SWAN RIVER TRUST

ANNUAL REPORT

1999-2000

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Swan River Trust
3rd Floor, Hyatt Centre, 87 Adelaide Terrace
East Perth Western Australia 6004
Telephone: +61 8 9278 0400
Facsimile: +61 8 9278 0401
PO Box 6740 Hay Street East, East Perth 6892
http://www.wrc.wa.gov.au/srt

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Hon Kim Hames, MB, BS, JP, MLA

Minister for Housing, Aboriginal Affairs, Water Resources

To the Hon Kim Hames, MB, BS, JP, MLA
Minister for Housing, Aboriginal Affairs, Water Resources

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 12th annual report on the operations of the Swan River Trust for the period July 1, 1999 to June 30, 2000.

Geoff Totterdell
CHAIRMAN

31 August 2000

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

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.

Specifically, its functions 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 is constituted under the *Swan River Trust Act 1988* and is responsible to the Minister for Water Resources.

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 requirements.

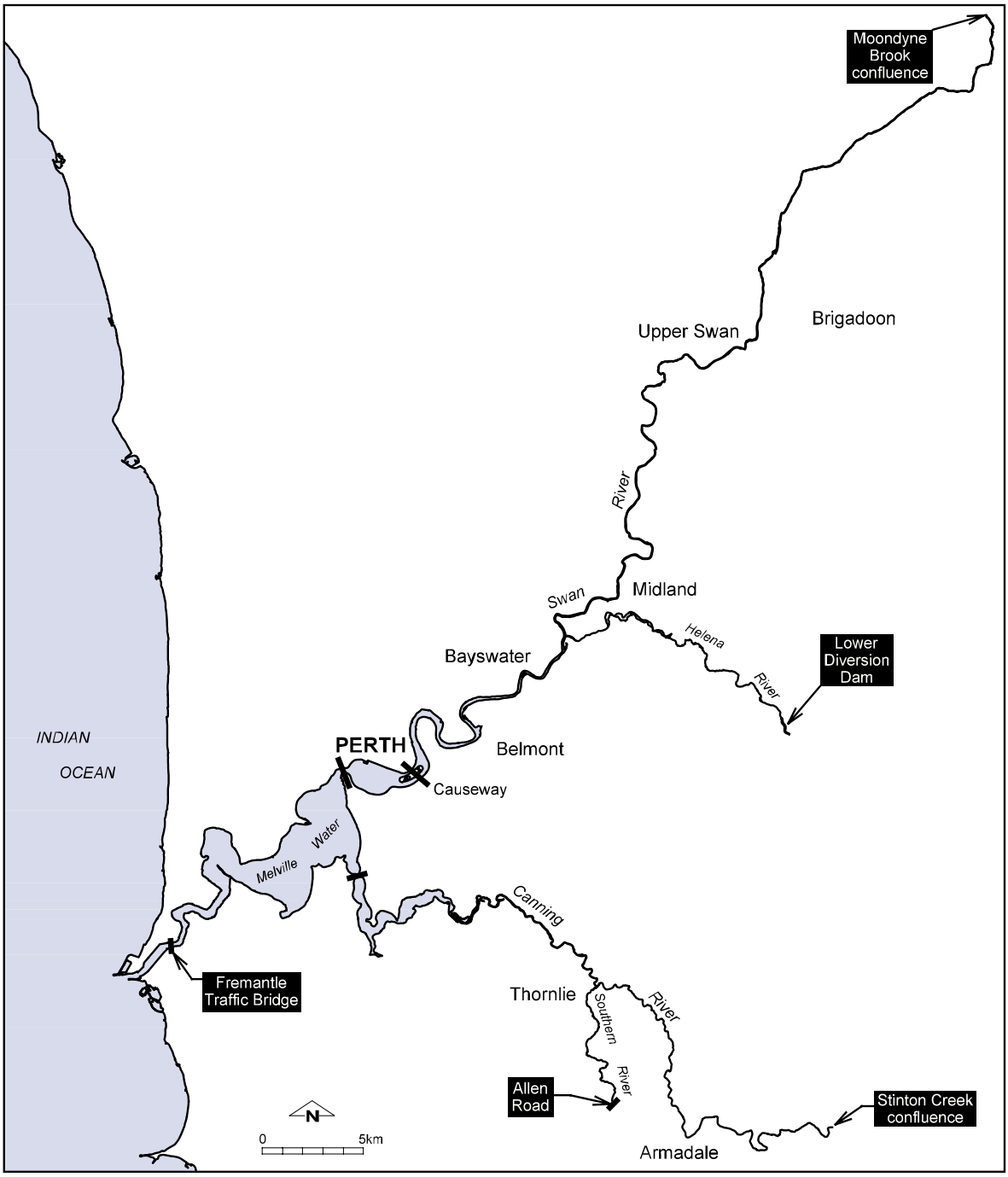


Figure 1: The Swan River Trust management area includes the waters of the Swan and Canning rivers and adjoining parks and recreation reservations - extending upstream from the Fremantle Traffic Bridge to Moondyne Brook on the Avon River, to the lower diversion dam on the Helena River, along Southern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

SWAN-CANNING CLEANUP PROGRAM

Aims:

To limit the incidence of nuisance algal blooms and prevent toxic algal blooms by reducing nutrient inputs in the Swan-Canning river system, improve community awareness and involvement and help improve the ecological health of the Swan-Canning river system.

Achievements:

- Began implementation of 22 major projects under the Swan-Canning Cleanup Program Action Plan.
- Effectively managed the response to the toxic bloom of blue-green algae in February 2000.
- $195 000 provided to support catchment management.
- $127 000 provided to support foreshore restoration carried out by community groups and local government.
- Launched oxygenation barge and conducted oxygenation trials in the Swan River.
- Continued oxygenation trials in the Canning River.
- Conducted PhosLock™ trials in the Canning River.

Future Directions:

- Support for Integrated Catchment Management will be extended, with over $500 000 available for catchment groups and foreshore restoration works.
- Retrofitting of the Mills Street Main Drain will demonstrate how nutrient inputs can be reduced through simple, cost-effective works.
- A major project aimed at incorporating nutrient reduction principles in the planning framework will begin.
- A newly developed management plan for the Canning River will start its first year of implementation.
- Water quality targets and a compliance monitoring system will be proposed for broad adoption.
- Work will continue on the development of a model-based river management decision support system to improve environmental management decision making.

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 13 years continuous monitoring of nutrient levels in key catchment streams and six 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.
- Effective provision of special water quality information to assist management of the response to the toxic phytoplankton bloom that occurred in February in the Swan River.
- 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.
- Provision of scientifically relevant water quality information to establish water quality targets for the fresh and estuarine waters of the Swan-Canning river system and a monitoring program to track performance over time.

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.

REGULATING RIVERSIDE DEVELOPMENT

Aims:

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

Achievements:

- The Trust considered 221 development applications for developments within and adjoining the Swan River Trust management area.
- Reviewed existing policies and researched and drafted new policies.

Future Directions:

- Develop and upgrade protocols of development enforcement and compliance.
- Revise the protocol for compliance of conditions placed on development approvals, and develop a protocol for addressing unapproved developments and infringements against the regulations.
- Complete the review of Swan River Trust Policies.
- Establish partnerships with local government to promote the Trust's outcomes for the rivers.
- Influence the policies of other agencies associated with development on 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:

- Completion of the Sir James Mitchell Park Management Plan.
- Submission of *Riverplan*, the Comprehensive Management Plan for the Swan and Canning Rivers Environmental Protection Policy, to the Environmental Protection Authority.
- Completion of an inventory and audit of foreshore management plans.
- Development of a draft Weed Control Strategy.
- Commencement of the preparation of an Environmental Management System for Yacht Clubs and Marinas.
- Completion of discussion paper and draft airconditioner wastewater disposal policy and implementation strategy.
- Progress made on the Swan-Canning Precinct Policy Plan to produce pilot studies for two of the precincts of the river: Fremantle and Swan Valley.

Future Directions:

- Revision of *Riverplan.*
- Finalisation of Weed Control Strategy.
- Finalisation of airconditioner wastewater disposal policy and implementation plan.
- Completion of Yacht Clubs and Marina Environmental Management System.
- Progress the Swan-Canning Precinct Policy Plan and studies for precincts around the river.

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:

- 33 beaches and 146 km of foreshores of the Swan-Canning rivers were regularly cleaned and maintained.
- 432 tonnes of accumulated beach sand relocated to replenish eroded public beaches.
- Walling repairs undertaken to about 160 metres of foreshore by the Town of Mosman Park and Christ Church Grammer School.
- Successful protection of the environment from major damage related to petrol and oil spillages from traffic accidents through the rapid response by the Trust's pollution response team.
- The Trust made significant progress in the development of a foreshore and wetland weed control strategy for its management area.

Future Directions:

- Continue to support community groups in riverbank revegetation projects funded through Natural Heritage Trust and Alcoa.
- Work with local government on shoreline restoration, revegetation and weed control.

COMMUNITY AWARENESS AND INVOLVEMENT

Aims:

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

Achievements

- Riverside businesses, media, schools and the general public were kept informed during the toxic blue-green algal bloom in the Swan River in February 2000.
- A new display and presentation package on algal blooms was used for briefings and events including Garden Week and the Autumn River Festival.
- A new series of Swan River Trust resource sheets were produced for schools and general information.
- RiverView newsletter was distributed quarterly to over a thousand key stakeholders.
- A telephone survey was completed in February 2000 to assess awareness of the Trust and its role, and the main issues of concern to the community.
- The Swan River Trust website at www.wrc.wa.gov.au/srt was updated with new information.
- A river cruise was held in October 1999 to brief stakeholders including local government, catchment groups and politicians on current issues in river management and development approval processes.

Future Directions

- A public awareness campaign as part of the Swan-Canning Cleanup Program Action Plan.

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

- a chairman appointed by the Minister for Water Resources
- a board member 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 a development application, local governments from areas affected by the development may nominate a representative to attend Trust meetings and vote on the development. Local government representatives are also regularly invited to attend committee and other meetings.

Membership changes

There were two retirements and subsequently two new appointments to the Board this year. Dr Michael Paul and Mr Barry Sanders resigned on July 22, 1999 and August 27 1999 respectively. They were replaced by Mr Kim Stone, nominee of the Minister for Transport and Dr Brian Martin, Coordinator of Water Services.

Front (l-r): Noel Robins, Pat Hart, Geoff Totterdell.
Back (l-r): Kim Stone, Jeff Munn, Ray Stokes, Brian Martin.
Absent: Tim Mather.

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 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.

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 and a member of the Swan-Canning Cleanup Program Taskforce. Mrs Hart is Chair of the Swan-Avon ICM Coordinating Group.

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.

Geoff Totterdell

1999-2000 was an enormously busy year, dominated by the implementation of the Swan-Canning Cleanup Program (SCCP) Action Plan. This major campaign to restore river health represents a new and exciting phase for the Swan River Trust. More than half the agency's budget this year was directed into SCCP projects and activities.

The SCCP Action Plan was endorsed by the State Government in April 1999 with $3.5 million provided this year to commence its implementation. Work began in July 1999 and a wide range of SCCP projects are now under way.

The principal aim of SCCP is to reduce nutrient inputs to the Swan-Canning river system. Individual activities ranged from foreshore restoration works to state-of-the-art research trials and community education programs.

The widespread toxic blue-green bloom in the Swan River in February highlighted the problems high nutrient levels can create. While the circumstances that led to the bloom were exceptional, it graphically demonstrated the importance of SCCP and the urgent need to reduce nutrient inputs if we are to maintain the Swan-Canning river system as the recreational heart of Perth.

This year, SCCP involved 22 major projects with approximately 50 people from five agencies working full or part time on them. A Senior Officers Group and a Project Managers Group were established to coordinate the work of the agencies involved, oversee implementation of the projects and make sure the SCCP objectives are being achieved.

Efforts to strengthen and support Integrated Catchment Management have been a priority. Substantial funding was provided to catchment groups, local governments and the Swan Catchment Centre to help their efforts in areas ranging from foreshore restoration and rehabilitation to strategic community education. With over 85 community and environmental groups working towards improving the catchment, bushland and waterways environment – sustained by hundreds of volunteers through the greater metropolitan area – it is critical that they receive appropriate support.

Initiatives that encourage sustainable farm practices and better industry practices to reduce pollution have also been implemented this year, and a range of workshops and training opportunities were provided for farmers and local government officers.

Householders have also been a focus, with a community awareness campaign encouraging changes in behaviour and involvement in rivercare and catchment management. The campaign included screening of a television documentary and a series of community service announcements to raise awareness of how action in the home and garden and changes in recreational behaviour can contribute to protecting the Swan-Canning river system.

Work continued on assessing ways of preventing nutrient inputs in the rivers from being available to support algal blooms. This included exciting trials of innovative new technologies that have attracted national and international attention. For example, the use of the modified clay PhosLock™ - jointly developed by the Water and Rivers Commission, Swan River Trust and CSIRO to reduce phosphorus in parts of the Swan-Canning river system - took a giant step forward. After four years' development and field trials, a large-scale application of PhosLock™ commenced in January 2000 with excellent results.

Work also began this year on a major project to oxygenate two kilometres of the Canning River to reduce the release of nutrients from the sediments. An innovative mobile oxygenation plant was also developed and trialed to inject oxygen into parts of the Swan River.

The construction of artificial wetlands to help strip nutrients from high-risk catchments also moved a step closer. An international workshop in October 1999, which attracted experts from interstate and overseas, developed initial design criteria for a wetland to be constructed at Ellen Brook. A workshop was also held in April at the City of Canning to review water quality data and discuss options for drain retrofitting and wetland remediation for the Mills Street Main Drain. These are crucial projects, with both Ellen Brook and the Mills Street Main Drain recognised as hot spots contributing very high levels of nitrogen and phosphorus to the Swan-Canning river system.

The Trust also continued its extensive water quality monitoring program. Over 13 years of catchment data and over six years of estuarine data have now been accumulated. This extended time series data is essential to understanding the dynamics of the Swan-Canning river system and water quality trends. Interstate and international investigators are increasingly seeking to use these data because of their continuity and consistent high quality.

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

Around 51 tonnes of domestic rubbish were collected from beaches in the management area, 123 tonnes of logs and timber from fallen trees were removed, and 172 tonnes of rotting weed was cleared from foreshores.

The Trust also responded to 82 pollution incident reports, which included oil spills, sewage spills, dewatering or waste dumping. The most serious incident was a tanker rollover in January 2000 which released 5 000 litres of petrol and diesel on to the road. The Trust's pollution response team used booms and absorbent material to contain the spill and prevented it from contaminating the Canning River. In nearly every situation this year, no contaminated material has reached the river from road spillage. In other incidents on the river, the impact from contaminated material has been minimised by the efforts of the pollution response team.

Another important activity was the Trust's involvement in helping regulate riverside development by providing advice on development applications within and adjoining the management area. The Trust considered 221 development applications, some requiring extensive research and liaison with other agencies, local governments and interest groups. The more notable applications considered during the year included the Barrack Square Redevelopment (recommended for approval), a proposed 200-seat floating restaurant (not recommended), a suburban passenger ferry (recommended), the Narrows Bridge Duplication project (recommended), and a tourist houseboat trial (recommended).

