The task of data preparation, calibration and validation for both DYRESM and CAEDYM is complete.

At this point of time, ELCOM is not able to simulate correctly the water balance of the estuary and project staff are working closely with the CWR team to resolve this problem before ELCOM is installed.

The modelling support for decision-making process will be provided through examining the estuary for a number of possible environmental scenarios. A set of scenarios for this purpose has been developed for the CWR team to run in the final year of the CWR funded portion of the project.

Riverside Development

The Swan River Trust provides advice to the Minister for Water Resources 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 that are used by the Trust as the basis for its recommendations to the Minister for Water Resources.

The Trust also assesses developments located partly inside, or directly abutting its Management Area, in these instances under Clause 30 of the Metropolitan Region Scheme. These applications are either jointly determined by the Minister for Water Resources and the Minister for Planning and Infrastructure or Trust advice is provided to local government.

Development Control

The Trust 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 223 development applications during the year. This included 81 applications, which were determined by the Minister for Water Resources, under the *Swan River Trust Act 1988*, with 56 being assessed under Clause 30 of the Metropolitan Region Scheme. The balance being Trust advice to local governments.

The following proposals are some of the more notable matters considered by the Trust during the year:

Boat ramp upgrade — Goodwood Parade: The Trust recommended approval of this development to improve facilities for the boating community. The City of Belmont and the Town of Victoria Park have also agreed to work together on a management plan for the Goodwood Parade foreshore and water ski facilities. This plan will address erosion, revegetation, and public parking and the management of vehicle and pedestrian access and boat traffic. The Minister for Water Resources approved the application.

Minim Cove jetty: The Trust supported the construction of a public jetty in Minim Cove, on the advice from the Minister for Aboriginal Affairs. The Town of Mosman Park supported the proposal. The Trust recommended approval of the jetty that will be used for fishing and short-term berthing of private boats. The Minister for Water Resources approved the application.

Provision for short-term public boat mooring facilities on the Swan River: To provide public mooring facilities in the Swan River, the Trust will install up to nine short-stay moorings in Perth Waters. Initially two moorings will be located west of Barrack Square and will provide short term mooring for up to four hours for privately owned vessels. The moorings are designed to accommodate vessels up to 20 metres

in length, and will be bright orange to ensure that they are highly visible and can be easily differentiated from private moorings.

Advertising signage on the Swan River: The Trust considered several applications for commercial advertising on the Swan River. It is understandable that the river landscape is seen as a desirable location for advertising signs. However, the Trust's role includes protecting the riverine character and visual amenity of this unique landscape. The Minister for Water Resources supported the Trust's recommendation that these applications be refused to ensure that there was not a proliferation of signage that does not complement the surrounding landscape.

Barrack Square Hotel: The Trust receives applications every year to develop structures on or next to the Swan River with the proposed hotel at Barrack Square being one of the most contentious. The Trust has assessed applications for a hotel in this location on three separate occasions. The first two proposals were rejected on the basis that their designs were inconsistent with the existing architectural character of Barrack Square, and did not adequately address the preservation of the identity and activities of the WA Rowing Club.

The recent proposal for a four storey, three-star, 86-room hotel development was considered by the Trust, in consultation with the WA Rowing Club, Aboriginal Affairs Department, the WA Planning Commission, Department of Transport, City of Perth, the Heritage Council of WA and the Water and Rivers Commission.

Environmental considerations included:

- Pollution control (garbage, litter, stormwater)
- Environmental impact
- Visual aesthetics
- Height and scale
- Public accessibility
- Car parking

Due to the contentious nature of the proposal, it was advertised for public comment in the West Australian on two occasions and was the subject of considerable media interest. During July 2000, more than 1300 people visited a public display, which featured a scale model and description of the proposal. The Trust received nearly 160 submissions from members of the public

An artist's view of the proposed hotel at Barrack Square.

commenting on the proposal, with the majority supporting the proposal.

The Minister for Water Resources consulted Cabinet prior to accepting the Trust's recommendation to approve the hotel, subject to 32 conditions being met to ensure that the development takes proper account of the river environment and the overall character of Barrack Square.

Float Planes on the Swan River: The Trust has received several applications over the past few years for approval to operate commercial float plane services on the Swan and Canning rivers. These services were intended to offer aerial tours of Perth and the surrounding areas, extending to Mandurah, with take off and landing in Perth Water. As these proposals involved new and contentious uses of the river, which had the potential to have a significant impact on existing river users and the surrounding areas, they were advertised for public comment. In each case these proposals were opposed by the general public for a number of reasons including:

- conflicts with the existing patterns of river use;
- public safety risks for slower moving river users;
- the effect of the noise levels on the amenity of the river, particularly in quiet areas up river.

The Trust concluded that float plane operations were not suitable for the Swan River, which is considerably narrower than Sydney Harbour and similar areas used by float planes. The public's reaction to the proposal clearly demonstrated that float plane operations are not compatible with public expectations for the protection of the river resource. The Minister for Water Resources accepted the Trust's recommendation for refusal of the applications.

The Trust has now adopted a policy not to support applications for float plane operations within the Trust's Management Area.

Foreshore Management Plans: The Trust received several foreshore management plans from local governments, State government and private developers. To stream line and facilitate the approval process for the large number of the developments 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.

Prior to or during the assessment process, the Trust's River Management Section advises the applicant 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, public safety and access to the river and foreshore, and traffic management. The Trust then assesses the foreshore management plans and the Minister for Water Resources makes the final determination.

Foreshore management and restoration plans were received by the Trust and approved by the Minister for Water Resources for:

- Sir James Mitchell Park in South Perth;
- Mounts Bay Road landscape enhancement strategy;
- A landscape plan for the Narrows Bridge Duplication Project; and
- A passive park development at Maylands Foreshore Reserve.

The Trust is currently assessing foreshore management plans for the Shelley-Rossmoyne foreshore and The Esplanade in Mount Pleasant.

Swan River Trust Development Policies: The Trust has completed a review of its development policies. These policies provide guidance to developers on:

- Development setbacks;
- Design of new buildings, fences and retaining walls to compliment 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 needs; and
- Acceptable uses of public foreshore areas.

The draft policies were provided to local governments for comment and once formally adopted will be published and become available on the Trust's web site.

Management Area Boundary: The Trust has recently reviewed the boundaries of the Trust's Management Area to realign them with the Parks and Recreation Reservation boundaries in the Metropolitan Region Scheme. This will make the statutory assessment and approval processes associated with development applications on and around the river more straightforward and bring it back in line with the intent of the *Swan River Trust Act*. The revised Management Area boundaries will be on the Swan River Trust web site towards the end of 2001.

The following proposals are some of the more significant or notable matters considered by the Trust during the year under Clause 30 of the Metropolitan Region Scheme:

Installation of inclinators: The Trust received several applications for the installation of inclinators on riverside properties with steep limestone cliffs. An inclinator is a monorail elevator attached to the cliff face, which enables the residents to access the river. The Trust did not support these applications due to the significant visual impacts of such developments on prominent portions of the riverine landscape.

It should be noted that following advice from the Town Planning Appeal Tribunal one of these applications was also assessed under the *Swan River Trust Act 1988* and refused by the Minister for Water Resources.

Minim Cove residential development: The Trust's involvement in the approval process for subdivisions is limited to an advisory capacity. The Minim Cove subdivision, which was on a site previously contaminated by industrial waste. The site has been remediated under the guidance of the Trust and the Environmental Protection Authority. During its consideration of the Minim Cove residential subdivision, the Trust recommended that stormwater be captured, treated and disposed of to the river, rather than being infiltrated through the soil. The Trust also liaised with the developers to ensure that the sewerage system includes a nine-hour storage tank to prevent sewage over flowing into the Swan River. The Trust has worked with the Town of Mosman Park to ensure that riverside fences and retaining walls are uniform to minimise the visual impact of the development on the riverine landscape.

Regulatory Control

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

- Sydney Olympics Torch Relay Presentation, Nedlands
- Rotary Club Kite Festival, Nedlands
- Corporate Fun Run, Barrack Square
- Mines Rescue Competition, Burswood Park

The application to hold Lotto Skyworks is approved on the basis of the City of Perth's Sponsored Event Management Plan, which includes matters addressing crowd safety, litter control and sanitation.

- Perth Flying Squadron Yacht Club fire works display, Nedlands
- Canning River Festival, Kent Street Weir Park
- Lotto Skyworks 2000, Perth and South Perth
- Canoe polo competition, Matilda Bay Reserve
- Corporate Triathlon, Langley Park and Swan River

The Regulations also prohibit the use of vessels for long-term accommodation. Vessels may only be used as short-term accommodation for up to six consecutive days or ten days in any period of 30 days. The penalty for exceeding these limits is a fine of up to $1000 with an additional daily penalty of $20. These limits apply in all parts of the Swan and Canning rivers upstream of the Fremantle Bridge.

The Trust regularly receives complaints regarding the use of vessels as long-term accommodation. Wastewater (sullage) and garbage disposal are the Trust's principal concerns. The Trust has investigated a number of possible offences.

In these cases the offenders were not aware of the limits on the use of vessels as accommodation. A letter requiring compliance with the regulations is sent to the registered owner of the vessel advising prosecution may be initiated should habitation of the vessel continue. It was not found necessary to initiate prosecution in these cases.

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.

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. 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-Canning River Landscape Planning

The Trust developed a Landscape Description that was published in 1997. As the next step the Swan-Canning Precinct Policy Plan is being developed to balance development expectations, recreational activities and protection of the amenity and environment of the Swan-Canning river system.

The Plan, being prepared in partnership with the Ministry for Planning, will provide a guide for future use and development around the river.

The Plan and its component precinct and sub-precinct plans will include areas beyond the Swan River Trust Management Area. This is to recognise that developments outside of the Management Area can have a significant impact on the river and its landscape setting. It promotes collaborative planning between State and local government and uses existing statutory planning mechanisms and legislation.

The Plan will result in a number of measures ranging from planning strategies for each precinct of the river to the preparation of planning controls for inclusion in local town planning schemes where appropriate. These measures will ensure that development applications and subdivision of land is considered in a broader strategic planning context with appropriate regard for the landscape setting of the river.

The Plan progressed through a refinement of the Vision and Guiding Principles that have been adopted by the Trust and the Western Australian Planning Commission.

Draft pilot plans prepared for Fremantle Railway Bridge to Point Walter Reserve and Chidley Point precinct and Middle Swan-Ellen Brook to Bells Rapids precinct are being reviewed in consultation with local government.

A model format and guidelines are being prepared for release later this year with an invitation for local government to participate in the production of further Precinct Policy Plans to ensure their planning and consideration of development takes account of the amenity of the river and its landscape conservation.

Sir James Mitchell Park Plan

The Sir James Mitchell Park Foreshore Management Plan covers the Swan River foreshore 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 the view 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 resource of this important section of the river and foreshore.

The Sir James Mitchell Park Plan has been prepared in partnership with the City of South Perth and contains a range of recommendations for the management of the foreshore to meet community and government objectives for the river and its setting.

The Plan is consistent with the vision and guiding principles set out in the Landscape Description (1997) and will provide the basis for Trust advice on riverside development. It will assist the Trust and the City of South Perth to ensure that future proposals for the South Perth foreshore are considered in a broad strategic planning context.

The Plan has been adopted by the Trust and will be released later this year.

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.

Existing Trust guidelines allowing digging to occur at six specific locations have been reviewed.

The East Street jetty area in Maylands is an example of a good location for bait worm digging. This particular area of the river can recover from the impact of bait worm digging due to tidal and sediment movements.

After consulting with recreational fishing groups, Fisheries WA and the Department of Conservation and Land Management, the Trust developed an alternative policy. This policy will enable worm digging in the rivers as long as it is undertaken at least five metres away from riverbanks and fringing shoreline vegetation and not in the Swan Estuary Marine Park or the Canning River Regional Park.

The draft policy has been sent to stakeholders and local governments for comment.

Air Cooling Wastewater 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 has developed a draft policy and implementation strategy to phase out discharges of air conditioner wastewater to storm water drains. The 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 draft policy has been distributed to stakeholders for comment.

Yacht Club and Marine Facility 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.

To carry them out yacht clubs and marinas need to store and use paints, solvents and resins, fuel and oil and antifouling agents. Servicing, maintaining and refitting boats also generate 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 are working with the Trust, the Department of Environmental Protection and Department of Transport to develop a generic Environmental Management System. A risk management strategy has now been developed and will form the core of the Environmental Management System.

Mosquito Control Policy

Many wetland areas of the river provide ideal habitat for mosquito breeding. The establishment of residential areas close to the river can lead to mosquitoes causing a considerable nuisance or health risk.

In order to control the breeding of mosquitoes in these areas chemical or physical techniques can be used. This may involve the spraying of larvicides on a specific site or runnelling, which involves the construction of artificial channels to flush the affected area.

These techniques may severely impact on the environmentally sensitive wetlands of the river where mosquito breeding takes place. The Trust, after consultation with a number of other State government agencies and local governments, has developed a discussion paper that will form the basis for a mosquito control strategy that balances the needs and responsibilities of affected residents with environmental concerns.

Shoreline Dinghy Storage

Upturned dinghies are left on foreshores around the Swan and Canning rivers. These dinghies, primarily used as tenders for boats moored on the river, are most often left on the foreshore adjacent to the mooring. These areas are usually foreshore reserves that are heavily used by the public for leisure activities.

Dinghies beached on the foreshore of Mosman Bay. This is an example of the haphazard ways in which dinghies are currently stored on the foreshore of Mosman Bay and at other areas around the Swan and Canning rivers.