The Trust continued to work on providing a sound framework for its development recommendations. Work is well advanced on the Swan-Canning Precinct Policy Plan, which balances development expectations, recreational activities and protection of the amenity and environment of the Swan-Canning river system. There has also been a review of the Swan River Trust management area boundary to remove inconsistencies that had arisen between it and the Metropolitan Region Scheme Parks and Recreation Reservation boundary. A review of Trust policies also progressed to a stage where these can be presented for public consultation.

A longer term framework for the Trust's activities was also provided this year by the development of a Strategic Plan.

The Trust was pleased to receive Commonwealth support for several of its projects through the Natural Heritage Trust and the Coasts and Clean Seas Initiative. This helped support activities such as the development of river intervention techniques and activities aimed at encouraging light industries to adopt better management practices to reduce pollution.

There were two changes to the Board membership during the year. Michael Paul (Department of Transport) and Barry Sanders (Water Corporation) retired and were replaced by Kim Stone (Department of Transport) and Brian Martin (Office of Water Regulation). I would like to thank Michael Paul and Barry Sanders for their untiring efforts over a long period.

1999-2000 has been a challenging and exceptionally busy year and I thank all members and staff for their valuable contributions. I would particularly like to commend the efforts of Trust and Water and Rivers Commission staff during February when the first serious widespread toxic blue-green algal bloom occurred in the Swan River. Fortunately, there was no lasting environmental damage, but it demonstrated the importance of our efforts to improve and protect the health of the Swan-Canning river system for generations to come.

Geoff Totterdell
Chairman

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's business structure is divided into two sections - 'Assessment and Policy' and 'River Management'.

The Assessment and Policy Section evaluates and provides advice on development applications within and next to the Swan River Trust management area. This requires regular consultation with developers, local government and other agencies whose activities impact upon the health and amenity of the Swan-Canning river system. Assessments are prepared for the Trust Board and form the basis for recommendations to the Minister. This section also prepares draft policies for the Trust and provides input to other agencies for their policy-making. Staff provide telephone advice to members of the public concerning development and landuse 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, 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 Department of Transport and the Department of Environmental Protection.

Staff of the Swan River Trust.

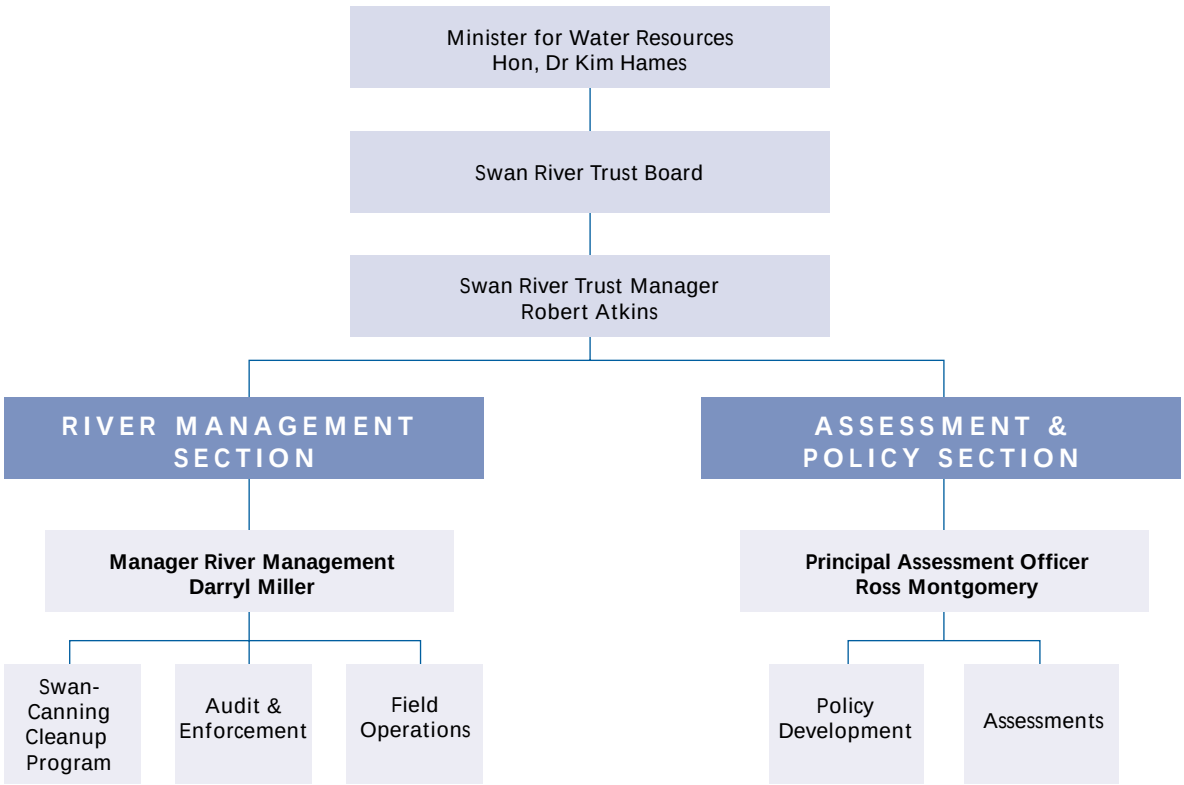


Figure 2: Swan River Trust organisational structure.

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.

Table 1: In 1999-2000, there were 21 Board meetings, with attendance by Board members shown below:

Name	Number Attended	Maximum Possible Attended
Geoff Totterdell	19	21
Noel Robins	16	21
Ray Stokes	19	21
* Kim Stone *(commenced 19/8/99)*	15	19
* Michael Paul *(retired 22/7/99)*	1	1
* Brian Martin *(commenced 30/11/99)*	9	11
* Barry Sanders *(retired 27/8/99)*	3	4
Jeff Munn	19	21
Pat Hart	20	21
Timothy Mather	20	21

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. Development of the Strategic Plan commenced late in 1998 with consultants engaged to assist the Trust with strategic planning and the development of performance indicators. The Strategic Plan was endorsed by the Board in October 1999 and has now been distributed to stakeholders of the Swan River Trust requesting feedback.

Internal Audit

An internal audit of the Trust was carried out by Arthur Andersen in November 1999 and May 2000, in accordance with the Financial Administration and Audit Act. Arthur Andersen is under contract to perform our internal audit function for three years.

Asset Management

The Trust has assets worth approximately $553 683 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.

The Code is a declaration of how we go about our work, the things that are important to us and the way we behave in all of our relationships. It contains 17 major policy issues relating to the way we conduct business, manage our organisation and treat one another, and a compliance strategy with sanctions for non-compliance.

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

Customer Service Charter

In delivering its services, the Trust seeks to:

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

Ministerial Directions

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

Industrial Agreements

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

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

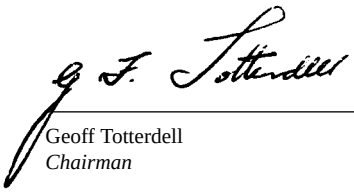
Workers' Compensation Statistics

Two workers compensation claims were 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



Geoff Totterdell
Chairman

Robert Atkins
Manager

Overview

The lower Swan estuary (below Perth Water) remained in satisfactory condition in terms of algal growth, except for February 2000 when the *Microcystis* bloom prevailed. However nutrient and chlorophyll levels indicate that any increases in nutrient levels could lead to degradation of the seagrasses and an increase in algal activity. Tides exchanging river water with ocean water and wind mixing are the major influences on water quality in this part of the river system.

The areas upstream of the Narrows in the Swan and Kent Street Weir in the Canning continue to experience poor water quality. Nutrient levels are generally higher, more frequently exceeding the draft targets, oxygen levels particularly in the bottom water are low on many occasions and algal blooms occur on a regular basis in spring and summer. The upper reaches of the estuarine system receive most of the direct inputs from the catchments via rivers, streams and stormwater drains.

Condition of the Catchments

In general, the majority of nitrogen concentrations entering the Swan-Canning river system were above target concentrations. Concentrations between 1989 and 1998 have been slowly declining although concentrations in 1999 rose slightly. This slight upturn is believed to reflect the slightly above average rainfall received in parts of the Swan coastal catchment for the year.

In contrast to nitrogen, the majority of phosphorus concentrations were generally below target concentrations. Phosphorus concentrations have been decreasing since 1987. They reached a plateau between 1993 and 1996 before declining again.

While our figures show both nitrogen and phosphorus input to the estuary to be generally decreasing, it is not representative of nutrient levels for many individual monitored streams and drains. Many streams and drains exceed nitrogen and phosphorus targets. These are contributing excessive nutrients to the estuary, causing algal blooms and require extensive catchment management to reverse these inputs. However, the overall trend is encouraging and coincides with the escalation in community based catchment management and the first positive effects of the SCCP Action Plan.

Based on five-year running averages, Ellen Brook, Mills Street Main Drain, Southern River, Bayswater Main Drain, Bannister Creek and South Belmont Main Drain catchments are the worst catchments for exporting Total Phosphorus into the Swan and Canning. Similarly, Mills Street Main Drain, Ellen Brook, Bannister Creek, Bayswater Main Drain, Bickley Brook and Southern River are the worst exporters of Total Nitrogen into the Swan and Canning.

Condition of the Estuary and River Reaches

Water quality

Oxygen

When oxygen levels in the bottom waters of the rivers and estuary is too low for extended periods of time small animals and fish are stressed and can even be killed. Low oxygen levels also create sediment conditions that release nutrients into the water. Bottom waters in the Swan usually have low oxygen levels after algal blooms and when the water changes from fresh to salty with the arrival of the salt wedge in spring.

The bottom waters in the upper Swan experienced critically low oxygen levels for about a third of the year. Low oxygen conditions persisted for more than two-thirds of the time in the bottom waters of the upper Canning River. If these chronically low oxygen conditions persist too often it leads to a depletion of the bottom living animals which are a food source to many fish species.

Conditions in the lower Swan were much better, reflecting better flushing, tidal action and more open wind affected areas.

Total nitrogen and phosphorus

Nitrogen and phosphorus are plant nutrients that stimulate algal growth in waterways. Both nutrients enter the estuary in winter when the rivers and drains are flowing and during unseasonal rainfall events over summer. Both nitrogen, and phosphorus, also recycle from the sediments to the water when low oxygen conditions occur during summer and autumn.

The worst areas for high concentrations of total nitrogen and phosphorus were in the upper Swan estuary and Canning River where most of the surface drainage enters the system and where in summer/autumn the tidal flushing is low or non existent. Between 20 and 76 per cent of the time surface and bottom levels were above the proposed threshold levels. These conditions provide the environment for the highest occurrence of algal blooms.

Chlorophyll concentrations and algal blooms

Chlorophyll concentrations are a measure of phytoplankton or micro-algae and blue-green (Cyanobacteria) abundance. Low chlorophyll levels occur during high river flow in winter and increase in warmer, lighter conditions from spring through to autumn when conditions are suitable for algal blooms. Chlorophyll levels are generally higher and more persistent in the upper Swan and Canning where there are higher levels of available nutrients. These are areas where we have our most frequent and most intense algal blooms.

The annual algal cycle commenced with what has become a regular event on the Swan during spring. The non-toxic green alga (*Chlamydomonas*) bloomed in the middle reaches of the Swan River between Maylands and Bassendean in November. It was most noticeable in the afternoon causing a green colouring to the water. This alga and other related green algae bloomed a number of times in different areas on the Swan during summer and early autumn. This cycle of blooms was interrupted by the unseasonal rainfall and river flow event in late January which lead to the *Microcystis* bloom. In autumn, but particularly in March, rust coloured dinoflagellates and diatoms dominated the water.

The Canning River upstream of the Kent Street Weir also experienced a series of algal blooms over spring and early summer. Contributing a particularly green colour to the water in late November early December was a bloom of the green alga *Carteria*. A potentially toxic blue-green bloom occurred near the Kent Street Weir for around 6-8 weeks from January 2000. This was followed by blooms of brown and yellow cryptophyte and haptophyte algae. More benthic (normally adhered to the sediment surface) algae was observed floating to the surface this year. Most of the floating material was another blue-green species *Oscillatoria* which to date has not been found to be toxic. Its presence indicates that the river is experiencing too many algal blooms and organic material is building up on the bottom where gas bubbles then push the mats to the surface.

Table 2: The table below shows the percentage of times that levels have exceeded or gone below recommended environmental 1992 ANZECC guidelines and proposed SCCP targets during the period from July 1999 to June 2000.

For example, dissolved oxygen levels in surface waters of the Upper Canning fell below the 50% threshold 40% of the time. Similarily, concentrations of total phosphorus on surface waters in the Lower Swan exceeded the 0.1mg/L threshold 4% of the time.

Parameter	Threshold	Region	% Exceeded	
			Surface Water	Bottom Water
Dissolved oxygen	50%	Upper Swan	5%	32%
		Lower Swan	0%	3%
		Upper Canning	40%	68%
		Lower Canning	2%	42%
Chlorophyll	0.01 mg/L	Upper Swan	36%	Na
		Lower Swan	13%	Na
		Upper Canning	18%	Na
		Lower Canning	13%	Na
Total nitrogen	1.0 mg/L	Upper Swan	60%	44%
		Lower Swan	18%	4%
		Upper Canning	48%	76%
		Lower Canning	46%	35%
Total phosphorus	0.1 mg/L	Upper Swan	20%	24%
		Lower Swan	4%	4%
		Upper Canning	41%	57%
		Lower Canning	48%	60%

Na = not applicable

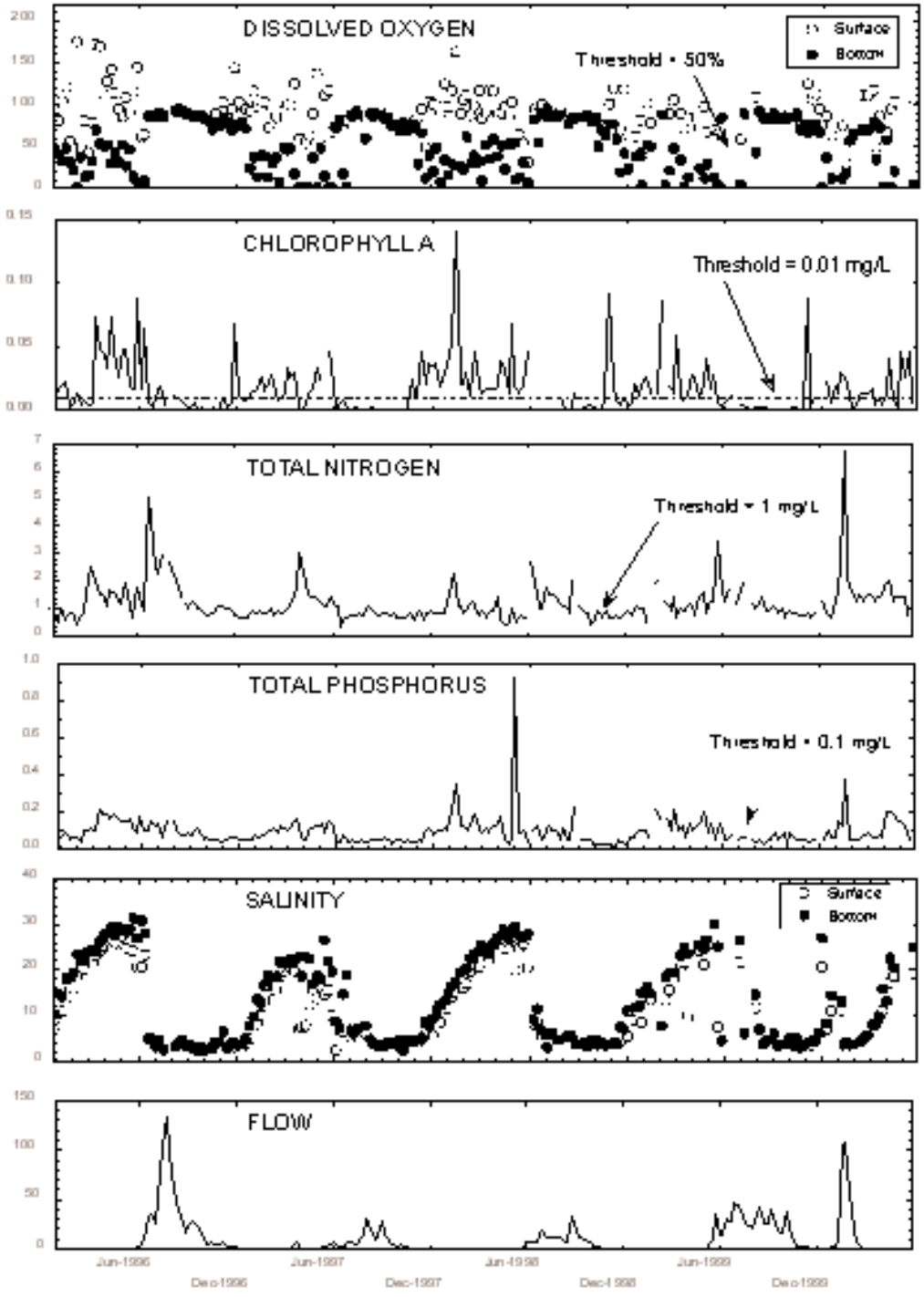


Figure 3: Plots of major parameters measuring the health of the Swan-Canning estuary for the upper Swan reach.

This figure shows the regular seasonal salinity cycle where salinity reaches its highest values when freshwater flow ceases or diminishes in summer. Also note the very high freshwater flow in January-February of 2000 which heralded the toxic *Microcystis* bloom.

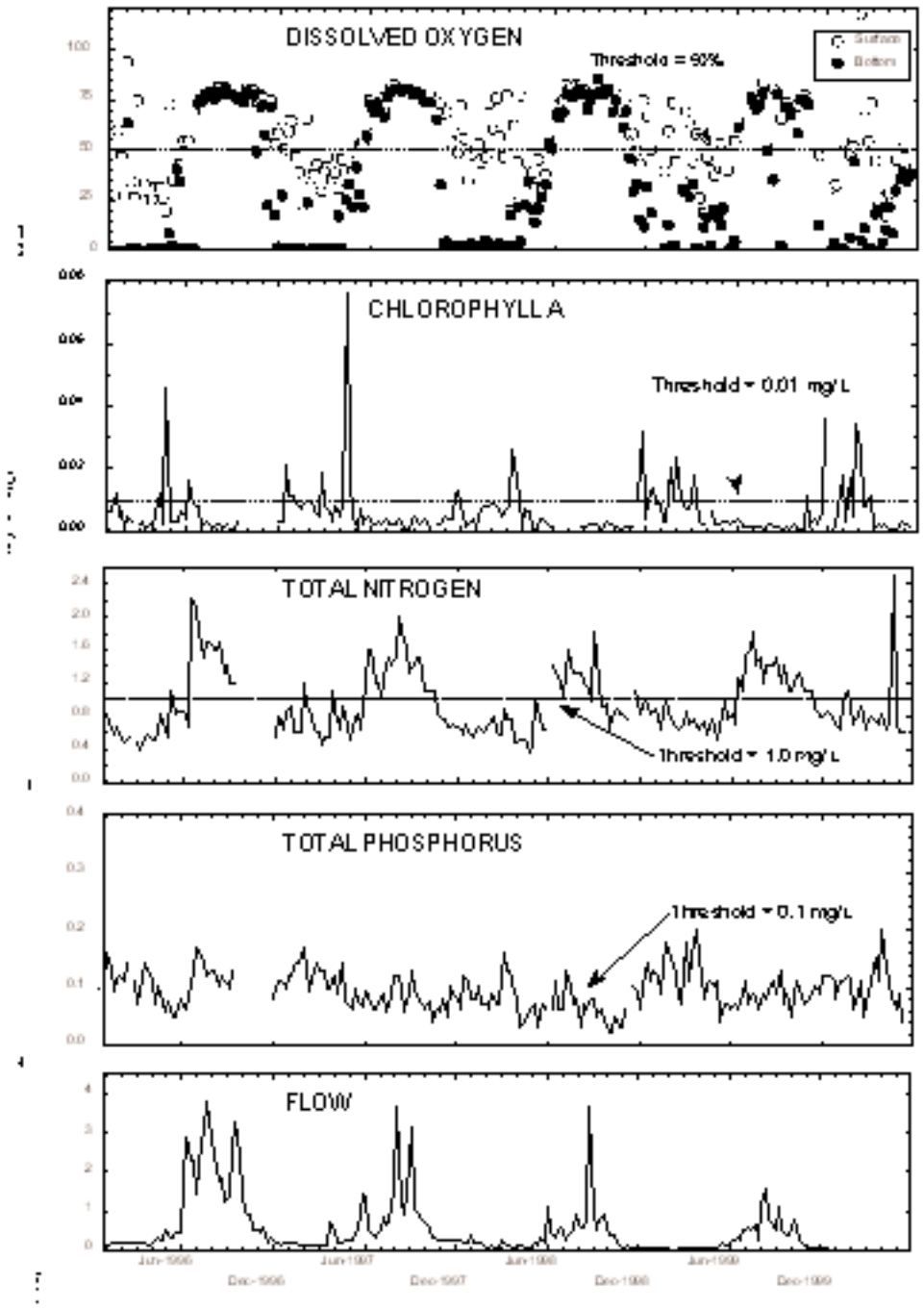


Figure 4: Major parameters measuring the health of the upper Canning River.

This figure emphasises the chronically low dissolved oxygen levels between late spring and autumn and the peaks in chlorophyll during this time.

February 2000 *Microcystis* algal bloom

What Happened

Record rain fell in the Avon catchment in January, particularly in the Lockhart sub-catchment, which received between 126 and 206 mm. This was between 10 and 15 times the January average and most of it fell in a single day. Waterways, lakes and tributaries that do not normally contain enough water to flow to the Avon River flooded, washing several decades accumulation of nutrients and sediment into the Swan River via the Avon River. Approximately 270 million tonnes of fresh water pushed the saline water out of the upper reaches of the Swan River and spread as a two to three metre deep layer over the lower reaches of the river. This water contained between six and eight times the level of nutrients normally found in the river at this time of year.

At the same time rainfall on the coastal plain washed a highly toxic strain of the blue-green alga (Cyanobacteria) *Microcystis aeruginosa* out of wetlands, drains and tributaries into the Swan River. *Microcystis aeruginosa* has a low salt tolerance and is normally not found in the saline environment characteristic of the Swan River in summer. However the low salinity, high nutrient and sediment levels, warm sunny conditions and an unusual period of calm weather provided conditions that enabled the algae to reproduce rapidly and result in the bloom. As the flow of freshwater into the Swan River slowed, saline water again moved into the estuary from the ocean. This coincided with the re-establishment of the normal summer pattern of strong morning easterly and afternoon sea breezes. The increasing salinity and wind generated turbulence re-established conditions unfavourable to the growth of *Microcystis aeruginosa* and the bloom collapsed.

The strain of *Microcystis aeruginosa* in the river proved to be highly toxic and because it was buoyant, was concentrated along shorelines at Maylands, Barrack Square, Matilda Bay, the Nedlands/Dalkeith foreshore, Freshwater Bay and Mosman Bay by wind and wave action. In these areas it reached concentrations of 1.3 million cells/mL producing thick bright green scums. The public health risk this created prevented public use and recreational activities in most areas of the Swan-Canning river system for up to 12 days.

As a result recreational and related commercial activities were interrupted at what is normally the busiest time of year on the rivers. However the bloom had no evident impact on the river environment and when salinity returned to the normal summer levels the usual cycle of algal activity resumed.

The Response

The focus for responding to the bloom was to manage the health risks by providing accurate and timely advice to the community and attempting to limit the accumulation of high concentration algal scums.

An operation centre established by the Water and Rivers Commission and the Trust coordinated the response to the bloom. A CSIRO expert in toxic algal blooms was brought in to work with the Commission's phytoplankton specialists to provide the technical information to guide the response.

A warning to the public to avoid contact with water in the affected area was issued and updated periodically throughout the life of the bloom. Local governments next to the rivers erected Health Department signs advising the public of the risks. Further information was provided through a letter drop to shoreline residences, media releases and press, radio and television interviews. These served to keep the public informed of the development of the bloom, toxicity assessment results, strategies being tried to limit the effects of the bloom, the circumstances that led to the bloom and the underlying problems of excessive levels of nutrients.

Sporting organisations, businesses and others whose activities were affected by the bloom were consulted and provided information directly. This enabled their needs to be assessed and taken into account in managing the response to the bloom.

In areas of high algal concentration three approaches were tried to limit the development of the bloom and prevent shoreline accumulations.

Raising surface salinity above the level that could be tolerated by the algae was attempted by spraying saline water, in the form of seawater, a brine solution and water drawn from below the freshwater layer, onto the surface of the water. None of these proved effective because of logistical problems and the difficulty of mixing the saline water with the surface freshwater layer.

A slurry of bentonite clay and poly-aluminium chloride (PAC) was sprayed onto the surface of the water. This was intended to cause the algae to form clumps too dense to float that would sink to the riverbed and be deprived of the light they required to survive. While the approach showed promise it was developed too late in the bloom to be useful.

The most successful method was the removal of surface scums using equipment developed to remove oil slicks from water. This technique enabled algae to be vacuumed from the surface of the river in areas where wind and tides had caused it to accumulate in high concentrations. The algae removed from the river was discharged to the sewerage system. The success of this method together with the use of a front end loader to scrape algae from beaches meant that there was little residual algae to deal with when the bloom collapsed.

Significance of the Bloom

The probability of the events that triggered this bloom occurring again is approximately 1 in 20. The significance of this bloom is that it demonstrated that elevated nutrient levels in the estuary can precipitate a widespread bloom with serious consequences for recreational and commercial use of the river. This bloom was exceptional because unusual conditions allowed a low salt tolerant algae to become established where it would not normally be able to. However there are hundreds of species of algae in the estuary, each with its own envelope of environmental requirements, which, when met, would allow them to reproduce rapidly and result in an algal bloom. More than anything else the bloom served to highlight the importance of the Swan-Canning Cleanup Program in reducing the flow of nutrients into the Swan-Canning river system if the regular occurrence of widespread algal blooms in the estuary are to be avoided.

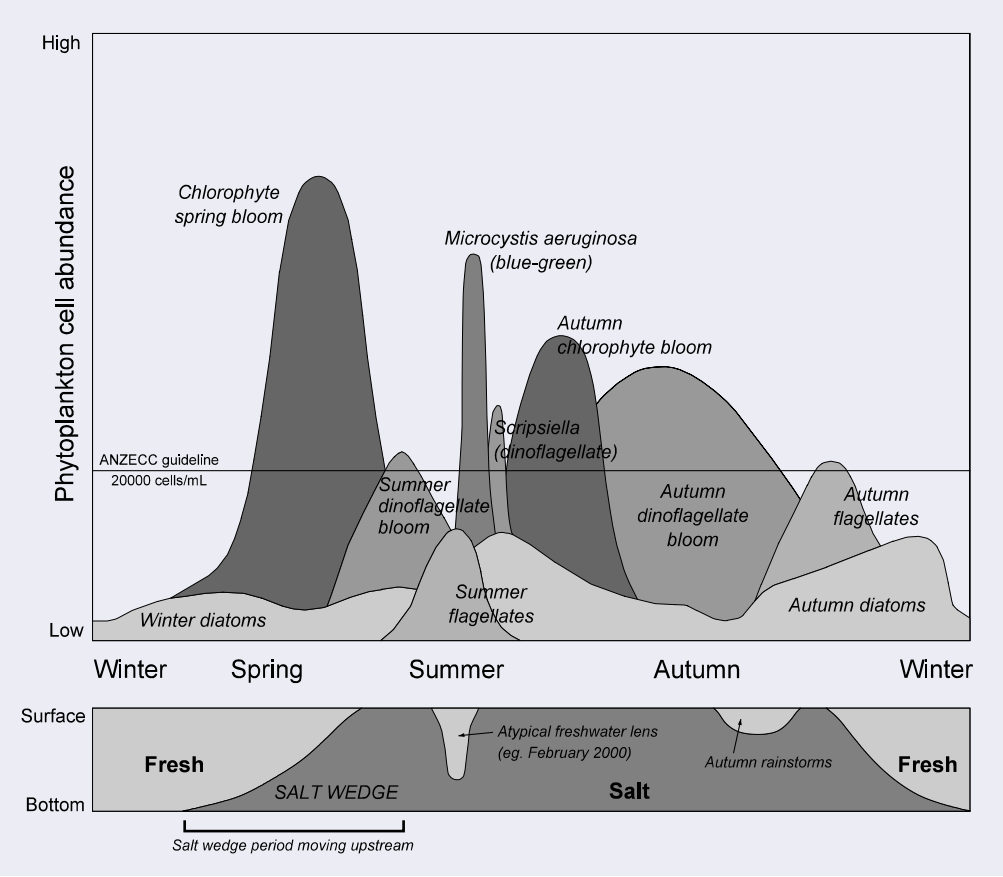


Figure 5: Algal succession and relative abundances in relation to salinity and the timing of the salt wedge this year.

This illustration shows the relative abundance of phytoplankton and the scale of blooms in the upper Swan compared with the seasons of the year and the timing of the salt wedge. Salinities in the water of the upper Swan region are shown under the seasons. The ANZECC guideline for blooms indicates the relative magnitude of cell numbers in blooms occurring in the upper Swan. The freshwater deluge that stimulated our toxic *Microcystis* bloom is clearly seen in the summer.

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 year.

$3.5 million, more than half of the Swan River Trust 1999-2000 budget, was directed into projects and activities under this Action Plan for the Swan-Canning Cleanup Program (SCCP).

The primary aim of SCCP (pronounced 'scoop') is to reduce and manage nutrient levels in the Swan-Canning river system. This year, SCCP involved 22 major projects with about 50 people from five government agencies working on them full or part time. A Senior Officers Group and a Project Managers Group were established to coordinate the work of the agencies involved, oversee implementation of the projects and make sure SCCP objectives are being achieved.