Dinghies left on foreshore reserves restrict foreshore access, damage shoreline vegetation, cause erosion of riverbanks and interfere with shoreline management operations. They are also a public safety risk and affect the visual amenity of the river.

The Trust has relatively limited statutory power to control the storage of dinghies as the primary responsibility of administering foreshore reserves rests with local government authorities. The Trust is therefore taking a leadership role by creating a policy and model strategy for affected local governments to adopt and implement.

The policy will be provided to local governments for consideration later this year.

Swan-Canning Industry Project

In the past, efforts to reduce pollution have concentrated on large businesses and heavy industries. The Swan-Canning Industry Survey was initiated jointly by local governments and the Swan River Trust late in 1996 to investigate the contribution of pollutants to the rivers from light industry. A pilot survey was undertaken in 1997 and 1998. It provided a qualitative assessment of the risk of industrial activities impacting on the rivers and groundwater.

A summary report of the pilot survey results was released in December 1999 for public comment. The Swan-Canning Industry Survey Final Report—Pilot Survey Findings was subsequently finalised and released in August 2000.

Consistent with the recommendations of the report the project is now focused on:

- Improving the capacity of local governments to monitor and regulate the activities of light industry.
- Working with industry groups to improve environmental management practices through a range of initiatives including the provision of training and facilitation of the development of environmental education material, such as Best Management Practices, for specific industries.
- Increasing the number of local government authorities and industry groups that are participating in the project and extending the project to include businesses that are outside the boundary of the Swan-Canning catchment.

One of the ultimate aims of the project is to enable industry to act proactively and implement best management practices to prevent pollution and successfully manage emergencies and accidents that could result in environmental contamination.

This project was this year transferred to the Water and Rivers Commission Swan Goldfields Region with Trust funding. The transfer will enable the project to be extended to any part of the metropolitan area or the state where light industry poses a threat to water resources.

Surveys

Ongoing industrial surveys are conducted by a number of local authorities represented on the Swan-Canning Industry Working Group. For example the City of Melville recently completed a survey of 31 light industrial premises and the City of Gosnells has a significant program having completed 90 surveys this year.

Training

As a consequence of the surveys, the Trust contracted the Centre for Excellence in Cleaner Production to develop two pilot ‘Cleaner Production’ training courses for the Swan-Canning Industry Working Group.

The first of the training courses was designed to give local government Environmental Health Officers an overview of Cleaner Production practices and assist them to conduct environmental audits of industrial premises. In August 2000, sixteen Environmental Health Officers successfully completed Cleaner Production training.

A Cleaner Production training course was also developed for light industry with the pilot training program completed by seven businesses that have developed a practical 'Cleaner Production' action plan. The action plans will enable them to implement Cleaner Production options that will lead to the minimisation of pollution, waste and emissions. Specific improvements in onsite environmental management practices include the management of wastewater and stormwater, handling and storage of chemicals and the capacity to respond to emergencies.

Experience in other states and overseas has shown significant reductions in business operational costs have also occurred through the implementation of 'Cleaner Production' practices.

In 2000-2001, the Trust also became an inaugural signatory to the WA Cleaner Production Statement. This will require the Trust to complete its own Cleaner Production action plan and show leadership to WA industries.

Swan River Management Strategy

The Swan River Management Strategy is a whole of Government Policy that sets out a 'blue print' for managing the Trust's Management Area. The 259 recommendations are to be implemented by the Government agencies with responsibility for the area and by local governments. The recommendations will enhance the river amenity, provide facilities for the community to enjoy and use the river and protect the natural environmental values of the Management Area.

The Swan River Management Strategy implementation was audited in 2001, the fourth since its commencement. The review found that recommendations of the Swan River Management Strategy had either been implemented, incorporated into normal operating procedures of government agencies and local governments, have become redundant or have been incorporated into more recent initiatives. Therefore, this is the last review that will be undertaken and future reporting on the Swan River Management Strategy recommendations will be through annual reporting of the relevant bodies.

Committees

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

- Sir James Mitchell Park Implementation Group (City of South Perth)
- Peppermint Grove Foreshore Advisory Committee (Shire of Peppermint Grove)
- 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)
- Yacht Club/Marina Environmental Management System Steering Committee (Swan River Trust)
- Swan Catchment Council
- Helena River Catchment Group

- Discharge of Sewage from Vessels into the Marine Environment (Department of Transport)
- Swan-Canning Rivers Precinct Policy Plan (Swan River Trust)
- Point Fraser Steering Group (City of Perth)
- Maylands Bikepath (Bikewest)
- 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)
- 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
- Perth District Emergency Management Advisory Committee (WA Police)
- Bayswater Integrated Catchment Management Group
- Bayswater Integrated Catchment Management Group — Management Subcommittee
- WRC Aboriginal Heritage and Native Title Acts Compliance Committee

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, cleanup contamination and remove rubbish from the waterways and shorelines.

Waterway 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 2: Summary of material removed by field staff from waterways and foreshores from 1995 to 2001.

MATERIAL COLLECTED	Units	95/96	96/97	97/98	98/99	99/00	00/01
Domestic rubbish collected from beaches	tonne	123.0	80.0	87.5	85.0	51.0	65.1
Logs and timber from fallen trees	tonne	252.6	152.0	109.0	150.0	123.0	98.8
Rotting weed removed from foreshores	tonne	347.5	460.0	612.0	350.0	172.0	494.0
Tyres	each	72	68	106	70	62	77
Drums assorted	each	17	38	56	23	20	39
Display signs	each	8	7	9	8	8	41
Derelict and abandoned boats salvaged	each	4	5	6	1	3	3
Shopping trolleys	each	32	28	62	92	55	91
Dead fish left by prawning parties	tonne	12.5	11.3	11.0	10.0	5.9	6.0
Dead birds	each	26	31	176	120	118	179
Syringes left on beaches and public places	each	109	146	242	118	230	266
Dead animals (cattle, goats and sheep)	each	5	9	8	6	4	43
White goods (washing machines/fridges)	each	5	3	4	7	7	11
Bamboo removed form foreshores	tonne	1.5	15.0	0	61.0	0	0
Sand renourishment of public beaches	tonne	88	637	854	533	432	1821
Rock renourishment to stop erosion	tonne	0	16	0	109	98	622
Stolen vehicles salvaged from river	each	no stats		2	4	2	2

Most rubbish, debris and pollution are the result of irresponsible human behaviour. As well as removing this material, the Trust works to reduce these problems by encouraging people and industries to change the way they deal with rubbish and other material that may cause pollution.

Although there is a slight increase in the domestic rubbish collected this year, the trend over the last few years shows a decrease. This is a positive trend and is attributed to community education and awareness and subsequently, behavioural change.

Waterways Cleaning

The Trust field crew inspects 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 approximately 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.

Beach Cleaning

Scheduled cleaning of the lower Swan is carried out from Goodwood Parade in Rivervale to the Stirling Bridge in Fremantle, including the 33 beaches listed below:

Northern side of the Swan River:

1. Goodwood Parade, Rivervale
2. No 4 Car Park, Perth to Causeway
3. Barrack Street to the Old Brewery
4. Kings Park Avenue to UWA Boat Club
5. Matilda Bay, Crawley
6. Pelican Point, (depending on tides)
7. Nedlands boat ramp to Broadway
8. Esplanade, Nedlands to Beaton Park
9. Beaton Park, (Tawarri)
10. Point Resolution to Bishop Road, White Beach
11. Chester Road, Claremont
12. Claremont Yacht Club to Jetty Road
13. The Esplanade, Peppermint Grove
14. Johnson Parade, Mosman Bay
15. The Coombe, Mosman Park
16. Chidley Point, Mosman Park
17. Stirling Bridge to Fraser Reserve
18. Kwinana Freeway, Manning boat ramp
19. Judd Street South Perth to Narrows Bridge

Southern side of the Swan River:

20. Coode Street to Mends Street
21. Mends Street to Narrows (Gabions)
22. Narrow's Bridge Ski area
23. Canning Bridge to Deep Water Point
24. Raffles Hotel to South Perth Yacht Club
25. Applecross Jetty to Point Dundas
26. Waylen Bay to Point Heathcote
27. Lucky Bay to Point Dundas
28. Troy Park to Point Walter (Burke Drive)
29. Point Walter to Blackwall Reach
30. Blackwall Reach Parade Bicton
31. Bicton Jetty and beach
32. Preston Point to Leeuwin Boat ramp
33. Riverside Road to Fremantle Bridge

This vehicle veered off Riverside Drive in Perth on 18 January 2001. A crane was hired and the vehicle removed before it could sink to the bottom.

From November to March, beach cleaning took place three times a week on Monday, Wednesday and Friday, with accumulated weed removed weekly. Only beaches and locations causing odour problems to the public are cleared. From April to October the beaches were cleaned twice a week on Mondays and Fridays.

Operational staff on a fortnightly or monthly basis, depending on the level of accessibility, inspected river locations that are not easily accessible to the public.

Vessel and Vehicle Recovery

Three derelict vessels and two dumped vehicles were removed from the river during the year. Trust operational staff coordinated the recoveries in collaboration with Water Police and local government. This collaboration between agencies has enabled the recoveries to be undertaken successfully in difficult circumstances without causing environmental damage.

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 inspections, with the debris then scheduled for removal when time permits. Around 99 tonnes of logs and timber from fallen trees was removed over the course of the year.

Foreshore Maintenance and Restoration

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

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 runoff flowing over the beaches. This year, 1821 tonnes of beach sand was relocated from accumulation sites to help restore eroded public beaches.

Trust field crew renourishing eroded beaches with sand from beaches with a surplus supply.

The Trust responded to a number of requests from local governments and community groups to relocate excess sand. These included:

The City of Melville

- Reshaping and restoring eroded beaches at Point Walter in Bicton
- Replenishing eroded beach at Deep Water Point in Mount Pleasant

The Town of Claremont

- Replenishing eroded beach at Claremont Beach in Claremont

The City of South Perth

- Replenishing eroded beaches at Mends Street Beach in South Perth

To stop erosion occurring behind the river walling at Northbank River Village the Trust field crew excavated the remaining sand, installed new geotextile, backfilled with crushed limestone and then returned the topsoil cover.

Walling Repairs

The Trust and the Town of Bassendean undertook a joint erosion control project along a 100 metre section of foreshore near Daylesford Road, Bassendean. The Trust supplied staff and equipment and supervised the erosion control works. The Town of Bassendean supplied the construction materials and filter cloth.

The Trust and City of Fremantle restored 100 metres of the foreshore behind the walling at Northbank River Village. The Trust managed the project and shared costs equally with the City of Fremantle.

Ron Courtney Island

The Trust is responsible for the management of Ron Courtney Island, located in the upper 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 new 'stop boards' and fittings at the Kent Street Weir. The replacement maintenance was carried out in accordance with Public Works Department Drawing Specification 28727.

Trust field crew installing the Kent Street Weir boards in October to stop salt-water flowing upstream of Kent Street in the Canning.

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 Kent Street and to maintain a constant water level in the Canning. Without the boards, the area above the weir would return to a salt-water environment.

The boards allow residents with riparian rights access to freshwater and protects the freshwater vegetation that has developed upstream of the weir. The weir also provides a valuable water bird refuge and a recreation facility for canoeing.

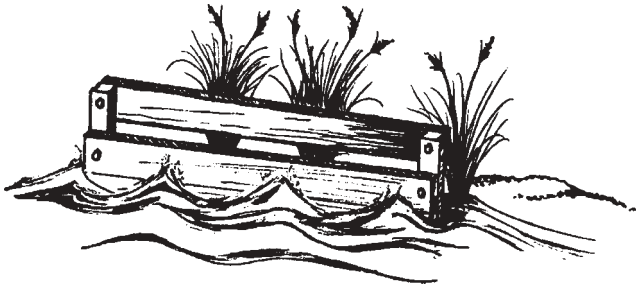
Shoreline Restoration and Revegetation

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. Revegetation and restoration projects are essential to reducing erosion damage and restoring shoreline function and amenity.

The Trust in conjunction with the City of Melville is conducting a shoreline protection and revegetation trial at Jeff Joseph Reserve, Applecross. The trial is the result of community concerns regarding erosion, weed invasion and loss of native vegetation.

The trial includes:

- Installation of batter boards in five configurations;
- Laying of two mat types, Turf Reinforcement Mat and Tensar Mat; and
- Planting of approximately 240 metres of shoreline with 1400 *Juncus kraussii*, the native shore rush. The rushes were planted in December 2000 and the area is being monitored on a fortnightly basis.



Batter boards are structures that reduce the impact of waves and the effects of river currents and tidal scour, thus minimising shoreline erosion.

The shoreline protection and revegetation trial at Jeff Joseph Reserve, Applecross consists of batter boards placed in five configurations including straight, angled and doubled.

During the fortnightly site visits, measurements are taken at certain points along the batter boards to determine the boards' success in preventing large amounts of sand moving up the bank. The rushes are also counted during each visit to determine the survival rate.

This trial is being used to assess the feasibility of various foreshore restoration techniques for future restoration works. The project acts as a preliminary investigation and has been important in:

- Establishing the potential usefulness of a number of techniques;
- Identifying opportunities to improve techniques; and
- Developing a rigorous and standardised sampling methodology that can be used for future trials.

The Trust is also working with the Town of East Fremantle to develop a restoration and revegetation strategy for John Tonkin Park. Over recent years the Park's foreshore has been subject to erosion, as a result of high tide and wave impact. It is the aim of this strategy to control the erosion by protecting the existing vegetation and planting further species suitable for the shoreline environment. It is anticipated that the restoration works be implemented within the next financial year.

Weed Management

Saggitaria and Salvinia

During 1999-2000, the serious aquatic weeds *Saggitaria* and *Salvinia* were found and removed from several locations in the Canning River and its drainage system. Monitoring of these areas to enable early detection of any re-establishment was continued throughout 2000-2001, finding only small pockets of reinfestation. These areas were included in the Trusts spraying program to eradicate noxious weeds from the waterways within the Management Area.

Hydrocotyle

Following a bulk removal program of the weed *Hydrocotyle* in 1993, the Trust now routinely conducts inspections and coordinates a spot-spraying program to control regrowth. This spraying program continued during the year after reinfestations were found within the Management Area. Monitoring for further seed germination was completed during autumn.

The ongoing monitoring is vital in picking up the continual recurrence of small outbreaks of these weeds before they grow to problem proportions.

Water Hyacinth

The Trust identified an outbreak of *Eichornia crassipes* (Water Hyacinth), in Armadale just outside the Trust's Management Area. The information was relayed to the City of Armadale which sprayed the outbreak.

If left untreated the Water Hyacinth was likely to move into the Management Area and threaten river ecosystems.

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.*

Trust staff, including field crew and planning officers, keep surveillance on 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.

A number of unapproved developments were identified this year however they were relatively minor and resolved at an administrative level. However one involved the unauthorised construction of a wooden stairway on an escarpment and remains unresolved.

There have been a number of incidents relating to the cutting down of trees within the Management Area without Trust approval, however in most cases the offenders were not identified. The protection of the remaining riparian vegetation around the Swan and Canning rivers is an important role of the Trust, and this is done through both enforcement and education of riverside residents.

Pollution Control

As part of its general role to protect and manage its Management Area the Trust has 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 in the vicinity of the waterways could be causing pollution;
- Working with other agencies, the community and industry to develop and implement ways of preventing pollution; and
- Responding to pollution incidents to establish and deal with the source and to ensure that pollution that has occurred is cleaned up.

The main thrust currently is on small industry education and training through the Swan-Canning Industry Project (see page 42 for more information).

Pollution Response

The Trust's pollution response activities include the containment and clean up of minor oil spills in the Swan-Canning river system and assisting 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 assist 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.

Table 3: Reported complaints and incidents 2000-2001

Complaint/Incident	2000-2001
Oil slicks/spills	25
Offensive odour	9
River discolouration	11
Industrial discharge/dewatering	14
Sewage discharge	10
Herbicide/pesticide spraying	0
Chemical spills	12
Waste dump	17
Foaming	1
Watercraft nuisance	31
Algal blooms	10
Aquatic death	3
Destruction of vegetation	15
Illegal development	25
General complaints	42
TOTAL	225

Of the 225 complaints received by the Trust in 2000-2001, a total of 123 were substantiated and 64 were not substantiated.

The remaining 38 complaints were referred to other agencies to follow up.

Table 4: Pollution complaints and incidents by category 2000-2001

Pollution Complaint/Incident	5 Year Average	2000-2001
Oil slicks/spills	19	25
Offensive odour	4	9
River discolouration	6	11
Industrial discharge/dewatering	19	14
Sewage discharge	9	10
Herbicide/pesticide spraying	2	0
Chemical spills	3	12
Waste dump	17	17
Foaming	1	1

The 2000-2001 period saw an increase in the number of pollution complaints in relation to oil slicks/spills, offensive odour, river discolouration and chemical spills.

This can be attributed to the community becoming more aware of issues concerning the river system. However, of particular concern is the increase in reporting of minor chemical spills. While this may reflect increased community vigilance it also illustrates the need for businesses to improve their environmental management standards.

Oil Spills

There have been no incidents this year resulting in major contamination of the Swan-Canning river system from petrol and oil spillage.

Twenty-five minor incidents of oil slicks in the river were reported. The majority appear to be from small boats pumping out contaminated bilge water or minor refuelling spillages. There are often incidents that require Trust field staff to be put on standby should oil or diesel spill

into the river. One such incident involved the overturning of a dredge at Barrack Square in October 2000. Although there was no leakage there was potential for a significant volume of diesel to leak from the vessel, and Trust field staff were notified and ready to respond at short notice.

Overturned barge at Barrack Square in October 2000. The barge was performing dredging to accommodate the construction of a jetty as part of the Barrack Square redevelopment.

The most serious incident occurred on 2 July 2000 when a mobile crushing and screening trailer leaked diesel fuel into a stormwater drain in Belmont. A member of the public sighted the diesel coming out of the Abernethy Road main drain. The Trust field operations staff, using absorbent spill booms, successfully contained the majority of the diesel before it entered the Swan River. Subsequent investigations found that persons vandalising the trailer and damaging the fuel tank had caused the leak.

Trust field crew used absorbent spill booms to contain a diesel spill before it entered the Swan River in Belmont on 2 July 2000.

Vandals were also responsible for a potential disaster on the Canning River on 14 May 2001. 300 litres of diesel contained in a fuel storage drum was emptied into a hole being dewatered for a gross pollutant trap located opposite Cloisters Boat Ramp in Manning.

The Trust advised the site foreman on the recovery of spilt fuel. As the diesel fuel was wholly contained in the hole it had no opportunity to escape to the river. The fuel was removed and all contaminated sand around the storage tank was removed and disposed of at an authorised landfill site.

Liquid waste tanker removing diesel fuel from a hole located opposite Cloisters Boat Ramp in Manning.

Dewatering

The Trust received 11 complaints relating to the discharge of water from development sites into the river. Dewatering from a development site in Preston Point Road in East Fremantle was responsible for causing a noticeable plume in the river. The Trust directed the contractors to comply with acceptable water criteria for discharge into the river and the quality of the discharge was improved to an acceptable standard.

Table 5: Total sewage spill incidents 2000-2001.

Date	Location	Estimated quantity (kL)	Cause	Environmental hazard assessment
25.12.00	Wyatt Road, Bayswater	2	Faulty inlet value to pump station	Low — contained on site with no discharge to river
11.01.01	Lloyd Street, Midland	10	Blockage to sewerage system access chamber	Low — contained within Water Corporation drainage system with no discharge to the river
29.01.01	Riverton Drive, Riverton	10	Control failure in pump station	Low — small amount entered the Canning River with no observed impact or discolouration
11.06.01	Salisbury Road, Swan View	5	Blockage in sewerage system	Low — contained on site with no discharge to the river

Sewage Contamination

There were four sewage spills into the Swan and Canning rivers in 2000-2001 from Water Corporation facilities—a significant decrease from the previous year. All were of low impact and did not cause any significant environmental hazards.

Pollution Investigations

Diesel Spills into Abernethy Road Main Drain, Belmont

The Trust received a number of complaints over the year relating to diesel fuel coming out of the Abernethy Road Main Drain. Working with the Water and Rivers Commission, investigations found that the fuelling facilities and procedures at a transport depot in Belmont were substandard causing occasional spills of fuel into the stormwater system. The facilities and housekeeping at the site have been improved, and there has not been a related complaint since.

Alleged Dumping of Sewage into Canning River, Beckenham

The Trust received a number of complaints from a local resident with regard to the alleged dumping of sewage into the Canning River. The resident complained of a sewage-like scum on the water surface and an associated odour. Numerous inspections failed to confirm the presence of sewage in the river. Samples of the scum were taken and found to be associated with an algal bloom. The odour was most probably caused by the release of hydrogen sulphide from river sediments and decomposing algae.

Fuel Storage Contamination, East Fremantle

In June 2001 a boating facility in East Fremantle began work to replace underground fuel storage tanks. During the work water from the excavation containing fuel and high levels of suspended solids was pumped into the Swan River. This resulted in a large silt plume in the water and a fuel slick on the river's surface. The Trust's Audit and Enforcement Officer discovered the problem and the pump was turned off. The visible contamination of the river quickly dispersed. Further investigations found that there was contaminated soil on the site. The facility have enlisted the services of an environmental consultant, who is preparing a management plan to address site remediation.

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.

Swan Catchment Centre

A major focus of the Swan-Canning Cleanup Program (SCCP) is to empower community groups to undertake on-ground environmental restoration works in the catchment and bring about changes in the behaviour of the wider community to benefit the environment and most specifically, the Swan and Canning rivers and their tributaries.

Karen Ireland (right), newly appointed Community Education Officer explains contents of the Action Kit to an interested community member.

SCCP contributes funds to the Swan Catchment Centre, which provides essential information, advice, support and resources to over 250 community conservation groups in the Swan region.

In 2000-2001 the Catchment Centre employed a Community Education Officer who will work with community groups to improve their understanding of environmental issues using the Swan River Action Kit, which was launched by the Minister for Water Resources in April 2001. This work will include a facilitated adult learning program targeted at river user groups, service groups, adult education services (UWA Summer School) and other community groups.

Other key achievements of the Swan Catchment Centre in 2000-2001 included:

- Establishment of the Canning Plain Catchment Group in the Mills Street Main Drain sub-catchment and adjacent residential areas
- Facilitation of further development of the Claise Brook and Belmont/Victoria Park Catchment Groups
- Production of an electronic Community Conservation Directory
- Delivery of eight community and coordinator training events
- Commencement of Skills for Nature Conservation training program for 2001 in cooperation with the Department of Environmental Protection and Greening Australia WA

Direct Support to Integrated Catchment Groups

Catchment groups are an integral part of the 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 2000-2001, $404 000 was allocated to help various catchment groups with operational costs such as employment of coordinators, project officers, education officers and Landcare

trainees, administration support and office supplies. The funding primarily 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 the basis 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 distributed as follows:

- $24 080 to Bannister Creek Catchment Group
- $26 500 to Belmont-Victoria Park Catchment Group
- $27 000 to Canning Catchment Coordinating Group
- $75 000 to Ellen Brook Integrated Catchment Group
- $59 000 to Bennett Brook Catchment Coordinating Group
- $36 250 to Blackadder-Woodbridge Catchment Group
- $60 340 to Upper Canning and Southern-Wungong Catchment Team
- $48 330 to Bayswater Integrated Catchment Management Group
- $22 500 to Canning Plain Catchment Group
- $10 000 to Helena River Catchment Group
- $15 000 to Claise Brook Catchment Group

As well as supporting established catchment groups, the funds also foster community involvement in other SCCP priority catchments. For example, funds provided to the Blackadder-Woodbridge catchment group will contribute toward initiating interest for a catchment group in Susannah Brook, a SCCP priority catchment without an active catchment group. Funds provided to the Canning Plain Catchment Group will assist with the establishment and functioning of this newly formed group.

The Swan River 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.

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. Poor land use practices in these areas result in nutrients entering the Swan-Canning river system.

Agriculture Western Australia manages a property planning project funded through the Swan-Canning Cleanup Program (SCCP), which works directly with landholders in the Swan-Canning catchment. Field days and workshops help landholders develop and implement Property Plans and adopt best management practices. Successful uptake of the project is

essential to reducing nutrient runoff from rural and semi-rural lands.

During the year, the project moved from its Introductory Phase, into its Growth Phase. In response to a concerted promotion exercise, there is increasing demand for workshops, field days and other learning events. 515 people participated in Property Planning field days, workshops and/or seminars during the year.

During 2001-2002, an Advanced Property Planning Workshop (which will include simple budgeting, implementation techniques, etc) will be offered to participants who have completed the Introductory Workshop. Specific field day sites are also planned to demonstrate pasture and saltland management and earthworks. This will ensure examples of best management practices are available for local landholders. A series of Farmnotes targeting small rural landholdings is also planned.

Swan Catchment Urban Landcare Program

SCCP, in partnership with Alcoa, supports the Swan Catchment Urban Landcare Program (SCULP), which provides funds to community groups and local government for a range a restoration projects. The work not only contributes to improving the ecological integrity of our foreshores and catchments but also serves as important awareness raising activities for the broader public.