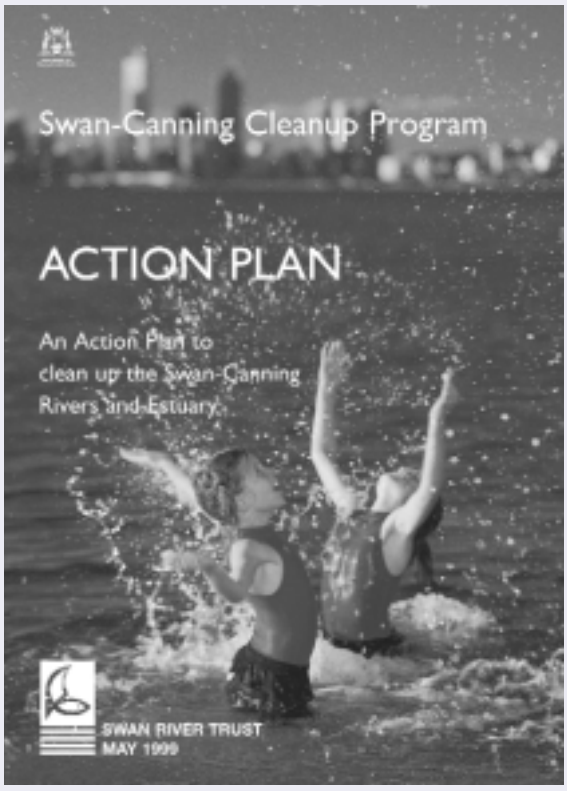
Background

Excessive levels of nutrients, principally nitrogen and phosphorus, result in the occurrence of 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 health of the estuary.

Algal blooms occur when the right combination of nutrients, water turbulence, light and temperature exist. The type of algae involved, as well as the timing, size and location of algal blooms in the Swan-Canning river system varies from year to year, depending on these conditions. During the warmer months, the blooms can restrict recreational use of the river either because of their toxicity or because they make conditions unpleasant for swimming and other contact recreation. When the algal blooms collapse, the decaying algae use up oxygen in the water and these low-oxygen conditions can kill fish and other aquatic animals.

The Action Plan has 10 major recommendations (comprised of 44 sub-recommendations) that fit 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 SCCP Action Plan was released by the Minister for Water Resources in June 1999.

1. Support Integrated Catchment Management to reduce nutrient inputs

The concept of Integrated Catchment Management involves people working together with local government and state and federal government agencies to restore and manage the environment of a catchment. One of the benefits is that good catchment management reduces the level of nutrients and other contaminants washed into waterways and restores riparian and other vegetation that removes nutrients. There are 11 Integrated Catchment Management groups, four Land Conservation District Committees and over 85 community and environmental groups in the Swan and Canning catchments, contributing through their activities in Integrated Catchment Management to the objectives of SCCP.

Catchment Management Support

In 1999-2000, $195 000 was allocated to help various catchment groups with operational costs such as employment of coordinators and trainees, administration support and office supplies, equipment and utilities. Catchment groups are an integral part of the SCCP strategy and have worked hard throughout the year to raise public awareness, develop management plans for catchments and undertake on-ground restoration work. This year, funding included:

- $43 600 to Bannister Creek Catchment Group
- $28 000 to Belmont-Victoria Park Catchment Group
- $15 000 to Canning Catchment Coordinating Group
- $12 900 to Ellen Brook Integrated Catchment Group
- $18 000 to Bennett Brook Catchment Coordinating Group
- $18 400 to Blackadder Creek Catchment Group
- $8 750 to Upper Canning/Southern Wungong Catchment Team
- $20 350 to Bayswater Integrated Catchment Management
- $10 000 to Claise Brook Catchment Group
- $20 000 to furnish an office for catchment groups in the Canning catchment.

The Trust this year appointed a SCCP Catchment Management Officer who is responsible for coordinating administrative and financial support to the catchment groups, monitoring and reporting on catchment management projects and representing the Trust on key committees and catchment management groups. As part of this officer's duties, a common set of catchment management guidelines is being developed in collaboration with the Department of Environmental Protection.

This year also saw the start of a significant four-year project to help local governments to better manage natural resources in their jurisdiction. The Local Government Natural Resource Management Policy Development project recognises the pivotal 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. An initial allocation of $15 000 was provided to the Eastern Metropolitan Regional Council (EMRC) for the appointment of an environmental officer to formulate policies, strategies, guidelines and checklists to assist local governments with natural resource management. Over four years, funding to the EMRC for staff and other resources to meet the objectives of this project is expected to total around $500 000.

Foreshore Restoration

Foreshore restoration is a vital part of reducing nutrient levels by controlling erosion and stripping nutrients. The Trust this year provided $127 000 for a range of restoration works. Funding was provided to community and environmental groups and local governments. It included:

1. $100 000 to the Swan Catchment Urban Landcare Program (SCULP). Funds in this program are distributed to community groups throughout the year for a variety of on-ground projects. In total, around 50 projects were funded, ranging from developing a weed strategy for Bob Blackburn Flora Reserve, to restoration of the Helena River in West Midland and the Ellen Brook fencing program. Alcoa is a major partner in this program, contributing $250 000 to SCULP this year. Most SCULP supported projects were jointly funded by Alcoa and SCCP.

2. $17 000 for a foreshore restoration/revegetation trial in the City of Melville. The trial is seeking to determine techniques that will improve the survival rate of reed seedlings used to revegetate eroding foreshores.

3. $10 000 for a foreshore walling reconstruction by the Town of Mosman Park to stabilise riverbanks and prevent foreshore erosion.

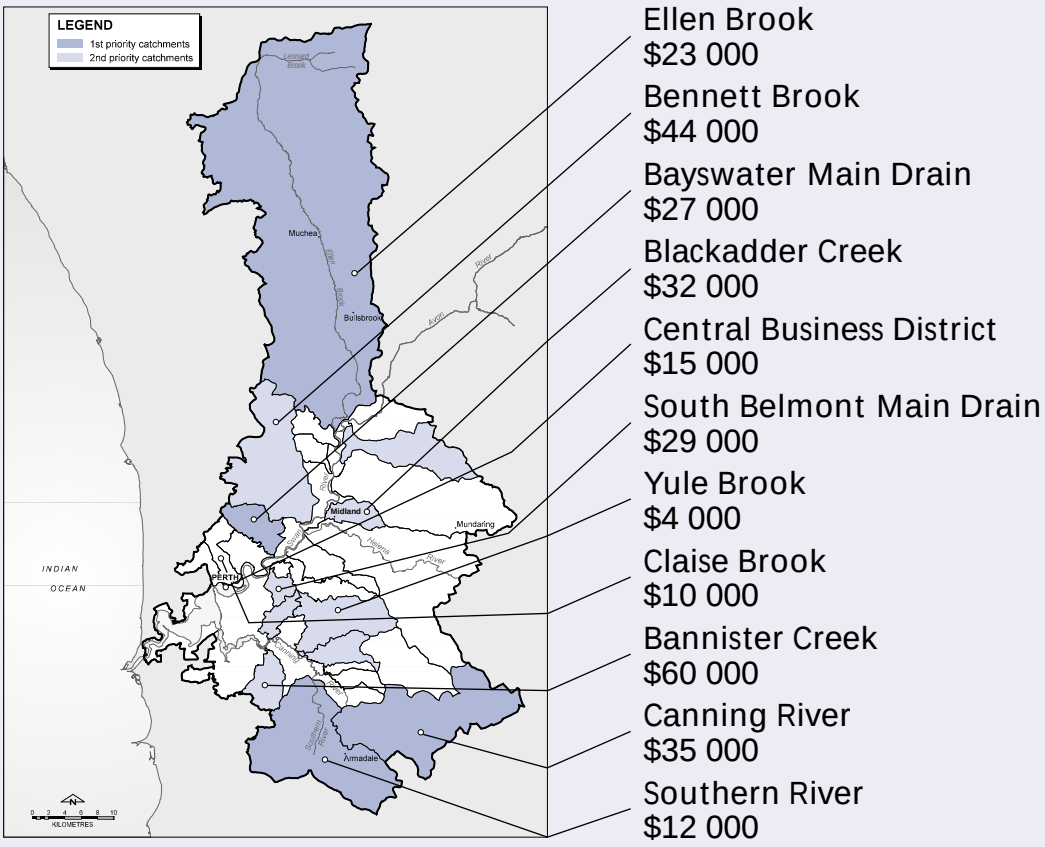


Figure 6: SCCP support for catchment groups and SCULP by sub-catchment 1999-2000.

Farming Practices

The important role played by rural and semi-rural landholders in reducing nutrients entering the Swan-Canning system was recognised with an $80 000 allocation to Agriculture Western Australia (AGWEST) to run a program to encourage sustainable farm practices. This Swan-Canning Farm and Property Planning Project provides rural land managers with up-to-date knowledge and expertise and the ability to develop farm and property plans that address issues at the paddock level.

The program started in October 1999, with consultants appointed to run workshops and other learning events. Promotional posters and brochures were developed and news articles sent to local media outlets and community groups. A promotional insert was also placed in the AGWEST small landholders' information booklet 'The Land is in Your Hands'. Two workshops were held, focusing on landholders in the Upper Canning and Southern River catchments.

Constructed Wetland – Ellen Brook

Feasibility and design work started this year on a major initiative to construct a wetland to help strip nutrients from high nutrient yielding activities on sandy soils in Ellen Brook.

The Ellen Brook catchment is recognised as a significant source of nutrients, contributing an estimated 36% of the total phosphorus load and 10% of the total nitrogen load to the Swan-Canning river system. The SCCP Action Plan recommended the use of artificial wetlands in the catchment to reduce this nutrient load and to provide a design that is applicable to other shallow groundwater sites common throughout the Swan Coastal Plain. The model could then be used as a means of stripping nutrients from stormwater runoff and become a feature of Water Sensitive Urban Design in future development on the Swan Coastal Plain.

The project is jointly funded by SCCP and the Commonwealth Coasts and Clean Seas Initiative.

Almost $200 000 was spent on the project this financial year. Major achievements included holding a workshop in October 1999 to develop the initial design criteria, which attracted experts from interstate and overseas. The workshop determined that the wetland should incorporate a sedimentation trap, denitrification zone, oxidation and deep water zone, phosphorus interception and settling pond. A bypass will also be built for high flows that exceed the capacity of the wetland.

Several sites are being investigated for suitability as well as opportunities for partnerships in construction. Surface and groundwater contour surveys have been completed on these sites, and the start of geotechnical surveys is currently waiting on completion of Aboriginal Heritage surveys. These data will be used to make a final site choice and to develop the detailed site design.

Drain Retrofitting – Mills Street Main Drain

Work started this year on a number of initiatives aimed at reducing nutrient export from the Mills Street Main Drain. The drain contributes high levels of nitrogen and phosphorus to the Swan-Canning system, and the SCCP Action Plan recommended drain retrofitting to reduce this level. The project also involves investigating options for remediation of the existing Wilson Wetland, which receives water from the Mills Street Main Drain and discharges to the Canning River. Any remediation work will focus on enhancing the wetland's natural nutrient stripping functions.

A workshop, Reducing Nutrient Export from Mills Street Drain, was held in April at the Canning City Council to review water quality data and discuss options for drain retrofitting and wetland remediation. Because at least 50% of the phosphorus in the system is particulate, it was

recommended that the compensation basins along the drain be modified to increase the detention time of the water and thereby enable a large proportion of the particulate phosphorus to settle out. The workshop also identified the information required to understand the hydrology and water chemistry of the Wilson Wetland before any remediation work can take place.

A poorly managed industrial stormwater drain entering a compensating basin in the Mills Street Main Drain network.

A comprehensive communications strategy and implementation plan has been developed for the project, and strong links are being developed with local catchment and community groups, industry and local government to develop a Mills Street Main Drain Catchment Group.

The project is jointly funded by SCCP and the Commonwealth Coasts and Clean Seas Initiative. Negotiations have also commenced with the Water Corporation for its involvement in the project. The Water Corporation is planning extensive modifications to the drain infrastructure, and the retrofitting to improve water quality will be an integral part of this work.

Swan Catchment Centre

In 1999-2000, many initiatives started to expand and upgrade services provided by the Swan Catchment Centre. The Centre was established in 1996 to support community-based integrated catchment management, and is a focal point for networking, supporting catchment groups, information exchange, publicising activities and accessing training and resources. It receives funding from a range of state and federal government agencies.

The SCCP Action Plan noted that additional resources were required by the Centre to respond to community needs. As a result, the Centre this year received $115 000 SCCP funding. One direct consequence of this was the employment in May 2000 of an additional staff member as a Community Development Officer.

Key achievements by the Swan Catchment Centre in 1999-2000 included:

- Distributing funds provided by SCCP ($100 000) and Alcoa ($250 000) under the Swan Catchment Urban Landcare Program (SCULP) which enabled 44 groups to carry out restoration works at 50 project sites.
- Providing accounting software and the assistance of an accountant to 14 catchment groups to help them prepare for GST.
- Developing the contents of the Swan River Action Kit, which will be released later in 2000.
- Developing a Community Training Calendar to show training opportunities available throughout the year.
- Providing training to more than 200 members of catchment groups, land conservation district committees and Friend's groups.
- Developing and printing a range of brochures and fact sheets.
- Conducting displays at community events such as the Autumn River Festival and Garden Week.

Ribbons of Blue

Ribbons of Blue is the WA component of a national volunteer water quality monitoring and education program called Waterwatch, involving landcare groups, schools and other community volunteers.

In 1999-2000, SCCP funding enabled the expansion of Ribbons of Blue/Waterwatch WA in the Swan-Canning rivers catchment. $120 000 was provided 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 school level.

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. An example was the partnership between North Perth Primary School and the Claise Brook Catchment Group, which has been implementing a rehabilitation plan for Smiths Lake. Water quality sampling is being conducted at the site by the local government authority. The school group was asked to sample macroinvertebrates to demonstrate an increase in their diversity as a result of the revegetation of the lake, and the SCCP was able to assist with this by providing technical expertise and training to both parties as well as supplying equipment and ongoing support to the groups.

Community Awareness

Several new community awareness initiatives began in 1999-2000 as part of the first year of implementing the SCCP Action Plan.

A Communication Plan was released in November 1999 which outlines the overall communications and accountability (public reporting) strategies for SCCP. The Plan focuses on:

- Raising community awareness
- Providing targeted, accessible information
- Providing support, training and opportunities for community involvement
- Providing training in best management practices
- Supporting school and community education linked to action

All SCCP project officers were briefed on the Plan and offered assistance in designing project-level communications such as publications, signage and briefings.

Reporting to the community on the Action Plan included media releases and briefings, a community forum held at the Alexander Library on June 24 to report on Year One of the SCCP, and publication of four issues of RiverView newsletter mailed to over 1 000 key stakeholders and interested people. A summary of the year's major achievements was also released as a brochure and video in June.

Minister for Water Resources, Dr Kim Hames, addressing the community at a forum held on 24 June 2000 to report on SCCP achievements in 1999-2000.

A community awareness campaign to encourage changes in behaviour and involvement in rivercare and catchment management began in March 2000 with the screening of a television documentary 'Spirit of the Swan'. The film was a joint initiative of Channel 7 and the Swan River Trust. Copies of the video were made available to libraries, catchment groups and schools for education.

Following the film, a series of community service announcements went to air on Channel 7. They were designed to raise awareness of how individual action in the home, garden and their recreational behaviour can contribute to protecting the Swan-Canning river system. Topics covered to June 2000 included fertiliser use, protecting stormwater quality, low water gardening, preventing pollution and controlling weeds. It is estimated that over 4.7 million viewers saw the community service announcements between mid-March and the end of June (information from Channel 7 ratings research). The Swan River Trust set up a freecall 1800 telephone service to respond to requests for information and advice.

Channel 7 crew filming one of the community services announcements on the foreshore of the Canning River.

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. This information is being used to improve design of future activities in the awareness campaign. A follow-up survey to evaluate the campaign will be undertaken in February 2000.