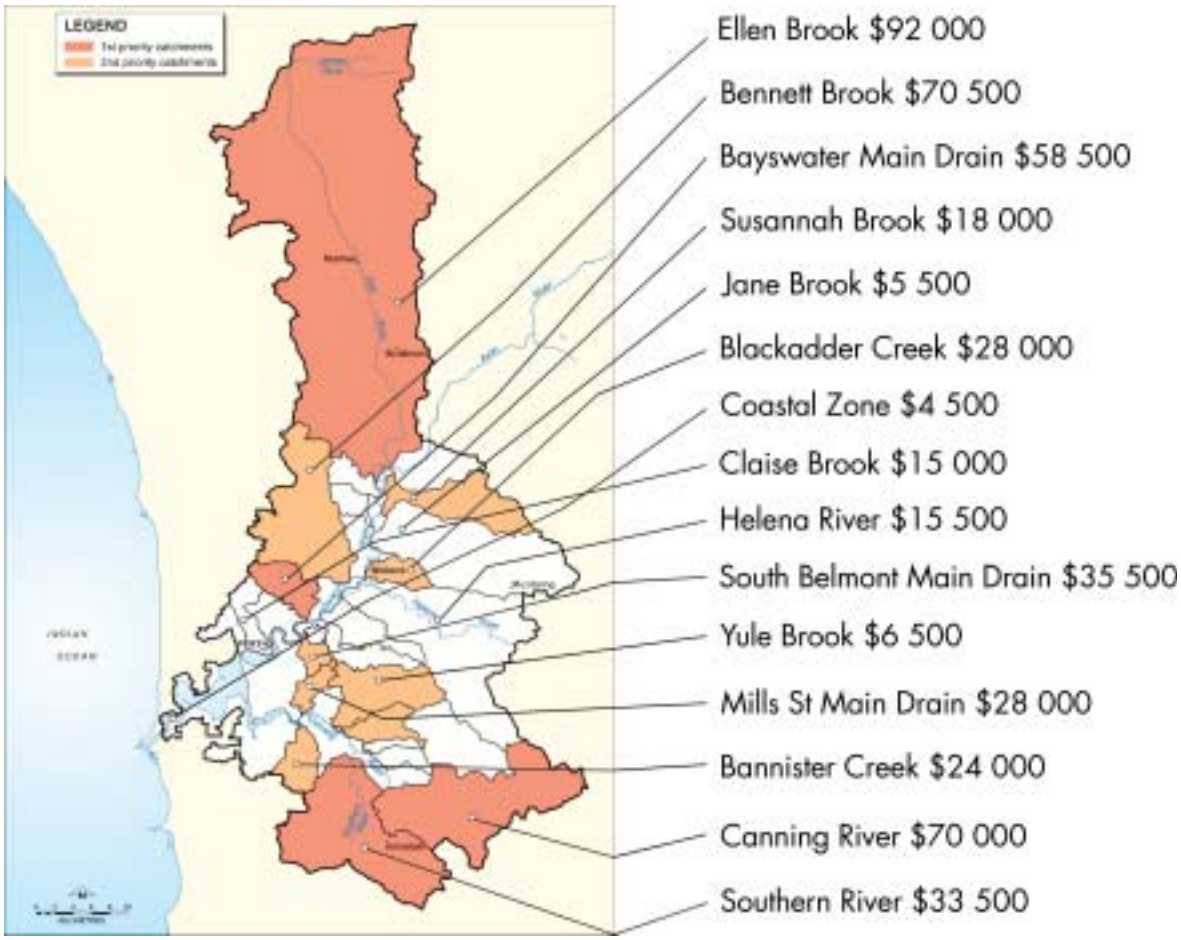


Figure 14: Swan-Canning Cleanup Program direct support for catchment groups and SCULP by sub-catchment 2000-2001.

Minister for Water Resources, Dr Judy Edwards, presented cheques to 32 groups to implement a total of 48 restoration projects funded by the Swan Catchment Urban Landcare Program.

In 2000-2001, SCCP contributed $100 000 to 24 projects funded by SCULP. These projects ranged from; the creation of a foreshore buffer strip near the Shelley Bridge over the Canning River, to the development of a wildlife corridor along Bennett Brook, weed control along tributaries of the Helena River and fish habitat restoration of the Southern River.

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 also has important cultural and spiritual significance to Aboriginal communities and historical significance to people in the Canning catchment. The Canning River system is stressed as a consequence of this multitude of uses. Intense, often toxic, algal blooms have been regularly recorded in the river system since 1994. There is a high degree of public concern regarding the health of the Canning River.

River Management Plan

'Caring for the Canning' is a draft river management plan that has been developed for the Canning River system in consultation with key stakeholders as part of the SCCP Action Plan. The aim of the plan is to improve ecological health and reduce the frequency of algal blooms in the Canning River.

The development of the plan commenced in July 1999. A Working Group of stakeholders was established to assist in developing goals and recommendations. The Working Group included representatives from local government, the Water Corporation and the key community based catchment groups within the area. The draft plan has been prepared to complement an existing management framework for the Canning catchment. It is a river management plan and specifically focuses on the riparian zone, however catchment issues are dealt with where appropriate.

The plan includes recommendations that target nutrient and water quality management, drainage management, riparian vegetation and weeds, surface water allocation and erosion and siltation. A detailed environmental water requirements (EWR) study and associated monitoring were also completed, which will lead to the development of environmental water provisions and a formal water resource allocation plan for the rivers.

This plan is intended to guide specific aspects of river management in the Canning catchment for the next five years. At the end of this period, the management programs and recommended actions will need to be reviewed by the major stakeholders in the catchment.

Caring for the Canning is due to be released for public comment in August 2001.

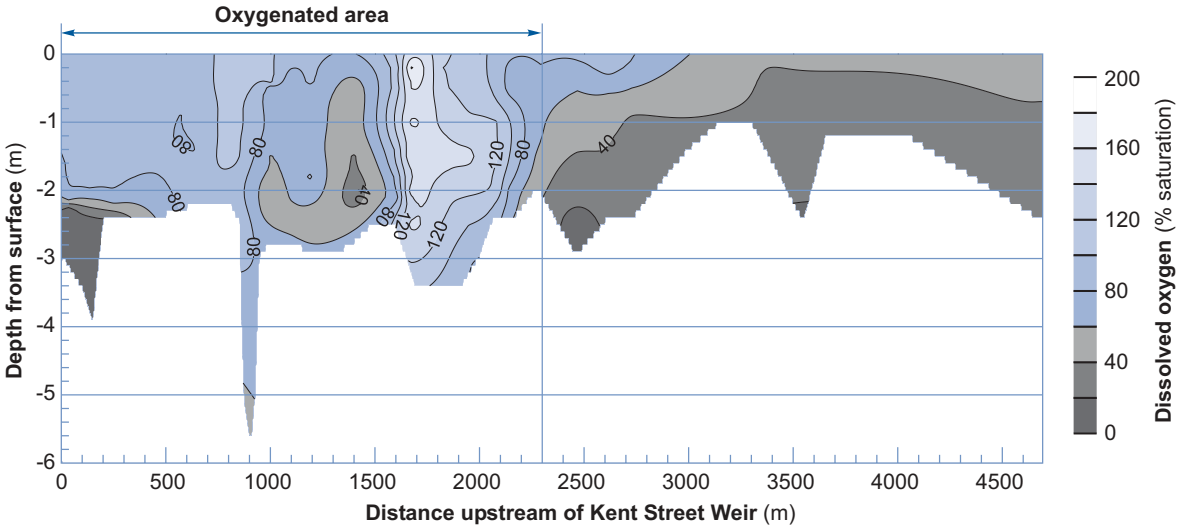


Figure 15: This plot shows the percentage saturation of dissolved oxygen throughout the water column. Note the higher dissolved oxygen concentrations in the oxygenated area as compared to the untreated area upstream. Other features to note are:

1. An area of supersaturated water from 1600 m to 1900 m upstream of the Kent Street Weir. This may be caused by curtains used in the Phoslock™ trial trapping oxygenated water.

2. An area of deoxygenated water adjacent to the Kent Street Weir. This was due to saline water flowing upstream over the Weir.

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 in 1997-98 and 1998-99 has lead to the adoption of this technique in reducing the occurrence of algal blooms in the Canning River. This year, two oxygenation plants treated 2.3 km of the Canning River upstream of the Kent Street Weir from 18 October 2000 to 6 May 2001. Phoslock™, a phosphorus binding clay, was applied to 400 metres of the oxygenated area in February 2001 and is a companion treatment with oxygenation (see Water Information section, page 32 for more information).

The oxygenation plants work by drawing water low in oxygen from the river bottom, mixing it with dissolved oxygen and then returning the oxygenated water to the riverbed. Oxygenation is only required over the period that the Kent Street Weir boards are installed, normally from October to April. Dissolved oxygen sensors in the water and rain gauges are used to automatically control the operation of the plant.

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). It is now being evaluated as a long-term option for improving water quality upstream of the Kent Street Weir.

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.

Constructed Wetlands

Design and planning for a constructed wetland continued this year. The constructed wetland design has various zones that will break down and remove nitrogen and phosphorus compounds from storm water characteristic of urban developments on the Swan Coastal Plain.

The project team is currently negotiating with the Ministry of Housing to include the wetland design as part of their Water Sensitive Urban Design (WSUD) approach to urban development at the Albion Town site development.

Negotiations between the City of Swan and the Water Corporation over who will maintain the new development is still the key issue for this project. This must be resolved before construction of the wetland can proceed. This project has been supported with funding from the Commonwealth's Coasts and Clean Seas Initiative.

Provision of advice to potential developers of constructed wetlands continues to increase. This includes technical design advice as well as procedural processes such as the importance of aboriginal heritage surveys and community consultation.

Drain Retrofitting—Mills Street Main Drain

The Mills Street Main Drain (MSMD) contributes high levels of nitrogen and phosphorus to the Swan-Canning river system

Revegetation to enhance habitat and improve water quality at the Noble Street compensating basin within the Mills Street Main Drain sub-catchment continues this year.

and the SCCP Action Plan recommends drain retrofitting to reduce this level. Last year a water quality snapshot was undertaken to gain a better understanding of the nutrient inputs from the drain and to identify any point sources.

A point source extremely high in both nitrogen and phosphorus was identified and the industry responsible is currently working with the Water and Rivers Commission, Department of Environmental Protection and Water Corporation to develop a storm water and discharge water management plan. The Water Corporation has started to remove sediment from the compensating basin that has built up from the discharge over time. This will effectively remove this source of contamination.

Consultants were contracted to identify all suitable sites for gross pollutant traps throughout the MSMD catchment and the appropriate type of trap.

Consultants were also contracted to provide advice on streamlining options for the open sections of the drain throughout the catchment. Project staff are currently writing a streamlining implementation plan, which will be delivered to the newly formed Canning Plain Catchment Group for action. This project was also supported by funding from the Commonwealth's Coasts and Clean Seas Initiative.

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 and assess the potential for statutory mechanisms and drain licensing to achieve better management.

Local Government Natural Resource Management Policy

The Local Government Natural Resource Management Policy Development project recognises the essential role local government has to play in reducing nutrient export through controlling development, managing current land use and ensuring town planning schemes enable effective management of future land use.

To achieve this, the SCCP contributes funds to the Eastern Metropolitan Regional Council to provide environmental officer support to participating local governments throughout the Swan-Canning catchment. The project will enable local governments to improve their overall environmental management skills and abilities through development of a range of mechanisms such as policies, strategies, guidelines and checklists.

This year existing local government policies and strategies were reviewed and a consultation strategy for work with local government officers was developed. An environmental officer was appointed to assist with preparation and implementation of the policies.

Next year will be focussed on training programs and the implementation of policies and strategies.

Planning and Policy

Appropriately locating land uses in the catchment is the fundamental first step in managing the impacts of land use on water quality discharging to the Swan-Canning river system. Therefore, incorporation of the SCCP objectives into regional planning and town planning schemes is essential for land use decisions that will give lasting security to the Swan-Canning river system. Recognition of water resource protection strategies in the town planning schemes is also an effective means of heightening landowner awareness of how to manage the impacts of their activities on water resources.

In 2000-2001, a partnership agreement was signed with Ministry for Planning (MfP) that enables MfP to lead a SCCP funded project to develop strategies to implement the land use planning recommendations in the SCCP Action Plan. In the first stage of this partnership, consultants will be engaged to review existing town planning scheme provisions and to make recommendations on the best statutory mechanisms for land use planning to meet the SCCP objectives.

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 they are also potentially significant conduits of nutrients to the Swan-Canning river system.

The Department of Environmental Protection (DEP), with funding provided by SCCP managed a consultancy to investigate approaches to best regulate nutrient inputs from the drainage networks.

In 2000-2001 the DEP provided a draft report, which found there is potential to better manage water quality from drains. However the mix of regulatory and non-regulatory approaches through adoption of best management practices in the catchment needs careful consideration.

In 2001-2002 the work will be taken further by stakeholder agencies to develop the best approach to managing both water quality and quantity in Perth's stormwater.

Investigations into Landfill Sites

The Swan estuary wetlands adjacent to the Swan and Canning rivers were progressively reclaimed in the 1950s to mid 1960s as part of the mosquito eradication strategy whilst providing recreational facilities for the local residents. The strategy resulted in the 'in-filling' of more than 250 hectares of river foreshore and adjoining wetlands and included 13 landfill sites. We now appreciate the importance of these wetland habitats, however these abandoned landfill sites remain a potential source of nutrients and other contaminants leaching into the Swan-Canning river system.

In 2000-2001 SCCP contributed funds to the Water and Rivers Commission to define the impacts of the landfills. In partnership with local governments and other agencies, the project undertook detailed investigations of high-risk abandoned sites.

During the year detailed hydrogeological investigations were undertaken at the Centenary Park landfill site in the City of Canning and in Sir James Mitchell Park in the City of South Perth. The Centenary Park investigation was carried out in partnership with the Chemistry Centre of Western Australia while the Sir James Mitchell Park investigation was undertaken in partnership with the City of South Perth and University of WA.

Investigations at the Centenary Park site have included:

- historical assessment of the site
- construction and monitoring of 14 bores across the site and between the site and the Canning River

Initial results from the laboratory indicate high levels of nutrients occur in the groundwater down gradient of the landfill.

The second stage of investigation is being scoped and is likely to include offshore bore installation in the Canning River. This is aimed to better define the plume and measure the direct impact of the landfill leachate on the river.

Community Education and Awareness

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 2001 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 over 400 people indicated that most (87%) are aware of the Swan River Trust. The major issues of concern were algal blooms, water cleanliness and range of dining outlets along foreshores. The results are the basis for assessing performance of the Trust (see Performance Indicators section on page 74).

Website

The Swan River Trust website is continuously updated with new information. This year saw the introduction of a River Science site to make available results of scientific investigations conducted by the Trust and Water and Rivers Commission staff as part of the Swan-Canning Cleanup Program (SCCP).

Promotions

For the third year the Swan River Trust participated in the Boat, Dive and Fishing Show.

Patrons of the show supplied a feedback sheet to staff manning the display so they could make note of the major areas of interest. This year most interest related to the 2000 algal bloom in the Swan River, the SCCP, houseboats on the Swan River and general information on the role and functions of the Trust.

A river tour was held in April 2001 to brief stakeholders including Members of Parliament, local government, and representatives from key recreation and sporting groups on issues relating to managing and protecting foreshores and waterways of the Swan and Canning rivers. The tour was held jointly with the Aboriginal Cultural Materials Committee and focused on Aboriginal culture and the importance of the Swan and Canning rivers.

Ken Colbung of the Aboriginal Cultural Materials Committee addresses the group at the Trust's stakeholder river tour held 4 April 2001.

Publications

The Trust's regular newsletter 'RiverView' is the common information link between the stakeholder groups involved in river management and protection. It provides information about the Trust, the SCCP and community group activities

and is a valuable resource for school projects. Three editions of RiverView were published during the year.

As part of the SCCP, officers of the Swan River Trust and the Water and Rivers Commission have been conducting high-level scientific investigations into the Swan and Canning rivers. The results of this work are important for all Western Australians, yet the complexity of the science often results in large, detailed reports.

The River Science series of publications has been developed to bring this information to the community in an interesting and digestible way. The cutting edge science presented in River Science will enable community and catchment groups to develop their work around the latest information and will also be of great use to students at both tertiary and high school levels. To date the following editions have been published:

Issue 1, Water quality monitoring is a vital part of the SCCP Action Plan, September 2000

Issue 2, 'Summer surprise': The Swan River blue-green algal bloom in February 2000, September 2000

Issue 5, Sources of nutrients to the Swan and Canning rivers, December 2000

Issue 6, The delivery of nutrients to the Swan and Canning rivers has changed over time, December 2000

Issue 13, Oxygenating the Swan and Canning rivers, October 2000

Issue 14, 1998/1999 Canning River Oxygenation Trial, October 2000

Following are other reports, brochures and pamphlets published this year:

- Swan River Trust Annual Report, 1999-2000
- Swan River, Western Australia, Destratification Trial, 1997, December 1998
- Contaminants in the Swan-Canning Rivers and Estuary, December 1999
- Trends in total phosphorus and total nitrogen concentrations of tributaries to the Swan-Canning Estuary (Western Australia) 1987 to 1998, June 2000
- Swan-Canning Industry Survey: Final Report, Pilot Survey Findings, August 2000
- Map of Swan-Canning river and estuarine system, December 2000
- The Canning River Oxygenation Project Summary Report of the 1998/1999 operation, December 2000
- The Canning River Oxygenation Project Summary Report of the 1999/2000 operation, December 2000
- The Swan Barge Oxygenation Project Summary Report of the 1999/2000 operation, December 2000
- Spatial Modelling of Phosphorus Export in the Swan-Canning Catchments, January 2001
- The Catchment of the Swan-Canning River System, February 2001
- You can make the difference, February 2001 (reprinted)
- A Guide to our Services—Customer Service Booklet, April 2001 (reprinted)

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) Action Plan highlighted that well planned communication is essential to provide public accountability for the SCCP, raise awareness and support community involvement in the Action Plan implementation.

The SCCP cross media public awareness campaign aims to motivate and empower general public to change their behaviour, generate corporate support and contribute to activities for the protection of the Swan-Canning river system.

A dedicated cross media public awareness campaign, as outlined in the Communications Plan (1999) was commenced in 2000 with the airing of the Spirit of the Swan documentary. Further, 13 community service announcements were produced and commenced airing on Channel 7 from March 2000 until April 2001. In 2000 the campaign extended with the appointment of a Communications Consultant to strategically plan, implement and manage the program.

The cross media objectives of the campaign were specified to include:

- establishing image recognition and a brand awareness for the Swan-Canning Cleanup Program
- providing a specific key message reinforcing intrinsic value
- building respect, leadership, credibility and stewardship for the program and its provider
- extending the boundaries of influence to reach new targeted audiences with more detailed and informative resource materials
- building relationships for the establishment of strategic alliances for sustainable environmental restoration projects for both the Swan and Canning rivers.

Research was undertaken in the early stages of the awareness campaign to provide baseline information on community awareness and attitudes relating to behaviour that might affect the Swan-Canning river system. This included a telephone survey and three focus groups. The research produced a better understanding of the barriers and motivators for 'environmentally friendly' behaviour. A follow-up survey to evaluate the campaign was undertaken in May 2001. This information is being used to improve design of future activities in the awareness campaign.

Brand Awareness and Image Recognition

The first communications tool to be implemented was the introduction of a strong and clearly identifiable SCCP logo. The extended use of the new clean swan logo was employed on all project materials establishing brand awareness for the SCCP. It was presented to the public for the first time at Western Australia's major public event, the Australia Day Lotto Skyworks celebrations, where it was launched as a large helicopter

The SCCP banner was flown over the Swan River during both the Australia Day celebrations and the Autumn River Festival as part of the continuing strategy to reinforce brand awareness for the new logo and to present it to a new audience.

banner flown over the Swan River to achieve maximum exposure and impact.

Public Events Sponsorship

A series of sponsorship opportunities were identified for major annual public events that focused public attention on the Swan and Canning rivers.

In conjunction with the City of Perth, the SCCP sponsored their first major public event providing the entertainment program for the Australia Day celebrations held on the Swan River—The Swan-Canning Cleanup Program Air Display and the Swan-Canning Cleanup Program Water Display.

The sponsorship agreement enabled the program to reach new public audiences by launching the new logo and by distributing detailed promotional materials. Sponsors packages of SCCP information were developed and distributed to the more than 200 corporate participants. Media coverage included advertising in the West Australian newspaper and air time on commercial radio.

The second major sponsorship of the public awareness campaign was the Autumn River Festival, on Sunday, 1 April—a promotional event held along the foreshore from Maylands to Guildford offering public entertainment at more than 15 venues along the Swan River. SCCP selected this visual platform for the Minister for Water Resources, Dr Judy Edwards to successfully launch the new Swan River Action Kit.

New public audiences have also been reached this year through further minor sponsorship programs targeted at specific locations and a wider, younger market. In November the first Canning River Festival was conducted at Kent

The Inaugural Canning River Festival was held on a glorious spring day on the banks of the Canning River at Kent Street Weir on 18 November 2000.

Street Weir with sponsorship by the SCCP in conjunction with the City of Canning. This festival attracted a community audience.

In partnership with the City of Perth, the SCCP sponsored the Lord Mayor's Cup 2001, a corporate rowing challenge open to all CBD businesses and held in the city on the Swan River. This gave SCCP the opportunity to reach the 200 corporate participants and to have specific messages distributed to those competing corporations.

Staff from Water and Rivers Commission, Swan River Trust, Ribbons of Blue and the Swan Catchment Centre took a coordinated approach in delivering environmental education at the Catchments, Corridors and Coasts workshop held in January 2001.

SCCP sponsorship assisted the 2001 Coasts, Corridors and Catchments workshop week, with one full day's activities organised that focused on river restoration and management. For the first time a SCCP team entered the Bridges Fun Run in April. This gave SCCP the opportunity to distribute information to the more than 2 600 participants and to reinforce a stewardship presence around the Swan River.

The presence of the Trust and its Swan-Canning Cleanup Program at sponsored public events builds credibility and respect for both. Continued participation at community events reinforces to the public leadership in working with the community, and stewardship in managing and protecting the Swan and Canning rivers.

Providing a Specific Key Message

The development and repetitive use of a communications campaign slogan on new promotional materials, at public sponsored events and at each media and public exposure opportunity has established: HELP KEEP OUR RIVERS HEALTHY: as the specific key message of the SCCP. Launched during 2001, The International Year of the Volunteer, the slogan has achieved additional public exposure for the message and the SCCP brand awareness strategy.

Image recognition has been developed through the production of new, practical promotional materials. Each bears the new logo and the key message, and is widely distributed to targeted audiences. These include floating key rings for river users; telephone message pads and fridge magnets for offices, schools and households; balloons and stickers for children; and car bumper stickers for the general public.

To reinforce the SCCP key message to the public a bus shelter advertising campaign was successfully run in March, April and May using a simple but direct visual image.

Minister for Water Resources, Dr Judy Edwards, her son Andrew and SCCP Manager Adrian Tomlinson lend a helping hand at this year's Tidy WA in May Day.

Building Stronger Relationships

The second year of the SCCP cross media public awareness campaign has been an important year for establishing new contacts and strengthening and building existing and new relationships. Perth's CBD corporations have been exposed to the program's objectives, achievements and expectations through the relationship established with the City of Perth as a result of joint sponsorships for major public events. A program of building on these relationships is being developed to establish an environmental awareness and award scheme, to develop long term corporate sponsorship partnerships and a continuous program of corporate river care days.

In particular, strategic alliances are being developed with the Clean Up Australia—Clean Up to Fix Up Program and the Keep Australia Beautiful Council—Tidy WA Campaign. SCCP and Trust staff took part in community events for both of these campaigns, where media and public exposure was achieved. Longer-term partnership agreements with both organisations are being developed for sustainable environmental restoration projects for both the Swan and Canning rivers.

A program of Communications Support for the 11 focus catchment groups specified in the SCCP Action Plan, commenced by distributing additional funds to assist catchment groups to run a series of advertisements in their local press. Further support materials have been widely distributed to each catchment group including new printed materials, promotional items and SCCP display banners.

Strengthening of the existing working relationship with Agriculture Western Australia has seen SCCP providing new, more detailed support for the Property Management and Farm Planning series of workshops and field days, including the well received SCCP public information packages.

Reaching New Audiences

A closer working relationship has been established during the year with the Swan Catchment Centre. The SCCP cross media public awareness campaign achieved joint promotion of the key message for SCCP as well as to promote the Catchment Centre to the public as the first port of call for further information.

A strategy for the management of a continuous program of corporate care days has been developed. The SCCP cross media public awareness campaign will develop these as a platform to launch their approach to corporations for longer-term corporate sponsorship for environmental restoration projects.

Increased public exposure for SCCP has also been achieved throughout the year with more detailed display materials presented to the public as a part of the exhibitions at:

- Perth Boat, Dive and Fishing Show
- Canning River Festival
- Autumn River Festival
- Garden Week
- World Environment Day
- Water Week and Eco Week
- School Fairs and small community gatherings
- Landcare Conferences and Environmental Training Workshops.

Future Horizons

Longer-term initiatives to build on the foundation stones of the cross media public awareness campaign's first full year of implementation and to continue achieving the outcomes of the 1999 Communications Plan include:

- strategic development of ongoing sponsorship partnerships
- the establishment of a continuing program of river corporate care days
- the development of an environmental awareness award scheme
- the founding and managing of alliances for environmental restoration projects.

Ribbons of Blue

Ribbons of Blue/Waterwatch WA is an environmental education program aimed at increasing community understanding about water quality and taking action for a better environment. The program was 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.

Continuing its support for the program, SCCP provided a further $120 000 in 2000-2001 to help deliver community education outcomes, organise training and data workshops and assist in funding for two local coordinators to help spread the message at a school level. Thirty-six new schools registered this year, bringing the total to 113 school groups participating in the Swan Region.

The funding also supports the State Community Monitoring Environmental Officer who works with community groups and promotes the SCCP message through Ribbons of Blue/Waterwatch WA activities. Sixteen Community Catchment or 'Friends' groups are now registered in the programs' Swan Region with eight new groups joining this year.

Throughout the last 12 months catchment groups were encouraged to link with their local schools to collect water quality data, and this initiative had a good uptake, facilitating a more integrated catchment management approach to water pollution at a local level.

Some of the other highlights this year included:

- Parkwood Primary School won the National Waterwatch Competition (schools category) 'Race around the Catchment' with their video titled 'Our Bannister Creek'.
- Ministerial launch of 2000 National Macroinvetebrate Snapshot event in the Swan Region. The event attracted 28 groups across 31 sites.
- Learning from experience, Swan Region advertised a teacher professional development day with financed teacher relief provided. Inundated with the response, a second day was run with the demand enough to run a third. A total of 42 teachers attended including 22 teachers that were new to the program.
- Development of a competition for local schools to design artwork to paint on high profile gauging stations in the Swan-Canning catchment.

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

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

Measure Collect water information	1999-2000 Actual	2000-2001 Target	2000-2001 Actual	Reason for variation
Quantity				
Area of waterway and catchment monitored km^2	2116	2116	2116	
Number of R&D projects	5	4	4	
Quality				
Extent to which the monitoring network covers the waterway and catchment	90%	90%	92%	
Reliability of monitoring information	95%	95%	95%	
Percent of project milestones met	92%	80%	100%	
Level of community satisfaction with water cleanliness	Not reported	55%	59%	
Timeliness				
Percent waterway and catchment monitoring reports completed on time	75%	80%	94%	
Projects completed on time	4	4	4	
Cost				
Cost of waterway monitoring and reporting per km^2 of catchment and waterway	$289	$396	$415	
Average cost of R&D project	$264 000	$217 000	$227 600	

Output 2: Regulate riverside development

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

Measure Regulate riverside development	1999-2000 Actual	2000-2001 Target	2000-2001 Actual	Reason for variation
Quantity				
Management area subject to development control policy and advice (km^2)	69	69	69	
Number of development applications assessed	221	NR	223	
Quality				
Acceptance of recommendations on development	99%	95%	100%	
Acceptance of recommended approval conditions	99%	NR	100%	
Level of community satisfaction with land development and landscapes around the river reflecting community expectation	Not reported	75%	69%	
Timeliness				
Average No days to process planning and development applications	51	65	65	
Cost				
Cost of development control policy and advice per km2 of management area	$6 400	$6 942	$7 326	

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.