Plans were developed for another SCCP initiative, the **Swan River Action Program**, including production of a comprehensive resource kit and discussion group guide. This resource will enable community groups to undertake learning-to-action programs designed to suit their particular interests and needs.

Statutory Mechanisms

The first steps were taken this year to start an important project to examine the feasibility of using statutory mechanisms including regulations, by-laws, town planning schemes and statements of planning policy, to modify land-use practices and prevent or relocate polluting activities.

Funding was provided to the Ministry for Planning to investigate opportunities for using statutory tools to meet the objectives of SCCP. The project will also investigate whether alternative mechanisms are available to deliver the same outcome.

Swan-Canning Industry Project

Survey Results

In December 1999, the results of a comprehensive survey of the waste management practices of light industry in the Swan-Canning rivers catchment – along with a strategy for reducing future pollution risk – were released in a draft report for public comment by the Minister for Water Resources, Dr Kim Hames.

More than 550 light industrial premises - including motor vehicle repairers, panel and paint shops, printers, food processors and service stations - were inspected by local government officers and Water and Rivers Commission and Trust staff for the survey.

The aim was to determine what practices were in place for chemical storage and bunding, waste, wastewater, stormwater and emergency management.

One disturbing finding was that many industries continue to discharge untreated industrial waste to drainage systems that end up in the Swan-Canning river system.

The draft report recommends a two-year strategy that includes ongoing surveys, the development of industry self-management, training, and ongoing awareness raising to help reduce future pollution risks from light industry in the Swan-Canning system.

A total of 14 submissions were received from industry, community and Government, and these are now being collated to publish a final report later in 2000.

The inspection of light industry operations will continue, with the eight local governments now involved in the project each conducting 10-30 inspections a year.

During the year, membership of the Swan-Canning Industry Working Group, which acts as the coordinating body for the project, was extended to include the Water Corporation, Motor Trades' Association, Swan Catchment Council, Bannister Creek Catchment Group, Curtin University and City of Armadale. They joined representatives of the Swan River Trust, the Water and Rivers Commission, the Department of Environmental Protection and eight local governments (Bassendean, Bayswater, Belmont, Canning, Gosnells, Melville, Stirling and Swan).

Local Government and Industry Training

As part of the two-year strategy to help reduce future pollution risks, a program was developed and started in May this year to train local government and industry personnel to identify pollution risks in light industrial premises and promote and facilitate 'cleaner production' processes. Fifteen local government Environmental Health Officers and 15 small business/light industry personnel participated in the pilot training program.

The Swan River Trust received $50 000 under the Commonwealth Government's Coasts and Clean Seas Initiative to develop these training programs.

Students from Lynwood Senior High School are presented with a certificate of appreciation by the Minister for Water Resources during the Industry Survey launch for their help in producing a colourful leaflet to help children and families to do their bit for the river.

Industry and Community Awareness

A series of industry and community information brochures were developed to raise awareness of the causes of water pollution and the opportunities people have to help with prevention.

The brochures are distributed through catchment groups, local government offices and other opportunities.

Drain Licensing

Drains have long been recognised as conduits for transporting nutrients and other contaminants to the river, and the possibility of using a licensing scheme to manage water quality in drains was raised in the SCCP Action Plan.

$20 000 was provided to the Department of Environmental Protection to investigate the feasibility and likely impact of such a move. A report is expected by September 2000. While there are significant difficulties associated with the licensing proposal, there are also likely to be some very useful results from a detailed investigation of the proposal.

Sediment Remediation

1999-2000 marked a significant step forward in use of the modified clay PhosLock™ – jointly developed by the Water and Rivers Commission, Swan River Trust and CSIRO – to reduce phosphorus levels in parts of the Swan-Canning river system. After four years of development and field trials, a large scale application of PhosLock™ started.

In January, an 800 metre section of the Canning River was treated with PhosLock™ and intensely monitored to test both its effectiveness and impact on biota. An extensive ecotoxicity study was also undertaken to obtain regulatory approval at a national level.

PhosLock™ was applied in a slurry from a small boat equipped with pumps and a spray boom and formed a layer less than 1 millimetre thick on the bottom of the river. Early indications are that PhosLock™, as it settled, removed phosphorus from the water to below detection limits. These low levels were maintained for 15 days until unseasonal rains flushed large amounts of additional phosphorus into the river. However the resultant flow did not scour the PhosLock™ from the bottom where it continued to function in preventing phosphorus release from the sediments.

Using this technique to prevent algal blooms will depend on the ability to reduce surface-derived supplies of phosphorus, such as from drains. In the coming year, methods to use PhosLock™ in drains will be developed in addition to its continued application to the Canning River.

PhosLock™ being applied as a slurry to the Canning River.

$560 000 was allocated to this major project in 1999-2000.

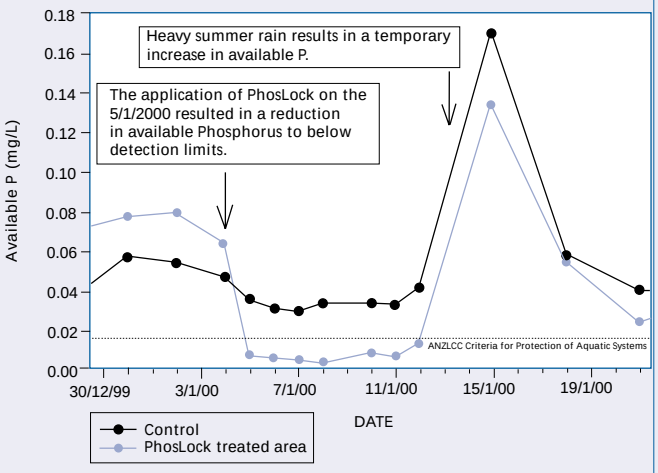


Figure 7: Concentrations of Phosphorus (P) available for uptake by algae in PhosLock treated and non-treated areas on the Canning River.

Oxygenation

Oxygenation involves taking water from the river, dissolving oxygen into it and returning it to the riverbed. Increasing oxygen levels inhibits release of phosphorus from the river sediments and enables bacteria to convert nitrogen compounds into forms that cannot be used by algae.

Canning River Oxygenation Plant

Work started this year on a three-year project to oxygenate two kilometres of the Canning River, stretching from Kent Street Weir to Greenfield Street footbridge. This followed the success of two smaller previous trials at this location.

By pumping oxygen into bottom water, the project aims to reduce algal blooms by reducing the nutrient release from sediment that occurs under low oxygen conditions.

The oxygenated water is pumped into the Canning River from two land-based facilities – a previously existing oxygen plant at Bacon Street and a new plant that was built at Camsell Way. The contract to design, build and operate the facilities was awarded through an open tender process to BOC Gases.

Oxygenation using the Bacon Street plant began in October, with the second plant at Camsell Way coming on stream in February 2000. Monitoring results to date show the oxygenation plants have been successfully raising dissolved oxygen levels in the treatment area.

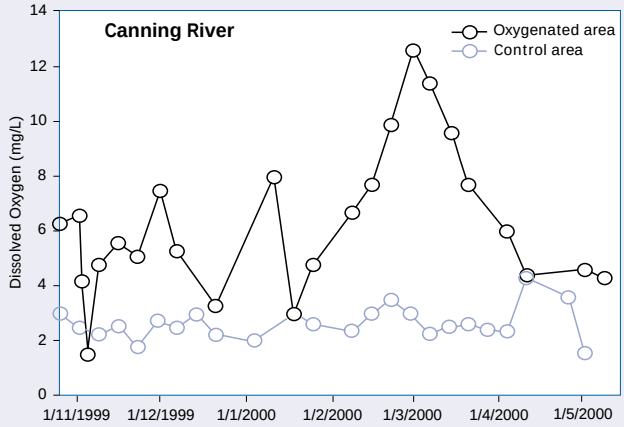


Figure 8: Average bottom dissolved oxygen concentrations in oxygenation areas compared to control areas (non-oxygenated).

Swan Barge Oxygenation Project

An exciting initiative in 1999-2000 was the development and trial of a mobile oxygenation plant to inject oxygen into parts of the Swan River suffering poor water quality.

The barge has similar equipment to the static oxygenation plants running in the Canning River, but can move around to problem areas as required. It is also a much more experimental project than the Canning facility, designed to test the practical application of oxygenation on the larger and more hydrodynamically complex Swan River. It was the first time this process had been used on a mobile basis in Australia.

A Swan River Trust barge 'The Seagull' was transformed into the mobile oxygenation plant, which operated around the clock.

The mobile oxygenation barge next to Ron Courtney Island.

The barge injected around 200kg of oxygen into the water per day in areas of the river where oxygen levels were low. The sites were selected by Swan River Trust and Water and Rivers Commission staff from weekly water quality data collected along the Swan River, and included the Maylands Loop, Ron Courtney Island and the Guildford Road traffic bridge.

The trial was launched by the Minister for Water Resources in March 2000 and ran for seven weeks. The design and logistical aspects of the project proved successful, given the constraints imposed by the experimental nature of the project. The most promising results were obtained at the Guildford Road site, where the barge maintained elevated dissolved oxygen levels in its vicinity.

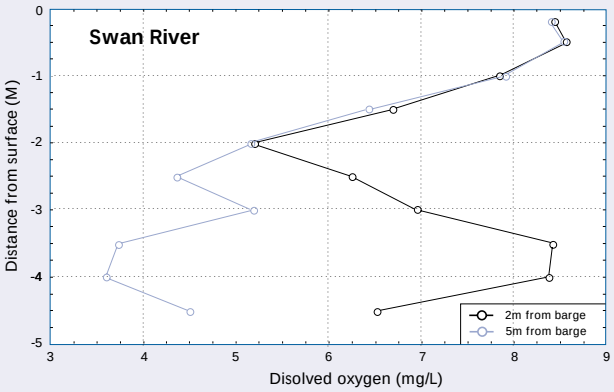


Figure 9: The above graph shows the change in dissolved oxygen concentrations with increasing depth from the surface at two and five metres from the Swan oxygenation barge at Ron Courtney Island on 6 April 2000.

At a distance of two metres from the oxygenation barge there was a significant increase in the dissolved oxygen concentration in the water column. At five metres distance from the oxygenation barge there was basically no increase in the dissolved oxygen concentration in the water column.

The project was funded by:

- The Swan-Canning Cleanup Program: $62 000;
- The Commonwealth Coasts and Clean Seas Initiative: $200 000; and
- An estimated $30 000 of technical expertise donated by BOC Gases to design the system and modifications to the barge.

Canning River Management Plan

A draft Canning Southern and Wungong Rivers Management Plan was developed during the year. The aim of the plan is to reduce the frequency of algal blooms and improve the ecological health of the Canning River system. The Management Plan will be released for public comment later in 2000.

As part of the development process, a Working Group was established to provide input from key stakeholders, including the City of Gosnells, City of Canning, City of Armadale, Upper Canning Southern Wungong Catchment Team, Canning Catchment Coordinating Group and Water Corporation.

The Working Group developed recommendations for: nutrients 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.

The Swan River Trust and the Water and Rivers Commission have developed an extensive Swan-Canning system sampling and analysis program to provide water information on freshwater catchment and estuarine water quality. This year the program was funded by the Swan-Canning Cleanup Program.

Detailed data on water information are reported within the Swan River Trust's Water Information section of this Annual Report (page 44).

Water Quality Targets

Work continued this year to develop a water quality assessment system and targets for total nitrogen (TN), total phosphorus (TP), chlorophyll-a concentration and dissolved oxygen saturation. The SCCP Action Plan recommended developing water quality targets so that improvements in the Swan-Canning river system and its freshwater tributaries could be assessed and reported to the community.

The target levels identify when water quality in the estuary and its freshwater tributaries has improved or when quality has degraded. With the data analysis and target formulation complete, the project is now in its reporting phase and a series of three reports will be released by the Trust in 2000-2001.

The weekly and fortnightly sampling of water quality (mainly nutrients and dissolved solids) in 14 coastal tributaries of the Swan-Canning river system, and weekly water quality sampling (nutrients, dissolved oxygen, temperature, salinity, phytoplankton and turbidity) in the Swan-Canning river system, provided valuable monitoring data to assess compliance with the water quality targets.

Sediment Nutrient Cycling

The SCCP Action Plan identified a lack of knowledge about the movement of nitrogen and phosphorus in river sediment as key information gaps needing to be addressed. In response, work commenced this year to measure actual rates of nitrification and denitrification from the sediments of the Swan-Canning river system.

The Australian Geological Survey Organisation (AGSO) was contracted to undertake the work, with the major field program completed in March 2000 after benthic chambers were installed at six sites in the Swan River. The results show high oxygen demand in the sediment and high fluxes of nitrogen and phosphorus from the sediment at all sites. Over half of all nitrogen supplied to the sediment in Melville Water from the overlying water was lost to the atmosphere via the mechanism of denitrification. Turnover of the sediment by sediment-dwelling organisms was found to be high and important in processing nutrients.

The information gained from this project will help the Trust to assess the value of its work to reduce sediment nutrient sources and further develop effective remediation methods.

Decision Support Models

A major project to evaluate a range of catchment and estuarine computer models and assess their suitability as tools for a decision support system commenced this year. Computer modelling can help define issues and assess the effectiveness of possible solutions.

A decision support system, Catchment Management Support System (CMSS), was purchased and is currently being implemented. This catchment model, developed by CSIRO, has been used in many catchments in the eastern states. CMSS is an export coefficient model which does not attempt to model the physical processes which occur in the catchment. For this reason, acquisition of a second model to provide more detailed modelling is proposed and several options were examined during the year. This included the empirical Swan Spatial model and Large Scale Catchment Model (LASCAM).

A catchment modeller was appointed to evaluate catchment models such as LASCAM, spatial GIS and other relevant models including Win CMSS. The results of this initial review provided the basis for further refinement of the management decisions where modelling and decision support systems would be useful.

Catchment Models

An investigation of commercial catchment models which estimate the run-off and nutrient loads in rivers and estuaries was undertaken with the view to acquiring a model suitable for application to the Swan Coastal Plain. An appropriate model would highlight the effects that changed land use like clearing and revegetation, the establishment of residential areas and changed fertiliser use would have on the run-off and nutrient loads from the catchment to the Swan-Canning river system.

Estuarine Models

The ecological computer model, Computational Ecological Dynamics Model (CAEDYM), developed by the Centre for Water Research at the University of Western Australia with substantial Swan River Trust funding, was delivered at the end of the financial year, and an ecological modeller was employed at that time. The next year will be spent calibrating and validating the model for the Swan-Canning river system using data collected by Swan River Trust programs and then evaluating management scenarios with the calibrated model.

The Swan River Trust and the Water and Rivers Commission have developed an extensive sampling and analysis program to provide information on freshwater catchment and estuarine water quality.

Data collected from this program helps the Trust to better understand the dynamics of the Swan-Canning river system, including the variation in patterns of nutrient delivery and phytoplankton activity. It also allows the Trust to assess potential public health risks, progress towards achieving water quality targets and understand long term water quality trends. Information from the program is also supplied to other agencies, universities and research organisations, students and members of the public.

The Trust now has over 13 years of catchment data and over six years of estuarine data. This extended time series data is essential to understanding the dynamics of the Swan-Canning river system and water quality trends. Interstate and international investigators are increasingly seeking to use these data because of its continuity and consistent high quality.