Measure Management plans	1999-2000 Actual	2000-2001 Target	2000-2001 Actual	Reason for variation
Quantity				
Production of management plans and strategies	3	3	2	Responsibility for delivery of the Comprehensive Management Plan as part of the Swan-Canning Environmental Protection Policy was transferred to the Department of Environmental Protection.
Quality				
Stakeholder acceptance of management plans and strategies	100%	80%	60%	Two major stakeholders are yet to make comment on the pilot Landscape Policy Precinct Plans.
Level of community satisfaction with availability of public access to rivers and provision of sufficient facilities for community use	Not reported	75%	69%	
Timeliness				
Plans prepared within timeframe	2	3	2	
Cost				
Average cost of production of management plan or strategy	$48 000	$35 700	$52 445	Responsibility for preparation of the Comprehensive Management Plan for the Swan and Canning Rivers Environmental Protection Policy was transferred to the Department of Environmental Protection. Savings in this project were redirected to development of management policies for worm digging, air conditioner wastewater discharge and an environmental management system for yacht clubs and marinas.

NR = not reported

Output 4: Protection of waterways and foreshores

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

Measure Protection of waterways and foreshores	1999-2000 Actual	2000-2001 Target	2000-2001 Actual	Reason for variation
Quantity				
Length of foreshore subject to maintenance and restoration (km)	146	146	146	
Management area subject to water-way 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%	48%	41%	Level of resources and activity in other areas of field operations prevented increase in activity.
Percent of sub-catchments within phosphorus input target	60%	55%	60%	
Percent of sub-catchments within nitrogen input target	20%	32%	47%	The substantial improvement over the target may be due to the added influence of low winter rainfall reducing flows and therefore the amount of nitrogen washed into the tributaries.
Level of community satisfaction with the condition of the waterway and foreshores	Not reported	70%	67%	

Continued …

… continued

Measure Protection of waterways and foreshores	1999-2000 Actual	2000-2001 Target	2000-2001 Actual	Reason for variation
Timeliness				
Percent of achievement of scheduled maintenance and restoration program completed on time	85%	85%	90%	
Mean time taken to resolve complaints (days)	1.2	1.5	1.5	
Percent of water quality improvement projects achieving milestones on time	80%	80%	87%	
Cost				
Cost of maintenance and restoration per km of foreshore	$2 500	$3 041	$3 337	
Cost of waterway and foreshore protection per km^2 of management area	$1 900	$1 957	$2 147	
Cost of water quality improvement projects per km^2 of waterway and catchment	$890	$1 161	$1 274	

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, 2001

Scope
I have audited the key effectiveness and efficiency performance indicators of the Swan River Trust for the year ended June 30, 2001 under the provisions of the Financial Administration and Audit Act 1985.

The Trust 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, 2001.

K O O'NEIL
ACTING AUDITOR GENERAL
November 22, 2001

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 and fairly present the performance of the Swan River Trust for the year ending 30 June 2001.

Noel Robins, Member

Tim Mather, Member

21/8/01

Date

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

The extent to which standards are developed and used to maintain the environmental quality of the Swan-Canning river system.

Measure: Data analysis from water quality monitoring river and drain inputs.

Water quality monitoring and reporting against standards or targets is a means of determining if the key objective of the Outcome is being achieved.

Excess nitrogen and phosphorus inputs to the Swan-Canning river system have led to nuisance and toxic algal blooms this year (see State of the River page 18). The problems with phytoplankton and low levels of oxygen in the Swan and Canning rivers and excessive nutrients in some of the freshwater tributaries entering the rivers are important management issues for the Swan River Trust. Controlling nutrients entering the river system is essential to decrease the frequency of algal blooms and further deterioration in the water quality of the Swan and Canning rivers.

Monitoring and reporting

Regular sampling of nutrient concentrations in the freshwater inflows and in the estuary allows comparison to management targets. Sampling for the catchment targets occurs every two weeks while streams are flowing. Sampling in the estuary for management targets occurs every week in the period between January and May and is reported against the calendar year.

The results of this monitoring are depicted graphically herein. The target is plotted so progress towards achieving the quality objectives can be seen. A comparison of past and current nutrient levels in the rivers provides a good indication of whether water quality is getting better or worse in the rivers and tributaries. The results of past monitoring in the catchment for a three year period (1995-1997) are shown on the left-hand side. Results for the most recent three years (1998-2000) are shown on the right-hand side.

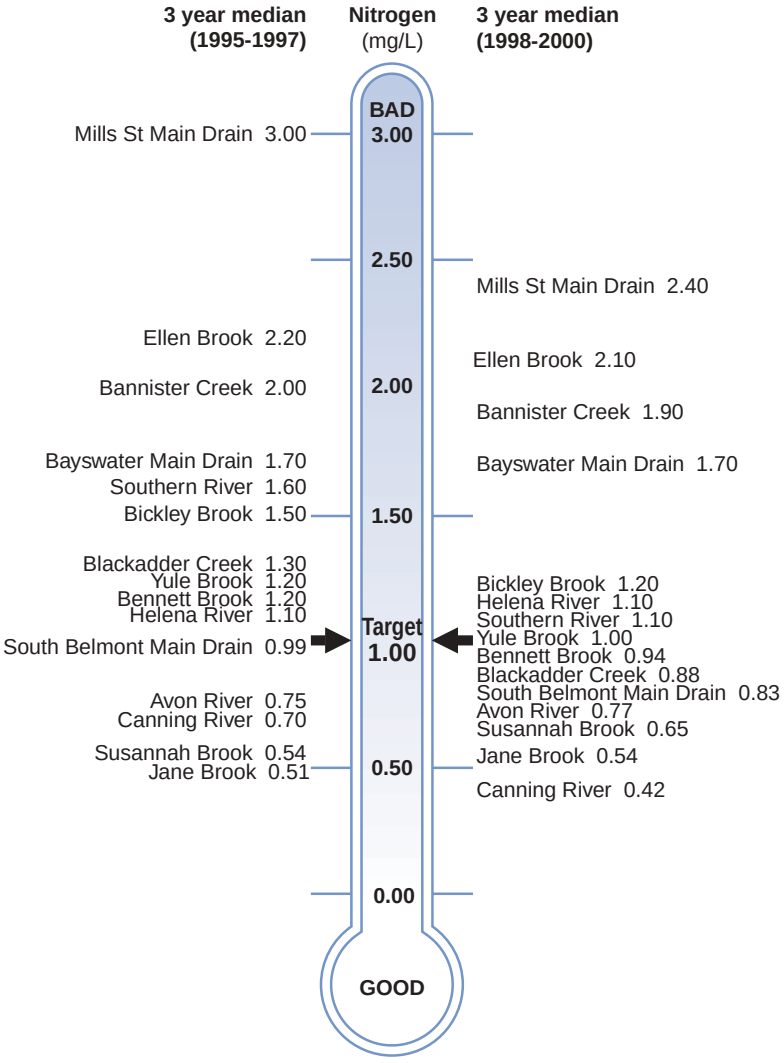
Performance 2000

Catchment Targets

Nitrogen

In 2000, 7 of the 15 tributaries monitored for total nitrogen concentration exceeded the target. The highest concentrations were in Ellen Brook, which drains a semi-rural catchment to the north east of Perth, and Mills Street Main Drain, an urban and light industrial drain discharging to the Canning River. Both tributaries are a major priority for management in the Swan-Canning Cleanup Program (SCCP) if nitrogen levels are to fall below the target. The other 5 with high nitrogen concentrations were Bannister Creek, Bickley Brook, Southern River, Bayswater Main Drain and Helena River.

While significant improvements are required to achieve the SCCP objectives, the data suggest there has been some general reduction in the amount of nitrogen in the Swan-Canning river system. For example, nitrogen levels in the Mills Street Main Drain are lower in recent years than past years. This decrease in the drain is surprisingly large for a relatively short period and hopefully reflects lasting land use improvements. Nitrogen concentrations in Bennett Brook, Bickley Brook, Blackadder Creek, Canning River, South Belmont Main Drain and Southern River also fell in the period to 2000, although by lesser amounts. Overall, this means that nitrogen in 50 percent of the tributaries monitored appears to have improved from levels recorded in the early to mid 1990s. The fact that there were small decreases in nitrogen in a number of monitored tributaries suggests that the cause is probably not linked solely to improved management within individual catchments. Many of the changes are relatively small and are probably related to below average rainfall in Perth in recent times. Low rainfall means less nitrogen enters the tributaries in runoff and via groundwater. Nevertheless, the improvements are encouraging particularly since there was no evidence of nitrogen concentrations getting higher in any of the monitored tributaries.

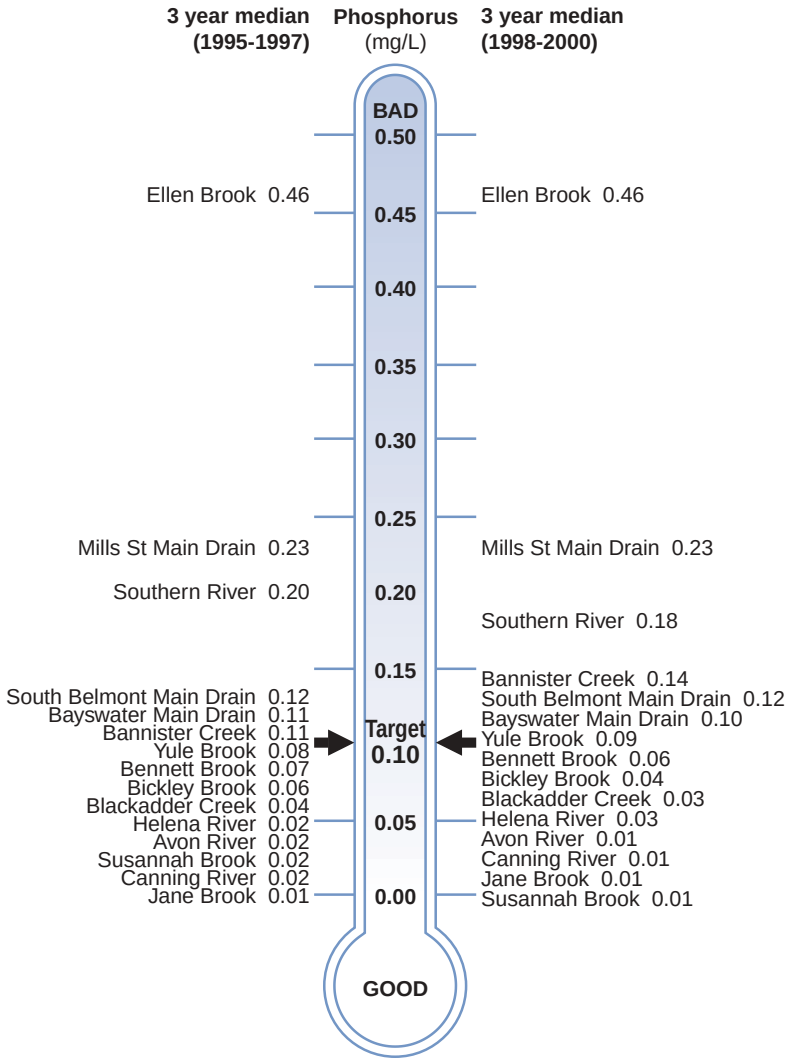


Nitrogen Thermometer (mg/L)

Phosphorus

In 2000, of the 15 tributaries monitored, Ellen Brook, Mills Street Main Drain, Southern River, Bannister Creek and South Belmont Main Drain were above the target for phosphorus. The concentration of phosphorus in Ellen Brook remains extremely high and has not changed significantly since the mid 1990s. The same is true for Mills Street Main Drain. These tributaries are a priority for SCCP. For example, phosphorus concentrations in Southern River need to fall by around 0.08 mg/L to achieve the target.

There is little evidence that phosphorus has decreased substantially in any of the SCCP Action Plan first and second priority catchments. The only change is a small increase in total phosphorus in Bannister Creek over the last three years, which is probably within the range of natural variation.



Phosphorus Thermometer (mg/L)

Estuary Targets

It is still too early to assess how water quality in the estuarine portion of the Swan and Canning rivers compares against recently adopted targets. Measures to report against these targets will be developed and reported against in the next annual report.

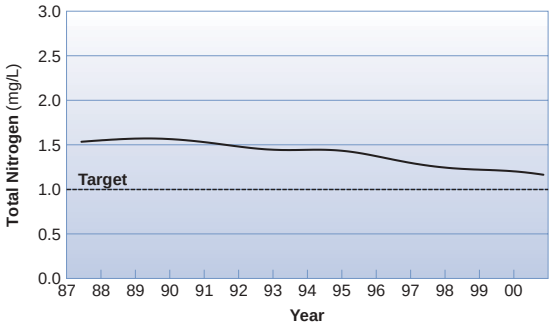
Significance of Results

Phytoplankton, and to some extent oxygen, in the estuarine portion of the Swan and Canning rivers 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 the SCCP catchment targets and seeing the desired change in the estuarine portion of the rivers. 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 ongoing research.

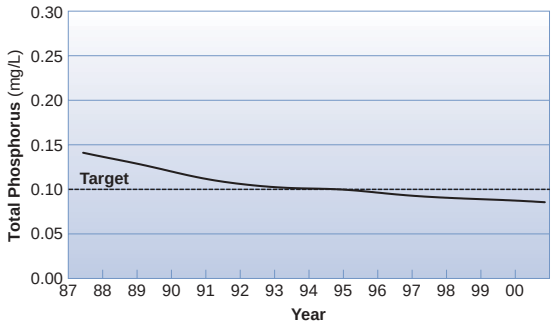
The decrease in nitrogen in three tributaries (Bennett Brook, Blackadder Creek and South Belmont Main Drain) is significant for SCCP because they represent the achievement of quality benchmarks. The decrease in nitrogen concentrations in Bennett Brook, Blackadder Creek and South Belmont Main Drain have achieved the nitrogen concentration objective by falling below 1.0 mg/L.