Since 1994, over 31 000 estuarine water samples have been collected, including over 3 100 samples collected this year.

Throughout the Swan-Canning river catchments, over 4 700 water samples have been collected since 1994, including over 900 samples this year.

The Catchment and Major Freshwater Tributaries

The Trust has 15 sampling sites on freshwater tributaries and drains to monitor water quality prior to entry into the Swan-Canning river system. Information is gathered on phosphorus and nitrogen, suspended sediments and water flows. These sites provide valuable information on what nutrients are being exported to the Swan-Canning river system. All sites are gauged or frequently calibrated for water flow and volumes.

Catchment sampling over the past 13 years has revealed many changes in nutrient concentrations. Many tributaries that were historically nutrient enriched and causing serious water quality problems have improved, while some others have either continued to supply consistently high levels of nutrients or have actually increased their nutrient contributions.

Based on five-year running averages, Ellen Brook, Mills Street Main Drain, Southern River, Bayswater Main Drain, Bannister Creek and South Belmont Main Drain catchments contribute the highest levels of phosphorus to the Swan-Canning river system. Similarly, Mills Street Main Drain, Ellen Brook, Bannister Creek, Bayswater Main Drain, Bickley Brook and Southern River are the highest exporters of nitrogen to the system.

In April 2000, the frequency for collection of nutrient samples from catchment tributaries was reduced from weekly samples to once a fortnight. This frequency was found to be statistically adequate to quickly and confidently establish whether nutrient levels had declined over the course of a year and over a three or five-year running average.

The Estuary

The Water and Rivers Commission, on behalf of the Swan River Trust, samples a total of 20 estuarine sites. This includes nine sites on the Swan River, three on the lower Canning River and eight on the freshwater portion of the Canning River upstream of the Kent Street Weir. These freshwater upstream sites are considered part of the estuarine monitoring program rather than the catchment and freshwater tributaries sites. All Swan sites and seven of the Canning sites are sampled weekly (the remaining four are sampled weekly only during spring and summer when water quality is poor and phytoplankton levels are high).

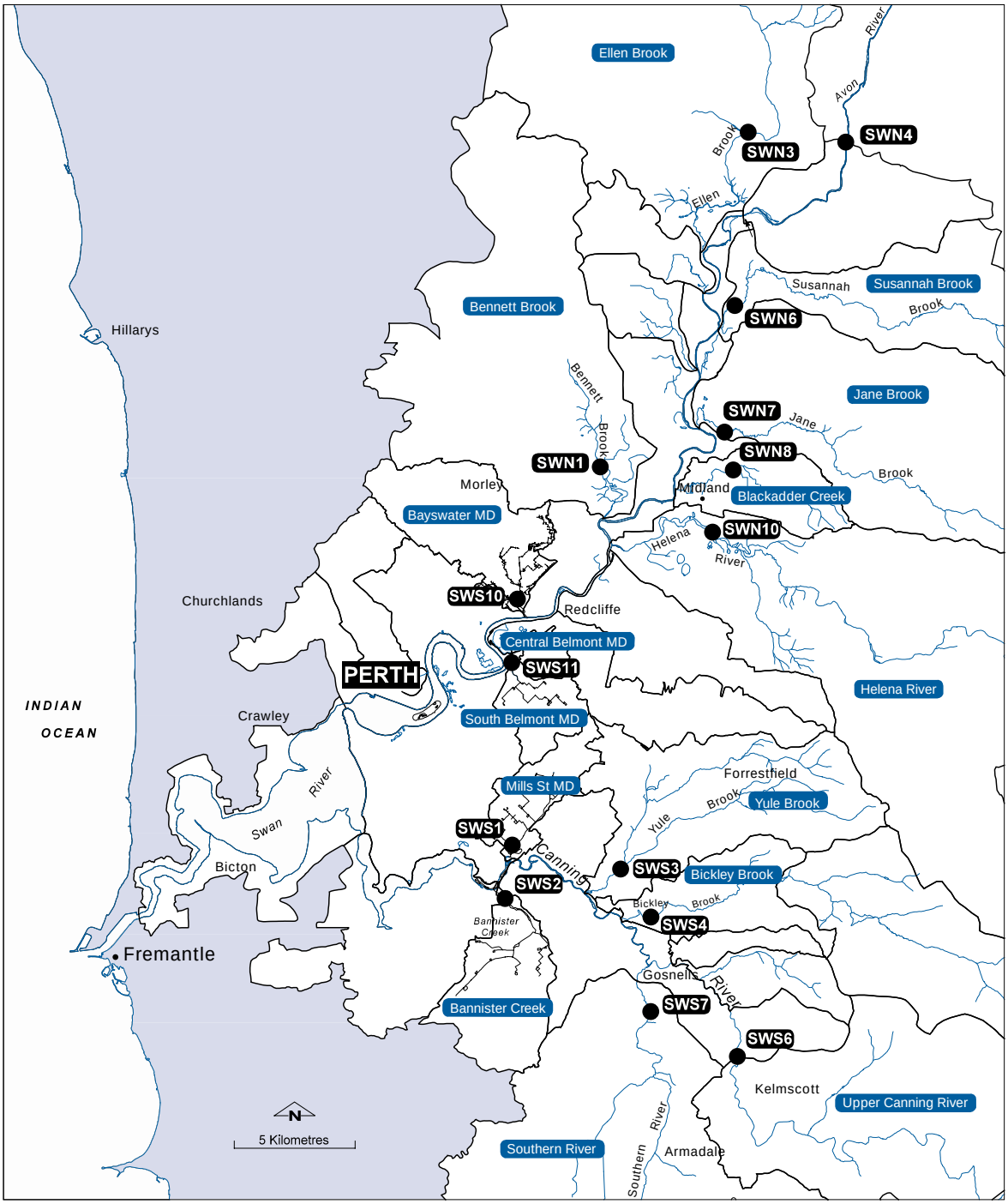


Figure 10: Locality of catchment sampling sites for rivers and drains in the Swan-Canning coastal catchment. Fifteen sites are sampled for the nutrients nitrogen and phosphorus. Subcatchment names and sampling site numbers are shown.

A wide range of water quality variables are measured at estuarine sites, including salinity, temperature, dissolved oxygen, total suspended solids, turbidity, chlorophyll-a (the photosynthetic pigment in phytoplankton), phytoplankton cell counts, pH and the nutrients nitrogen and phosphorus. These variables are measured on the surface and at half to one-metre deep intervals in the water until the bottom is reached. Nutrients are measured only at the surface and bottom and phytoplankton is measured throughout the whole water column.

Information from the estuarine sampling program has been used to develop recent estuarine water quality targets and to measure deviation from desired levels (i.e. the compliance measuring system). It is also used to record changes in water quality over time and to assess the effects of in-river estuarine intervention trials. Another extremely valuable purpose of the monitoring program is to measure and detect levels of nuisance or toxic phytoplankton in the water and provide early warning to local authorities and the Health Department can warn the recreational public of the public health risk.

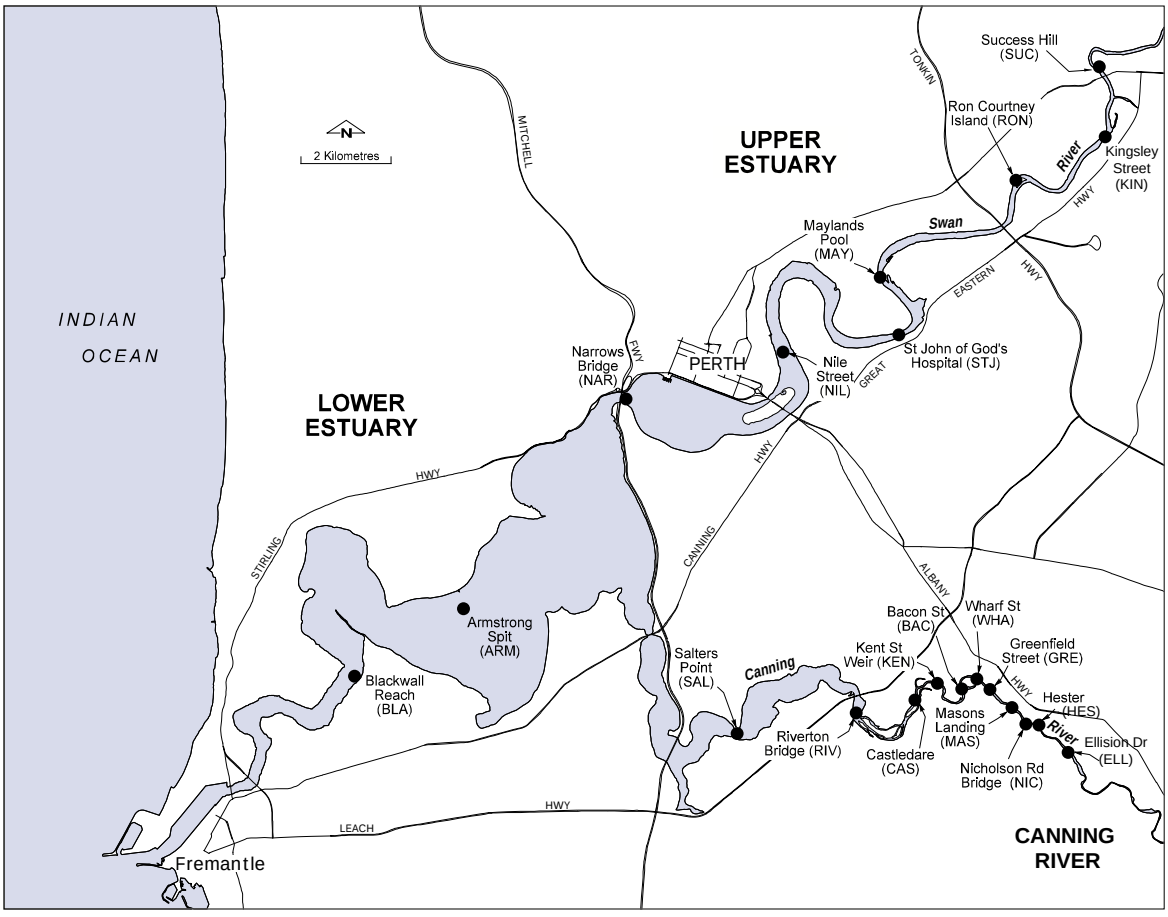


Figure 11: Locality of estuarine and river sampling sites on the Swan-Canning river and estuarine system. A total of 16 sites are sampled regularly over the year with another four sites sampled in the Canning River during the summer and autumn when blooms frequently occur (for a total of 20 sites). Nutrients, phytoplankton, chlorophyll, dissolved oxygen, salinity and a number of other water quality parameters are sampled weekly.

Water Quantity & Quality

Throughout the year, the Water and Rivers Commission, on behalf of the Trust, monitored and verified stream flow and climatic data from nine stream gauging stations located on sub-catchments of the Swan-Canning river system and two climate stations on the Swan River. Accurate flow data augments the weekly water quality sampling data collected at these sites for the production of accurate salt and nutrient loads entering the Swan-Canning river system from the sub-catchments. The climate data provides information for understanding the meteorological and hydrological dynamics of the Swan-Canning river system.

Calibration checks and surveys were carried out at each of the stream gauging stations during the year to verify the stage discharge relationship (flow rate).

A high quality gauging station at Canning River, Seaforth Avenue (accuracy of flow data +/- 5%).

The stream gauging stations locations are:

- Avon River at Walyunga
- Canning River at Seaforth
- Swan River at Great Northern Highway
- Bayswater Drain at Slade Street
- Belmont Main Drain at Abernethy Road
- Southern River at Anaconda Drive
- Canning River at Kent Street
- Susannah Brook at River Road
- Ellen Brook at Railway Parade

The climate stations are located at:

- Swan River at Chinaman's Bay, Maylands
- Swan River at Bath Street Jetty, Maylands

Non-continuous flow data from three water quality sampling points on drains and tributaries of the Swan River was also collected. Estimates of stream flow, in conjunction with fixed interval water quality sampling carried out by the Trust, provides a fair estimate of salt and nutrient loads entering the Swan-Canning river system.

Calibration checks and surveys were carried out at each of the sampling points during the year to verify the stage discharge relationship (flow rate).

The sampling points are located on:

- Bennett Brook at Benara Road Caversham
- Bannister Creek at Hybanthus Road Ferndale
- Helena River at Whiteman Road Midland

A low cost gauging station at Southern River, Anaconda Drive (accuracy of flow +/- 15%).

An important function of the Swan River Trust is to provide advice to the Minister for Water Resources on applications for development in and adjoining the Swan River Trust management area.

Development applications can range in scale from advertising signs and single house additions to major redevelopments incorporating residential, commercial and marina uses. All are capable of affecting the aesthetic and landscape values of the Swan-Canning river system.

In assessing applications, staff liaise with other agencies, local governments and those who may have an interest in, or may be affected by, particular proposals. Our objective is to plan for the conservation, enhancement and appropriate development of the Swan-Canning river system.

During the year, the review of Trust policies was also progressed to a stage where the policies can now be presented for public consultation, review and adoption.

Development Control

The Swan River Trust Board considers development applications twice each month and makes recommendations on them to the Minister for Water Resources. 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 221 development applications during the year. The following proposals are some of the more significant or notable matters considered by the Trust during the year:

- **Barrack Square Redevelopment:** The redevelopment of the Barrack Square Jetties and associated precinct proposes extensions to existing jetties, new pavilions, repaving and landscaping civic areas and reassigning port facilities to transport operators. The application was recommended for approval.
- **Floating Restaurant:** A proposal was submitted for a 200-seat floating restaurant located next to the South Perth foreshore, just east of Mends Street. The restaurant was to be tethered to the shore. The Trust did not recommend this application because of parking impacts and other concerns about its relationship to plans for the foreshore reserve.
- **Suburban Passenger Ferry:** The Trust received an application to run services between several jetties in the lower reaches of the Swan River. The Trust supports the idea of river transport and in this case recommended approval.
- **Narrows Bridge Duplication:** Main Roads WA is duplicating the Narrows Bridge to increase the capacity of the Kwinana and Mitchell Freeways, Narrows Interchange. The proposed Bridge will reproduce the design on the existing bridge and closely match the original materials. There will be improvements to the drainage of road surfaces associated with the Bridge. The Trust recommended approval.
- **Tourist houseboat trial:** The Trust supported the operation of tourist houseboats on the Swan River on a trial basis. The craft are to have sealed sullage containers and will use several overnight moorings between the Causeway and Middle Swan. Approval for the five-year trial operation of five craft was recommended.

- **Foreshore Management Plans and associated improvements:** Foreshore management plans were received for the Swan River at Northbank in Fremantle, in Ashfield and Bassendean and on the Canning River at Riverton. The plans propose a number of works including edge treatments to arrest erosion by replanting reeds and fringing vegetation, building of boardwalks and the establishment of recreation areas for public use. The Trust approved these plans because they improve the environmental quality and recreational amenity of the river.
- **Yacht club extensions:** Several applications were received to increase the capacity of yacht club pen areas. The Trust sought to balance the improvement of facilities against the concern for encroachment of yachting activities, visual amenity and use of the river for other activities.

Once an approval has been issued by the Minister, an Implementation Schedule is prepared to accompany every Notice of Approval. This Schedule sets out a timetable for implementation to guide the applicant and ensure that works do not depart from the specifications and conditions of the approval. The Trust writes to all applicants reminding them of their obligations and offering assistance to ensure that the proposal is properly implemented. A monthly Compliance Report is provided to the Board. This also helps to identify unauthorised development.