It is unlikely however that the improvements in nutrient levels entering from the catchments represents a significant decrease in the total amount of nutrients entering the rivers and is unlikely to significantly affect phytoplankton abundance or algal bloom activity in the short-term. So while there is reason for optimism it needs to be tempered by the knowledge that nutrient levels may be varying naturally around SCCP target objectives. Many improvements were relatively small and probably climatic in origin and are part of the normal variation seen in nitrogen levels in tributaries.

It is implicit in all target setting that tributaries or rivers that already meet the target criterion will not worsen through changes in catchment land use so attention to these catchments is also important.



Total phosphorus concentration from 1987 to December 2000



Total nitrogen concentration from 1987 to December 2000

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 contribute to 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 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.

The level of acceptance of conditions recommended by the Swan River Trust to the Minister for Water Resources for developments.

Level of acceptance of conditions	Year				
	1993-1994	1997-1998	1998-1999	1999-2000	2000-2001
Percentage accepted	95%	96%	100%	99%	100%
Percentage modified	2%	2%	0%	0%	0%
Percentage rejected	3%	2%	0%	1%	0%

Key Effectiveness Indicator 3

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

In early 2001 a consultant commissioned by the Trust conducted a telephone poll of 406 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 30 per cent.

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

Note: that of the 406 residents surveyed 16% were undecided on the following measure.

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

Note: that of the 406 residents surveyed 13% 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
Level of satisfaction	64%	68%	68%

Survey questions in all three 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 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 of 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 2000-2001 period saw an increase in the number of pollution complaints in relation to the five year average.

Non-pollution related complaints were reports of algal blooms, dumping material on foreshores and causing foreshore damage, foreshore accumulations of seagrass and macroalgae, foaming, animal carcases and the operation of vessels.

Year	Number of complaints
1995-1996	97
1996-1997	96
1997-1998	97
1998-1999	86
1999-2000	82
2000-2001	99
5 year average	**92**

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

Cost/unit	1999-2000 actual	2000-2001 target	2000-2001 actual
Cost of waterway monitoring and reporting per km^2 of catchment and waterway	$289	$396	$415
Average cost per project of research and development	$264 000	$217 000	$227 600

Output 2: Regulate riverside development

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

Cost/unit	1999-2000 actual	2000-2001 target	2000-2001 actual
Cost of development control policy and advice per km^2 of management area	$6 400	$6 942	$7 326

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.

Cost/unit	1999-2000 actual	2000-2001 target	2000-2001 actual
Average cost of production of management plan or strategy	$48 000	$35 700	$52 445

Responsibility for preparation of the Comprehensive Management Plan for the Swan and Canning Rivers Environmental Protection Policy was transferred to the Department of Environmental Protection. Savings in this project were redirected to development of management policies for worm digging, air conditioner wastewater discharge and an environmental management system for yacht clubs and marinas.

Output 4: Protection of waterways and foreshores

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

Cost/unit	1999-2000 actual	2000-2001 target	2000-2001 actual
Cost of maintenance and restoration per km of foreshore	$2 500	$3 041	$3 337
Cost of waterway and foreshore protection per km^2 of management area	$1 900	$1 957	$2 147
Cost of water quality improvement projects per km^2 of waterway and catchment	$890	$1 161	$1 274

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, 2001

Scope
I have audited the accounts and financial statements of the Swan River Trust for the year ended June 30, 2001 under the provisions of the Financial Administration and Audit Act 1985.

The Trust 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 Trust.

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, other mandatory professional reporting requirements and the Treasurer's Instructions so as to present a view which is consistent with my understanding of the Trust's financial position, the results of its operations and its cash flows.

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

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, 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, other mandatory professional reporting requirements and the Treasurer's Instructions, the financial position of the Trust at June 30, 2001 and the results of its operations and its cash flows for the year then ended.

K O O'NEIL
ACTING AUDITOR GENERAL
November 22, 2001

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

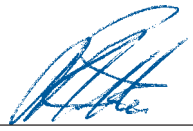
Certification of Financial Statements

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 2001 and the financial position as at 30 June 2001.

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.

Noel Robins, Member

Peter Kent, Principal Accounting Officer



Tim Mather, Member

21/8/01

Date

STATEMENT OF FINANCIAL PERFORMANCE for the year ended 30 June 2001

	Note	2000-01 ($)	1999-00 ($)
COST OF SERVICES			
Expenses from ordinary activities			
Employee Expenses		1 059 947	844 218
Borrowing Costs Expense		14 138	14 005
Depreciation Expense	2	52 552	62 447
Grants and Subsidy Payments		502 348	320 402
Service Related Expenses	3	3 833 358	3 458 325
Goods and Materials	4	65 710	51 215
Net Loss on Disposal of Non Current Assets		23 162	0
Asset Revaluation Decrement	5	68 000	0
Other Expenses from Ordinary Activities	6	111 508	148 492
Total cost of services		5 730 723	4 899 104
Revenues from ordinary activities			
Commonwealth Grants and Contributions	7	39 750	57 250
Net Surplus on Sale of Non Current Assets	8	0	53 924
Other Revenues from Ordinary Activities	9	47 119	55 654
Total revenues from ordinary activities		86 869	166 828
NET COST OF SERVICES		**5 643 854**	**4 732 276**
REVENUES FROM GOVERNMENT			
Recurrent Appropriation		5 126 000	5 138 000
Capital Appropriation		80 000	110 000
Contribution from State Government Agency	10	0	71 200
Resources Received Free of Charge	11	16 196	16 600
Total revenues from Government		5 222 196	5 335 800
CHANGE IN NET ASSETS RESULTING FROM OPERATIONS		**(421 658)**	**603 524**

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

STATEMENT OF FINANCIAL POSITION as at 30 June 2001

	Note	2000-01 ($)	1999-00 ($)
CURRENT ASSETS			
Cash Assets	12	316 372	561 066
Accounts Receivable	13	70 497	6 872
Prepayments	14	569	592
Total Current Assets		387 438	568 530
NON CURRENT ASSETS			
Plant and Equipment	15	192 512	239 498
Land	15	212 000	280 000
Buildings	15	0	34 185
Total Non Current Assets		404 512	553 683
Total Assets		**791 950**	**1 122 213**
CURRENT LIABILITIES			
Payables	16	9 507	2 001
Accrued Expenses	17	25 791	42 549
Provisions	18	144 455	65 479
Developer Bond	19	10 000	0
Interest Bearing Liabilities	20	7 902	7 603
Total Current Liabilities		197 655	117 632
NON CURRENT LIABILITIES			
Provisions	18	86 680	67 238
Interest Bearing Liabilities	20	168 689	176 759
Total Non Current Liaibilities		255 369	243 997
Total Liabilities		**453 024**	**361 629**
Net Assets		**338 926**	**760 584**
EQUITY			
Accumulated Surplus		338 926	760 584
Total Equity	21	**338 926**	**760 584**

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

STATEMENT OF CASH FLOWS for the year ended 30 June 2001

	Note	2000-01 Inflows (Outflows) ($)	1999-00 Inflows (Outflows) ($)
CASH FLOWS FROM GOVERNMENT			
Recurrent Appropriation		5 126 000	5 138 000
Capital Appropriation		80 000	110 000
Contributions from State Government Agencies	10	0	71 200
Net Cash Provided by Government		5 206 000	5 319 200
Utilised as follows:			
CASH FLOWS FROM OPERATING ACTIVITIES			
Payments			
Payments to Employees		(978 288)	(873 346)
Payments to Suppliers		(3 976 873)	(3 624 734)
Grants and Contributions		(502 348)	(320 402)
Interest Paid to WA Treasury Corporation		(14 115)	(13 989)
Developer Bond		0	(4 250)
GST payments on purchases		(424 345)	0
Receipts			
Other Receipts		43 408	55 276
Commonwealth Grants and Contributions		19 750	57 250
GST receipts on sales		5 981	0
GST receipts from ATO		378 449	0
Net Cash Used in Operating Activities	22	(5 448 381)	(4 724 195)
CASH FLOWS FROM INVESTING ACTIVITIES			
Payments for Property, Plant and Equipment		(5 039)	(182 716)
Proceed from sale of Plant and Equipment		10 496	50 000
Net Cash From Investing Activities		5 457	(132 716)
CASH FLOWS FROM FINANCING ACTIVITIES			
Repayment of Borrowings to WA Treasury Corporation		(7 770)	(7 602)
Net Cash Used in Financing Activities		(7 770)	(7 602)
TOTAL CASH FLOWS FROM OPERATING, INVESTING AND FINANCING ACTIVITIES		(5 450 694)	(4 864 513)
Net increase/(decrease) in Cash Held		**(244 694)**	**454 687**
Cash assets at the beginning of the financial year		561 066	106 379
CASH ASSETS AT THE END OF THE FINANCIAL YEAR		**316 372**	**561 066**

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

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 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 and UIG Consensus Views. The modifications are intended to fulfill 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, with the exception of certain non-current assets which subsequent to initial recognition, have been measured on the fair value basis in accordance with the option under AAS 38(5.1).

(a) Appropriations

Appropriations in the nature of revenue, whether recurrent or capital, are recognised as revenues in the period in which the Swan River Trust (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. Appropriations which are repayable to the Treasurer are recognised as liabilities.

(b) 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.

(c) 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.

(d) Depreciation of Non Current Assets

Property, plant and equipment, other than land, are depreciated over their estimated useful lives using the straight line method, using rates which are reviewed annually. The following estimated useful lives are applied in determining the depreciation rates used for each class.

Buildings	20 years
Plant and Equipment	5-7 years

(e) Employee Entitlements

Annual and Long Service Leave

Annual and long service leave entitlements are recognised at current remuneration rates and is measured at the amounts unpaid at the reporting date in respect to the employee's service up to that date.

Long service leave is calculated for employees who have accrued leave and are 55 years or older, or are employed under the Australian Workers Union Award. A pro-rata liability for long service leave is also recognised for officers who have completed four or more years of service.

An actuarial assessment of long service leave was carried out at 30 June 2001, and it was determined that the actuarial assessment of the liability was not materially different from the liability reported. This method of measurement of the liability is consistent with the requirements of Australian Accounting Standard AAS 30 "Accounting for Employee Entitlements".

Sick Leave

No provision has been made for sick leave as average sick leave taken each reporting period is less than the entitlement accrued for that period (in accordance with Urgent Issues Group Abstract 2).

Superannuation

Staff may contribute to the Superannuation and Family Benefits Act scheme, a defined benefits pension scheme now closed to new members, or to the Gold State Superannuation Scheme, a defined benefit and lump sum scheme now also closed to new members. All staff who do not contribute to either of these schemes become non-contributory members of the West State Superannuation Scheme, an accumulation fund complying with the *Commonwealth Government's Superannuation Guarantee (Administration) Act 1992*.

The liability for superannuation charges incurred under the *Superannuation and Family Benefits Act* pension scheme, together with the pre-transfer service liability for employees who transferred to the Gold State Superannuation scheme are provided for at reporting date in the Water and Rivers Commission financial statements.

The liability for superannuation charges under the Gold State Superannuation Scheme is extinguished by quarterly payments of employer contributions to the Government Employees Superannuation Board.

The note disclosure required by paragraph 51(e) of AAS 30 (being the employer's share of the difference between employee's accrued superannuation benefits and the attributable net market value of plan assets) has not been provided. State scheme deficiencies are recognised by the State in its whole of government reporting.

The Government Employees Superannuation Board's records are not structured to provide the information for the Trust. Accordingly, deriving the information for the Trust is impractical under current arrangements, and thus any benefits thereof would be exceeded by the cost of obtaining the information.

(f) 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 accounts receivable 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.

(g) Accrued Salaries

Accrued salaries represent the amount due to staff but unpaid at the end of the financial year, as the end of the last pay period for that financial year does not coincide with the end of the financial year. The Trust considers the carrying amount approximates net fair value.

(h) 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.

(i) Interest Bearing Liabilities

Interest Bearing Liabilities are recorded at an amount equal to the net proceeds received. Interest expense is recognised on an accrual basis.

(j) 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.

(k) Valuation of Non Current Assets

The Trust has a policy of reporting land and buildings 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.

The annual revaluations of the Trust's land undertaken by the Valuer General's Office for the Government Property Register are recognised in the financial statements. An amount of $68 000 of land decrement was charged against profits in 2000-01.

(l) Comparative Figures

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

	2000-01 ($)	1999-00 ($)
2. DEPRECIATION EXPENSE		
Buildings	527	2 290
Plant, Machinery and Equipment	52 025	60 157
	52 552	62 447
3. SERVICE RELATED EXPENSES		
Service related expenses include professional and non-professional service contracts, leases, chemical analysis, legal charges, consultants, advertising, and other service related expenses.	3 833 358	3 458 325
4. GOODS AND MATERIALS		
Goods and materials include office supplies, library acquisitions, laboratory supplies, motor vehicle running expenses, utilities and other consumable equipment and materials.	65 710	51 215
5. ASSET REVALUATION DECREMENT		
Revaluation of Land at fair value 30 June 2000. See note 1(k)	68 000	0

	2000-01 ($)	1999-00 ($)
6. OTHER EXPENSES FROM ORDINARY ACTIVITIES		
Other operating expenses include communication expenses, asset maintenance costs and other sundry operating expenses.	111 508	148 492
7. COMMONWEALTH GRANTS AND CONTRIBUTIONS		
National Heritage Trust Fund	39 750	57 250
8. NET SURPLUS ON SALE OF NON CURRENT ASSETS		
Plant, Machinery and Equipment	0	53 924
Gross proceeds from disposal of assets	**10 496**	**50 000**
9. OTHER REVENUES FROM ORDINARY ACTIVITIES		
Sundry Revenue	47 119	55 654
10. CONTRIBUTION FROM STATE GOVERNMENT AGENCY		
Water and Rivers Commission Contribution to Swan River Algal Bloom Clean Up.	0	71 200
11. RESOURCES RECEIVED FREE OF CHARGE		
Resources received free of charge has been determined on the basis of the following estimates provided by agencies:		
Office of the Auditor General	7 500	6 250
Department of Land Administration	2 016	0
Crown Solicitors Office	6 680	10 350
	16 196	16 600

	2000-01 ($)	1999-00 ($)
12. CASH ASSETS		
Operating Account	316 372	561 066
13. RECEIVABLES		
Goods and services	30 582	6 872
GST recoverable from ATO	39 915	0
	70 497	6 872
The Trust considers the carrying amounts of accounts receivable approximate their net fair value.		
14. PREPAYMENTS		
WA Treasury Corporation	569	592
15. NON CURRENT ASSETS		
Plant, Machinery and Equipment at cost	529 176	524 137
Less: Accumulated Depreciation	(336 664)	(284 639)
	192 512	239 498
Land at cost	0	280 000
Land at fair value 1 July 2000	212 000	0
	212 000	280 000
Buildings at cost	43 725	43 725
Disposals	(33 658)	0
Accumulated Depreciation	(10 067)	(9 540)
	0	34 185
Total Written Down Value	**404 512**	**553 683**

Government Property Register

Land is recorded on the Government Property Register at the following valuations performed by the Valuer General's Office: $212 000 "Current Use". The valuations were dated 1 July 2000.

Reconciliations

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

2000-01	Land ($)	Building ($)	Furn/Fit ($)	Comput-ing Equip ($)	Plant & Equip ($)	Total ($)
Carrying amount at start of year	280 000	34 185	1 435	15 410	222 653	553 683
Additions	0	0	5 039	0	0	5 039
Disposals	0	(43 725)	0	0	0	(43 725)
Revaluation increments/(decrements)	(68 000)	0	0	0	0	(68 000)
Depreciation	0	9 540	(1 506)	(7 561)	(42 958)	(42 485)
Carrying amount at end of year	212 000	(0)	4 968	7 849	179 695	404 512

	2000-01 ($)	1999-00 ($)
16. PAYABLES		
Accounts payable for goods and services received	9 507	2 001
The Trust considers the carrying amounts of accounts payable approximate their net fair values.		
17. ACCRUED EXPENSES		
Goods and Services	4 791	19 376
Amounts owing for 6 working days to 30 June 2001 (1999-2000 – 5 working days)	21 000	23 173
	25 791	42 549
18. PROVISIONS		
Current Liabilities		
Liability for Annual Leave	106 277	46 315
Liability for Long Service Leave	38 178	19 164
	144 455	65 479
Non Current Liability		
Liability for Long Service Leave	86 680	67 238
19. DEVELOPER BOND		
Developer bond	10 000	0

	2000-01 ($)	1999-00 ($)
20. INTEREST BEARING LIABILITIES		
Borrowings from WA Treasury Corporation		
Balance of Loan 30 June 2001		
Current:	7 902	7 603
Non-current:	168 689	176 759
21. EQUITY		
Opening Balance	760 584	157 060
Change in Net Assets resulting from operations	(421 658)	603 524
Closing balance	338 926	760 584
22. RECONCILIATION OF NET COST OF SERVICES TO NET CASH USED IN OPERATING ACTIVITIES		
Net Cost of Services (Statement of Financial Performance)	(5 643 854)	(4 732 276)
Adjusted for:		
Increase/(Decrease) in Accrued Expenses	(16 758)	25 593
Increase/(Decrease) in Payables	6 544	(2 678)
Increase/(Decrease) in Provisions	98 417	(35 345)
(Increase)/Decrease in Developer Bond	10 000	(4 250)
(Increase)/Decrease in Receivables	(62 663)	(378)
(Increase)/Decrease in Prepayments	23	16
Asset revaluation decrement	68 000	0
Resources received Free of Charge	16 196	16 600
Depreciation expense	52 552	62 447
Loss (Gain) on Sale of Non Current Assets	23 162	(53 924)
Net cash (used in)/from operating activities (Statement of Cash Flows)	**(5 448 381)**	**(4 724 195)**
23. REMUNERATION OF ACCOUNTABLE AUTHORITY		
The total fees, salaries and other benefits received or due and receivable for the financial year, by members of the accountable authority.	30 043	31 757

	2000-01 ($)	1999-00 ($)

The number of members of the accountable authority whose total of fees, salaries and other benefits received or due and receivable for the financial year, falls within the following bands:

	2000-01	1999-00
$ 0 000 – $10 000	4	3
$10 001 – $20 000	1	1

24. RETIREMENT BENEFITS

In respect of members of the Accountable Authority, the following amounts were paid or became payable for the financial year:		
Contributions to the West State Superannuation Scheme at 8%	1 035	1 399
Contributions to other superannuation funds	1 368	824
	2 403	2 223

25. REMUNERATION OF THE AUDITOR

External Audit (refer also note 11)	7 500	6 250

26. SEGMENT REPORTING

The Swan River Trust operates in one industry and geographical segment being the conservation and management of the Swan and Canning river system. The Trust's outputs as detailed in the 2000-01 Budget Statements are provided at note 33 b) with comparisons to actual results.

27. CAPITAL COMMITMENTS

The Trust has no capital commitments at 30 June 2001.

28. CONTINGENT LIABILITIES

The Trust has no contingent liabilities at 30 June 2001.

29. EVENTS OCCURRING AFTER REPORTING DATE

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

30. DISCLOSURE OF WRITE OFFS AND LOSSES

Receivables	12 648	2 663
	12 648	2 663

31. RELATED AND AFFILIATED BODIES

The Trust currently 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.

32. ADDITIONAL FINANCIAL INSTRUMENTS DISCLOSURES

Interest rate risk exposure

The Trust's exposure to interest rate risk, repricing maturities and the effective interest rates on financial instruments are:

	Weighted average effective interest rate	Fixed interest rate maturities			Non interest bearing	Non interest bearing	Total	Total
		1 year or less	1 to 5 years	Over 5 years	2000-01	1999-00	2000-01	1999-00
	%	$'000	$'000	$'000	$'000	$'000	$'000	$'000
ASSETS								
Cash Assets					316	561	316	561
Receivables					70	7	70	7
Prepayments					1	1	1	1
Total Financial Assets					**387**	**569**	**387**	**569**
LIABILITIES								
Payables					10	2	10	2
Interest Bearing Liabilities 2000-2001	7.15%	6	34	137			177	
Interest Bearing Liabilities 1999-2000	7.30%	8	35	141				184
Accrued Expenses					26	43	26	43
Developer Bond					10	0	10	0
Provisions					231	133	231	133
Total Financial Liabilities 2000-2001		**6**	**34**	**137**	**277**		**454**	
Total Financial Liabilities 1999-2000		**8**	**35**	**141**		**178**		**362**
Net Financial Assets (Liabilities) 2000-2001		**(6)**	**(34)**	**(137)**	**110**		**(67)**	
Net Financial Assets (Liabilities) 1999-2000		**(8)**	**(35)**	**(141)**		**391**		**207**

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:

	2000-01 ($)	1999-00 ($)
Western Australian Government agencies	30 582	1 717
Government agencies of other jurisdictions	0	30
Private Sector	0	5 125
Commonwealth Government – ATO (GST)	39 915	0
Total	**70 497**	**6 872**

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.

33. EXPLANATORY STATEMENTS

(a) Comparison of Actual results with those of the Preceding Year

Details and reasons for significant variations between actual revenue and expenditure and the corresponding item of the preceding year are detailed below. Significant variations are considered to be those greater than $50 000 where exceeding 10% of the preceding year's figure. In respect of any item for which there is not a significant variation, no explanation is given.

	Note	2000-01 Actual $	1999-00 Actual $	Variance $	Variance %
Expenses from ordinary activities					
Employee Expenses	**1**	1 059 947	844 218	215 729	26%
Borrowing Costs Expense		14 138	14 005	133	1%
Depreciation Expense		52 552	62 447	(9 895)	(16%)
Grants and Subsidy Payments	**2**	502 348	320 402	181 946	57%
Service Related Expenses	**3**	3 833 358	3 458 325	375 033	11%
Goods and Materials		65 710	51 215	14 495	28%
Loss on sale of Non Current Assets		23 162	0	23 162	100%
Asset Revaluation Decrement	**4**	68 000	0	68 000	100%
Other Expenses from Ordinary Activities	**3**	111 508	148 492	(36 985)	(25%)
Total Cost of Services		5 730 724	4 899 104	831 620	17%
Revenues from ordinary activities					
Commonwealth Grants and Contributions		39 750	57 250	(17 500)	(31%)
Net Surplus Sale of Non Current Assets		0	53 924	(53 924)	(100%)
Other Operating Revenue		47 119	55 654	(8 535)	(15%)
Total revenues from ordinary activities		86 869	166 828	(79 959)	(48%)
Net Cost of Services		**5 643 855**	**4 732 276**	**911 579**	**19%**

EXPLANATION OF VARIANCES

1. Employee Expenses

The increase in Employee Expenses is largely due to the recognition of payroll on-costs on employee leave liabilities for the first time in 2000-01.

2. Grants and Contributions

Trust Grants are for contributions to the Swan Catchment Urban Landcare Program and support to Catchment Groups in the Swan-Canning catchment which are both major initiatives of the Swan-Canning Cleanup Program. The increase in total grants of $80 000 resulted from the Cleanup Program's increasing support to catchment groups and grants to community groups for river restoration works totalling $100 000 in 2000-01.

3. Service Related Expenses and Other Operating Expenses

Water and Rivers Commission provides corporate services for the Swan River Trust. The service level agreement between the two agencies for 2000-01 included a provision for the charging of salary related on costs associated with the payment of salaries for Swan River Trust staff. An amount of $173 854 was recouped by the Water and Rivers Commission in 2000-01. The variation in Service Related Expenses is mainly a result of this charge.

4. Asset Revaluation Decrement

Refer to note 1(k).

(b) Comparison of Estimates and Actual Results

Section 42 of the *Financial Administration and Audit Act* requires statutory authorities to prepare annual budget estimates. Treasurer's instruction 945 requires an explanation of significant variations between these estimates and actual results. Significant variations are considered to be those greater than 10% of budget. The figures below represent the total cost of the output on an accrual basis.

Output	Note	2000-01 Actual $'000	2000-01 Estimate $'000	Variance $'000	Variance %
* Collect water information to support state planning, agencies and community		1 789	1 704	85	4.99%
* Regulate riverside development		505	479	26	5.43%
* Management plans		105	107	(2)	(1.87%)
* Protection of waterways and foreshores		3 331	3 035	296	9.75%

There are no significant variations where actual expenditures exceeded or were less than the estimates for the financial year.

Reporting Requirements

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. Individual Board members declared a conflict of interest on five occasions when considering matters before the Board, and did not vote on those occasions. This included:

Mr Ray Stokes on 31 July 2000

Mrs Pat Hart on 4 December 2000 and 19 June 2001

Mr Noel Robinson 20 February 2001 and 5 June 2001

Freedom of Information

The Trust received two applications for information under the provisions of the *Freedom of Information Act 1992*. They were both given edited information. Fees and charges totalling $254.40 were received for the processing of these applications.

Advertising and Marketing

Expenditure incurred by the Swan River Trust during 2000-2001 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 $150
Advertising Agencies	$7 188	Marketforce Productions
TOTAL EXPENDITURE	$7 188	

Disability Services Plan

The Swan River Trust has a close relationship with the Water and Rivers Commission.

The Commission continues to provide appropriate services and facilities for stakeholders with disabilities. The refurbishment of Commission facilities and accommodation during the year took into account the recommendations of the Disability Access Audit.

Two Year Plan for Women

Swan River Trust staff are provided by the Water and Rivers Commission.

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 Water Resources, 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 Water Resources 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 2000-2001, there were 22 Board meetings, with attendance by Board members shown below:

Member	Number of Board meetings attended	Maximum possible attended
Geoff Totterdell	21	22
Noel Robins	14	22
Ray Stokes	19	22
Kim Stone	16	22
Brian Martin	14	22
Jeff Munn (retired 17.10.2001)	7	8
Pat Hart	22	22
Timothy Mather	18	22
Marion Blair (commenced 25.09.2001)	10	14

Strategic Plan

A Strategic Plan has been developed to help the Trust meet its statutory responsibilities under the *Swan River Trust Act 1988* and achieve its performance indicator targets. The Strategic Plan was distributed to stakeholders of the Swan River Trust requesting feedback. The plan is now being revised.

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 this 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 April 2001 by the accounting firm Arthur Andersen.

Asset Management

The Trust has nett book value assets worth $404 512 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.

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 65 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

One workers compensation claim was lodged during the year. No work time was lost.

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*

Noel Robins, Deputy Chairman

Darryl Miller, Acting Manager