In addition to development applications, the Trust also assesses and provides advice on activities subject to control under regulations to the *Swan River Trust Act 1988*, such as spectator events. The River Festival conducted on and around the Swan River in Belmont and the World Triathlon (both in April) are examples of spectator events considered and approved by the Trust.

There has been a growing use of the river and its foreshore reserves as a venue for community activities. Spectator events such as the Lotto Skyworks, a Rotary Association Kinetic Sculpture Race and several municipal festivals succeeded in attracting substantial audiences.

The use of tourist houseboats on the Swan and Canning rivers is being trialed. Properly managed, houseboats have the potential to enhance people's enjoyment and appreciation of the rivers.

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 a high level of 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 for areas both inside and outside the management area. This includes activities that are likely to have an impact on the waterways of the Swan-Canning river system or on the adjacent parks and reserves.

Swan-Canning Precinct Policy Plan

Work continued on the preparation of a Swan-Canning Precinct Policy Plan which will establish a Vision and Guiding Principles for future development affecting the Trust management area. Pilot studies were completed for two of the precincts on the Swan River (Precinct 2 Fremantle to Mosman Park; and 12 Middle Swan), and these studies will be used to demonstrate the scope of planning work necessary to implement the Vision and Guiding Principles at a local level. This work is the next step towards applying the Landscape Description developed in 1997 in a manner which balances development expectations, recreational activities and protection of the amenity and environment of the Swan-Canning river system. While these issues are already considered for all development applications received by the Trust, this Policy will for the first time provide a strategic overview as the basis for future decisions. Future work will involve discussion with local government and community groups to gauge the best and most effective means of influencing development to ensure recognition and protection of the Swan-Canning river system as the prime landscape resource of Perth.

Sir James Mitchell Park

The Sir James Mitchell Park is one of the most important foreshore parks on the Swan River. It provides a landscape counterpoint to the high rise buildings of the city centre and is an important area for a wide range of recreational activities.

The City of South Perth and the Trust have now completed a management plan for the park, which has been submitted for approval by the Minister for Water Resources under Part 5 of the *Swan River Trust Act 1988*. A significant development resulting from public comment on the draft is the inclusion of recommendations for the establishment of an advisory committee to assist in implementation of the Plan.

The Plan draws extensively on previous planning work and its wide-ranging recommendations cover issues of parking and public access, separating pedestrian and cycling traffic, improving the lakes to provide water bird habitat, management of commercial development and establishment of a special events program, extending and improving picnic sites and facilities as well as the management of shrubs and trees. To deal with the wide divergence of views on placement of trees the Plan recommends further consultation with adjacent residents during the development of planting plans. This consultation would be managed by the advisory committee.

Yacht Club and Marina Environmental Management System

Storage and use of paints, solvents and resins, fuel and oil and antifouling as well as maintenance, repair and refitting of boats is an integral part of the operation of yacht clubs and marinas. While there is a high level of environmental awareness in yacht clubs and marinas they vary widely in the standards of their environmental management. The leakage of 1 500 litres of sump oil from a yacht club storage tank in 1997 illustrated how minor oversights can have major consequences.

Yacht clubs and marinas are working with the Trust, Department of Environmental Protection and Department of Transport to develop a generic Environmental Management System suitable for their activities.

Airconditioner Wastewater Disposal

A range of biocides and corrosion inhibitors are used to prevent the growth of bacteria, algae and fungi and to prevent corrosion in commercial air conditioning systems. The wastewater from systems in the Perth central business district are generally discharged to stormwater drains that empty into the Swan River. The Trust is working with the Water Corporation, the City of Perth and the Department of Environmental Protection to finalise a draft policy and implementation strategy to ensure new air conditioning systems do not discharge wastewater to stormwater drains and discharge to these drains from existing systems is phased out.

Management Plan Inventory

As part of the Trust's recent review of the implementation of the 1988 Swan River Management Strategy, an inventory was compiled of the management plans prepared for various sections of the Trust's management area. The review included an assessment of the extent to which these plans had been implemented and the further work required. The information will enable the Trust to assess its priorities, develop a program of jointly funded activities, identify opportunities for obtaining additional assistance and identify activities requiring Trust and other approvals.

Riverplan

A comprehensive draft management plan to help protect, enhance and restore the beneficial uses of the Swan-Avon catchment was finalised and presented to the Environmental Protection Authority in December 1999 and will be released for public comment late in the year 2000.

Called "Riverplan", the document is intended to improve coordination between responsible agencies to ensure the management of all projects, policies and programs is consistent with the objective of protecting the rivers' ecological integrity.

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 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)

- Marine Waste Reception Facilities Committee (Rottnest Island Authority)
- 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)
- Steering Committee for Comprehensive Management Plan for the SCEPP (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-Canning Cleanup Program Senior Officers' Group (Swan River Trust)
- Swan Catchment Urban Landcare Program (Swan Catchment Council)
- Barrack Square/Foreshore Project Liaison Group (City of Perth)

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 hazards, 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.

Because most rubbish, debris and pollution is the result of irresponsible human behaviour, the Trust also 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.

Table 3: Summary of material removed by field staff from waterways and foreshores.

MATERIAL COLLECTED	Units	Total	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Domestic rubbish collected from beaches	tonne	767.3	92.5	177	207.25	123.05	80	87.5	85	51
Logs and timber from fallen trees	tonne	1473.35	199	598	162.75	252.6	152	109	150	123
Rotting weed removed from foreshores	tonne	2549	182.5	451	496	347.5	460	612	350	172
Tyres	each	371	24	55	46	72	68	106	70	62
Drums (assorted)	each	167	2	24	30	17	38	56	23	20
Display signs	each	33	3	3	3	8	7	9	8	8
Derelict/ abandoned boats salvaged	each	26	5	1	5	4	5	6	1	3
Shopping trolleys	each	158	7	17	12	32	28	62	92	55
Dead fish left by prawning parties	tonne	68.09	3.24	6.85	23.2	12.45	11.35	11	10	5.9
Dead birds	each	233	no stats	no stats	no stats	26	31	176	120	118
Syringes on beaches and public places	each	617	no stats	no stats	120	109	146	242	118	230
Dead animals (cattle & sheep)	each	42	12	5	3	5	9	8	6	4
White goods removed - washing machines/ fridges	each	16	1	0	3	5	3	4	7	7
Hydrocotyle	tonne	2048	2048	spraying of small outbreaks is ongoing						
Bamboo removed from foreshores	tonne	16.5	0	0	0	1.5	15	0	61	0
Sand renourishment of public beaches	tonne	3499	460	451	1009	88	637	854	533	432
Rock renourishment to stop erosion	tonne	46	0	0	30	0	16	0	109	98
Stolen vehicles salvaged from river	each	2	no stats	no stats	no stats	no stats	no stats	2	4	2

Over the last few years the trend in domestic rubbish collected shows a decrease. This is a positive trend and is attributed to community education and awareness and subsequently, behavioural change.

Waterways Cleaning

Forty-five river beaches and about 358 kilometres of foreshores of the Swan, Canning, Helena and Southern rivers are maintained by the Trust field crew each year. Beach cleaning and the removal of hazards from waterways and foreshores is essential to maintaining public safety and enjoyment of the river.

Because the Trust is unable to resource regular maintenance programs for all of this very large area, 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, encompassing 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

From November to March in the summer months, 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. During the winter months from April to October the beaches were cleaned twice a week on Mondays and Fridays.

River locations that are not easily accessible to the public were inspected by operational staff on a fortnightly or monthly basis depending on the level of accessibility.

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. Cooperation between the Water Police, local government and the Trust has enabled the recoveries to be undertaken successfully in difficult circumstances without causing environmental damage.

The removal of 'Popeye' in East Fremantle February 2000.

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 123 tonnes of logs and timber from fallen trees was removed over the course of the year.

- Upper Swan: Staff carried out cleaning and inspection of the upper Swan from the Causeway to the Middle Swan Road Bridge on a fortnightly basis in summer and weekly during winter. It is essential that accumulated debris is cleared from jetties and bridges to stop excessive water pressure against these structures during periods of high flow.
- Upper Canning: Cleaning of the upper Canning River was carried out on a monthly basis by boat and vehicle.
- Southern River: Trust operational staff visited the Southern River periodically and undertook maintenance according to the resources available and the scale of identified problems. Priority was given to obstructions causing blockages or diversion of the river flow.

Foreshore Maintenance/Beach Replenishment

Each year in spring, the Trust works to replenish eroded beaches and level all major beaches to remove gullies caused by stormwater discharge from the many drains and run-off flowing over the beaches. This year, 432 tonnes of beach sand was recycled from excess sites to help restore eroded public beaches.

SRT crew 'renourishing' eroded beaches with sand from beaches with a surplus supply.

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

- The City of Melville - for restoration of beaches at Point Walter and Point Dundas.
- The Town of East Fremantle - for restoration of beaches at Preston Point.

- The City of South Perth - for restoration of the Coode Street Beach.
- WA Rowing Association - the Trust again replenished sand at the WA Rowing Association site at the Esplanade in Mount Pleasant. Operational staff relocated 45 tonnes of accumulated sand from under the Narrows Bridge to restore the eroded sites at the Rowing Club.
- WA Recreation Council - surplus river sand was relocated to the eroded Burswood Water Ski boat ramp at the request of the WA Recreation Council to refurbish the recreation area.

Swan River Trust staff participating in this years' Tidy WA on May Day.

Tidy WA in May Day

On May 19, the Swan River Trust, Swan Catchment Centre staff, students from Ardross Primary School and divers from the Murdoch Dive Club participated in the Keep Australia Beautiful Council's Tidy WA in May Day. Students and staff collected rubbish from Bicton Quarantine Park and Rob Campbell Park in the City of Melville while divers collected rubbish from the river bed around the East Fremantle Yacht Club and the nearby swimming jetty. The Swan River Trust boat was on hand to collect any large items of rubbish collected by the divers. In all, 30 large plastic bags were filled with the main items of rubbish being glass, plastic and cigarette butts.

Walling Repairs

A joint erosion control project was undertaken by the Trust and the Town of Mosman Park along a 100-metre section of foreshore near Johnson Parade, Mosman Park. The Trust supplied filter cloth, staff and supervised the erosion control works. The Town of Mosman Park supplied labour, equipment and construction materials.

Erosion control works were also carried out along the Claremont foreshore below Christ Church Grammar School. Sixty metres of rock walling was installed to protect the foreshore from erosion.

Ron Courtney Island

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

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

The ongoing program to revegetate the island to replace plants lost to poor weather conditions and vandalism continued during the year and the island vegetation is now flourishing and bird life is increasing in numbers.

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.

Stop boards are removed at the beginning of winter to stop flooding upstream of the Kent Street Weir due to the damming effect of the boards. At the end of winter the boards are installed to stop salt-water getting upstream of Kent Street 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 to continue to have access to freshwater and protects the freshwater vegetation that has developed upstream of the weir. The weir also maintains a constant water level over summer providing a valuable recreation facility for canoeing and waterbird refuge.

Waterways Protection and Enhancement

Weed Management

During the year, the serious aquatic weeds *Saggitaria* and *Salvinia* were found in several locations in the Canning River and its drainage system. Trust field staff, members of the Friends of the Canning River Regional Park and officers from the Water Corporation reacted quickly and the plants were removed before the infestations could spread. Monitoring of these areas to enable early detection of any re-establishment will continue.

Following a bulk removal program in 1993, the Trust now routinely coordinates an inspection and spot spraying program to control regrowth of another serious aquatic weed *Hydrocotyle*. This spraying program continued during the year after re-infestations were found in the Trust management area. Monitoring for further seed germination will continue during spring.

Work also continued on a project to remove bamboo along the Claremont foreshore, with the Trust working in partnership with Methodist Ladies College, Christ Church Grammar School and the Town of Claremont. Bamboo is a tenacious weed which restricts the growth of native vegetation, interferes with access to the foreshore and reduces the visual amenity of the area. In January 1999, about 390 metres of foreshore between the Claremont Yacht Club and Methodist Ladies College was cleared and 115 tonnes of bamboo was removed. This was followed up this year with regular spraying of regrowth using environmentally sensitive herbicides. The Trust is continuing to work with the Town of Claremont, Methodist Ladies College and Christ Church Grammar School to complete the removal of bamboo and stabilise and revegetate the shoreline.

Weed Control Strategy

The Trust made significant progress in the development of a foreshore and wetland weed control strategy for its management area. Information was collated on the current weed problem, the major weed species of concern and possible methods for their control. Potential environmental impacts resulting from weed control activities and the environmental safeguards required to minimise these impacts have also been detailed. A series of recommendations relating to the implementation of the weed control strategy have been prepared, and include:

- Implementation of the five-year weed control strategy which gives priority to major weed species;

- Weed control works to be conducted in those locations within the management area which are of greatest conservation and amenity value;
- Continuation of the inventory work initiated by the Trust which will complement existing information on the location and extent of problem weed species;
- Revegetation with appropriate local species and erosion control measures taken if necessary;
- Identification of problem weed species that have potential to develop into major infestations.

Work for the Dole Scheme

By coordinating the work of several local governments with Trust and Water and Rivers Commission activities the Trust has been able to use the Work for the Dole Scheme to undertake a number of foreshore restoration projects. Approximately 80 Work for the Dole participants assisted with projects at Yagan Wetland Reserve in the City of Canning, various locations along the Canning River and Bull Creek in the City of Melville, Bardon Park in the City of Bayswater and with the maintenance of the Water and Rivers Commission's hydrometric stations. Tasks included weed control, revegetation, erosion control, reticulation, stone pitching, trench digging, painting and fencing.

Canopy Loss

In October 1999, an investigation commenced into the significant simultaneous canopy loss observed on a large number of flooded gums, *Eucalyptus rudis*, along the Swan and Canning rivers. The Trust worked with students at Central Metropolitan College of TAFE to conduct a detailed survey of the trees, mapping which trees were affected and recording what symptoms they showed, such as heavy insect infestation. The survey was conducted throughout summer, with the results now being collated and analysed. The Trust assisted the City of Gosnells to have tests carried out that ruled out the fungus *Phytophthora cryptogea* as the cause of the leaf death. The actual cause has not yet been identified. However extensive canopy regeneration has occurred and the trees will be monitored again over the coming summer to see if the problem returns.

Audit and Enforcement

The Trust has a key role to play in ensuring compliance with conditions on development approvals and provisions of the *Swan River Trust Act 1988* and its regulations.

This year, the Trust's internal system for handling public complaints and incident reports was revised with the installation of complaints and incidents and development approval compliance databases. These databases have enabled the Trust to improve its management of these areas of activity and more readily handle information and respond to public and internal inquiries.

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

Table 4: Reported complaints and incidents 1999-2000.

Complaint/Incident	1999-2000
Oil slicks/spills	22
Offensive odour	7
River discolouration	2
Industrial discharge/dewatering	11
Sewage discharge	12
Herbicide/pesticide spraying	1
Chemical spills	7
Waste dump	20
Foaming	0
Watercraft nuisance	16
Algal blooms	6
Aquatic death	22
Destruction of vegetation	11
Illegal development	10
General complaints	33
Total	**180**

Of the 180 complaints received by the Trust in 1999-2000, a total of 146 were substantiated and 34 were not substantiated.

In total, 88 of the complaints were able to be addressed by the Trust and 58 were referred to other agencies for follow up. The remaining 34 were unsubstantiated complaints.

Pollution Control

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

The Trust's pollution control strategy has three components:

- Assessing whether activities 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.
- Responding to pollution incidents to establish and deal with the source and to ensure that pollution that has occurred is cleaned up.

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.

The 1999-2000 period saw a small drop in the number of pollution complaints in relation to the five-year average. The number of incidents involving industrial discharge and dewatering have dropped significantly over the last couple years and this continued in 1999-2000. However, the recording and reporting system for these complaints and incidents was revised during the year and it is not possible to assess the extent to which the change is due to improved environmental management by industry.

Table 5: Pollution complaints and incidents by category.

Pollution Complaint/ Incident	5 Year Average	1999-2000
Oil slicks/spills	19	22
Offensive odour	6	7
River discolouration	9	2
Industrial discharge/ dewatering	20	11
Sewage discharge	9	12
Herbicide/pesticide spraying	1	1
Chemical spills	2	7
Waste dump	21	20
Foaming	1	0
Total	**103**	**82**

Oil Spills

There have been no incidents resulting in major contamination of the Swan-Canning river system from petrol and oil spillage. In nearly every situation where spillage onto roads has occurred, no contaminated material has reached the river. In other incidents, the impact from contaminated material has been minimised by the efforts of the field operations staff.

A dead tortoise affected by the mixed load of diesel and petrol spilled by a tanker rollover on 14 January 2000 in Beckenham is recovered. The mixed load made its way into a wetland next to the Canning River.

The most serious incident during the year was a tanker rollover on 14 January 2000 at the corner of Nicholson Road and Albany Highway, Beckenham which released 5 000 litres of petrol and diesel on to the road. A thunderstorm in the late morning hampered the recovery process, allowing between 1 000 and 2 000 litres of fuel to contaminate a wetland next to the Canning River. This impacted on the wetland and caused several aquatic deaths. The field operations staff - using absorbent spill booms - successfully prevented the petrol and diesel from contaminating the Canning River. The company operating the tanker spent several weeks cleaning and restoring the contaminated wetland.

The Claisebrook wastewater pressure main, which was attached to the underside of the Claisebrook Cove pedestrian bridge, collapsed into the Claisebrook Inlet on 26 November 1999.

Sewage Contamination

Although the number of sewage spills that occurred in 1999-2000 is close to the five-year average, most spills were classified as low impact. The exception was a major spill in November 1999. This was caused by the collapse of a pressure main at Claisebrook Cove. The affected area of the river (between the Causeway and Garratt Road Bridge) was closed to public recreation for four days until the bacterial level declined to an acceptable limit. No aquatic impact was observed.

Table 6: Total sewage spill incidents 1999-2000.

Date	Location	Estimated quantity (kL)	Cause	Environmental hazard assessment
23/07/99	Slade Street P.S.	5	Power failure caused by industrial action	Low – significant dilution and dispersion
1/08/99	Cnr of Blackwall Reach Pde /Beach St, Bicton	0.5	Blockage in the sewerage system	Low – significant dilution and dispersion
20/08/99	Waterford Avenue Waterford	0.1	Blockage in sewerage system	Low – small amount entered river
22/08/99	Sewer manhole overflow at Fairway/ Edward St Crawley	0.1	Blockage in the sewerage system	Low – contained in a carpark drainage gully
4/10/99	Jetty Road, Claremont	9	Blockage in the pump manifold	Low – some discolouration observed at the outfall to the river
15/10/99	Brookside Avenue, Kelmscott	12	Damaged sewer mains	Low – contained in stormwater drain
20/10/99	Sewer manhole overflow adjacent to Havilland View, Maylands	0.5	Blockage in the sewerage system	Low – small amount entered an ornamental lake
26/11/99	Claisebrook Cove, East Perth	340	A 610mm gravity sewer main at the footbridge collapsed into the Inlet	Significant – the river between the Causeway and the rail bridge at East Perth was closed for contact recreation. Monitoring conducted by the City of Perth. Aquatic biota was not affected
15/12/99	Claisebrook Cove, East Perth	1	During removal of an inflatable sewer plug used to facilitate the sewer repair	Low – significant dilution with no observed impact or discolouration in the Cove
22/01/00	Cnr Norman Rod & Doney St. Melville	1	Leaked air-valve	Low - contained on-site with no discharge to river
27/03/00	Sherman St, Canningvale	1	Sewer main damaged during excavation	Low – local contamination in stormwater drain
2/06/00	Hay Street, East Perth	10	Ruptured pressured main due to road works	Low – significant dilution with no observed impact to aquatic life. Warning signs were placed

Dewatering

Dewatering at the Narrows Bridge Duplication project resulted in some river discoloration and the release of hydrogen sulphide. Because of the objectionable odour and the threat to the river, the dewatering procedures were revised to deal with the problem.

Pollution Investigations

Livestock Transport Depot

The Swan River Trust, working with the Canning City Council and the Ministry of Planning, took action over a livestock transport depot operating adjacent to the Canning River. The property lease was cancelled by the Ministry for Planning, which owns the site, after the Trust and City of Canning found the depot was causing pollution. Investigations by the Trust found that wastewater was being discharged on to the ground, fuel was leaking from a storage tank and waste oil leaking from storage drums had contaminated the ground. The Ministry of Planning is requiring the leasee to vacate and clean up the site and remove the contamination by October 2000. The Trust is continuing to work with the Ministry and the Department of Environmental Protection to ensure effective remediation of the site.

Horse Stables

Work by the Trust and the City of Belmont has resulted in significant improvements in the management of stabling properties adjacent to the Swan River at Ascot and Redcliffe. The Trust found that liquid waste, including urine and manure, was being discharged into ineffective soakwells, resulting in the wastewater entering the stormwater system. Following the investigation, all new stables operating within the council area are now required to minimise nutrient export to the river by incorporating effective limestone barriers to minimise nutrient leaching.

Myxosporidiosis

During March 2000 a number of dead fish were found in the Swan River between the Claisebrook Cove and Garratt Road Bridge. The predominant species killed was mullet. Fortunately, initial concerns about possible chemical contamination proved to be unfounded. Analysis of the affected fish showed that the deaths were caused by a viral infection (Myxosporidiosis).

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 Trust supports community involvement and helps raise awareness of the river and catchment issues by:

- Assisting with on-the-ground activities
- Organising and supporting training workshops
- Facilitating improved catchment management
- Distributing river and catchment information via publications, videos, school and community talks, and displays at special events such as Garden Week and Boat Show
- Keeping the media informed about river issues

Algal Alert

The major focus for community awareness this year was the toxic blue-green algal bloom in the Swan River in February 2000. A comprehensive strategy was put in place by the Water and Rivers Commission and Swan River Trust to inform riverside businesses and the general public about the bloom and about health alerts and management actions being taken.

Regular briefings for media and key stakeholders, personal phone calls and facsimile updates to riverside businesses and sporting organisations, two letter-drops to riverside residents and an education pack sent to all schools served to keep people up-to-date with the bloom and conditions in the river.

After the bloom, a new display and presentation package on algal blooms was used for displays and briefings including to the Deluge 2000 community forum, the Algal Bloom 2000 – The Facts debriefing and at Garden Week (April 2000) and the Autumn River Festival (April 2000). The display was made available to the Swan Catchment Centre and community libraries.

Phone Survey

A telephone survey was carried out in February 2000 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 (83%) are aware of the Swan River Trust. The major issues of concern were algal blooms, water cleanliness and some people experienced concern about riverside developments. The results are the basis for assessing performance of the Trust (see Performance Indicators section on page 65).

Website

The Swan River Trust website was reviewed and updated with new information, publications (including the Annual Report and SCCP Action Plan), and 'algal alert' news. This was part of an on-going upgrade of the site to increase its usefulness and accessibility to users.

Briefing

A river cruise was held in October 1999 to brief stakeholders including local government, catchment groups and politicians on current issues in river management. The briefing included presentations on the Swan-Canning Cleanup Program, River Management, and the statutory approval process for development proposals around the river.

Robert Atkins, Manager and Darryl Miller, River Manager, briefing stakeholders on the activities of the Swan River Trust.

Publications

The Trust's regular newsletter 'RiverView' is the common information link between the various stakeholder groups involved in river management and protection. It provides information about the Trust, the Swan-Canning Cleanup Program and community group activities and is a valuable resource for school projects. Four editions of RiverView were published during the year.

The Trust produced a new series of Swan River Trust resource sheets for schools and general information. Eleven issues were released and will be published on the Internet, including:

– The Swan-Canning river system
– Catchments of the Swan-Avon river system
– Waterways pollution
– Nutrient enrichment in the Swan River system
– Seasonal changes in the Swan River estuary
– Adaptions for life in the estuary
– Estuarine habitats
– Fringing vegetation of the Swan-Canning river system
– Aquatic plants - algae and seagrasses
– The problem with aquatic and foreshore weeds
– Estuarine invertebrates

Other reports, brochures and pamphlets produced included:

- Swan River Trust Annual Report 1998-99
- Audit of the Swan River Trust Management Strategy, 1999
- Swan-Canning Industry Survey Draft Report: Pilot Survey Findings, December 1999
- Swan-Canning Cleanup Program Communication Plan, November 1999
- Reprinted – Swan River Trust: A Guide to our Services, December 1999
- You Can Make the Difference, February 2000
- Swan River Trust Strategic Plan 1999-2000, March 2000
- Swan-Canning Cleanup Program Action Plan Implementation: Year 1 in Review Summary, June 2000
- Four issues of RiverView newsletter

Awareness activities that were undertaken as part of the Swan-Canning Cleanup Program are described on page 35.

OUTPUT MEASURES

OUTPUT: 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	1998/99 Actual	1999/2000 Target	1999/2000 Actual	Reason for variation
Quantity				
Area of waterway and catchment monitored km^2	2116	2116	2116	
Number of R&D projects	4	5	5	
Quality				
Extent to which the monitoring network covers the waterway and catchment	90%	90%	90%	
Reliability of monitoring information	95%	95%	95%	
Percent of project milestones met	NR	80%	92%	
Timeliness				
Percent of waterway and catchment monitoring reports completed on time	NR	80%	75%	A number of overview reports are behind time. Monthly water quality reports to the Board were all on time.
Projects completed on time	3	5	4	Delay in commencing the decision support modelling project.
Cost				
Cost of waterway monitoring and reporting per km^2 of catchment and waterway	$182	$294	$289	
Average cost of R&D project	$47 000	$268 000	$264 000	

NR = not reported

OUTPUT: Regulate riverside development

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

Measure Regulate riverside development	1998/99 Actual	1999/2000 Target	1999/2000 Actual	Reason for variation
Quantity				
Management area subject to development control policy and advice (km^2)	69	69	69	
Number of development applications assessed	246	NR	221	
Quality				
Acceptance of recommendations on development	100%	95%	99%	
Acceptance of recommended approval conditions	100%	NR	99%	
Timeliness				
Average number of days to process planning and development applications	53	65	51	
Cost				
Cost of development control policy and advice per km^2 of management area	$8 400	$6 100	$6 400	
Average cost per development application assessed	$2 400	NR	$2 000	

NR = not reported

OUTPUT: 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	1998/99 Actual	1999/2000 Target	1999/2000 Actual	Reason for variation
Quantity				
Production of management plans and strategies	2	3	3	
Quality				
Stakeholder acceptance of management plans and strategies	96%	80%	100%	One plan was distributed to agency and industry peak groups for comment, 14 submissions received.
Timeliness				
Plans prepared within timeframe	2	3	2	Delivery of the pilot precinct policy plan report was delayed.
Cost				
Average cost of production of management plan or strategy	$214 000	$51 000	$48 000	

OUTPUT: Protection of waterways and foreshores

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

Measure Production of waterways and foreshores	1998/99 Actual	1999/2000 Target	1999/2000 Actual	Reason for variation
Quantity				
Length of foreshore subject to maintenance and restoration (km)	146	146	146	
Management area subject to waterway and foreshore protection (km^2)	69	69	69	
Area of the waterway and catchment impacting on water quality management (km^2)	2116	2116	2116	
Quality				
Length of foreshore scheduled for maintenance and restoration as percentage of total foreshore	41%	53%	41%	Total length of river foreshore has been revised from 300km to 358km. The targets for 1999-00 had been set prior to the revision.
Level of public satisfaction with the condition of the foreshores	63%	70%	65%	
Percent of sub-catchments within phosphorus input target	60%	50%	60%	The targets for 1999-00 had been set prior to the 1998-99 actual being calculated.
Percent of sub-catchments within nitrogen input target	13%	29%	20%	Belmont Main Drain has moved from just above the target to just within the target, so there is no significant improvement.

Measure Production of waterways and foreshores	1998/99 Actual	1999/2000 Target	1999/2000 Actual	Reason for variation
Timeliness				
Percent of achievement of scheduled maintenance and restoration program completed on time	89%	80%	85%	During February algal bloom the percent of achievement of scheduled work reduced to 50%.
Mean time taken to resolve complaints (days)	NR	2.0	1.2	
Percent of water quality improvement projects achieving milestones on time	NR	80%	80%	
Cost				
Cost of maintenance and restoration per km of foreshore	$3 600	$2 700	$2 500	
Cost of waterway and foreshore protection per km^2 of management area	$2 400	$2 000	$1 900	
Cost of water quality improvement projects per km^2 of waterway and catchment	NR	$960	$890	

PERFORMANCE INDICATORS

Auditor General

To the Parliament of Western Australia

SWAN RIVER TRUST
PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 2000

Scope
I have audited the key effectiveness and efficiency performance indicators of the Swan River Trust for the year ended June 30, 2000 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, 2000.

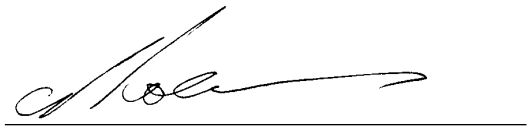
D D R PEARSON
AUDITOR GENERAL
November 8, 2000

4th Floor Dumas House 2 Havelock Street West Perth WA 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 period of 1 July 1999 to 30 June 2000.

MEMBER



MEMBER

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 responsbility for deciding where this industry in located. However, the Trust wants to consider all factors which affect the waterways in it's 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 Effectivness 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.

Background

A decline in water quality is one of the key management issues identified for the river system.

Excess nitrogen and phosphorus inputs to the Swan-Canning river system is considered a major threat to its water quality, commonly resulting in algal blooms and the growth of other nuisance plant species. As a result, management of nutrient input is essential to prevent further algal blooms and degradation of water quality.

Long term targets for water quality in the Swan-Canning river system use nitrogen and phosphorus concentrations as well as other parameters (eg. dissolved oxygen and chlorophyll) as management objectives. Nutrient targets for rivers and drains have been developed to compliment these targets and are based on guidelines recommended by the National Water Quality Management Strategy Guidelines (ANZECC, 1992) and have also been adopted for the Swan-Canning Cleanup Program *Action Plan* (1999). Based on these standards, the recommended target concentrations in freshwater rivers and drains are 1.0mg/L for Total Nitrogen and 0.1mg/L for Total Phosphorus. When the rivers and drain nutrient concentrations are below target concentrations they are considered to have achieved management objectives.

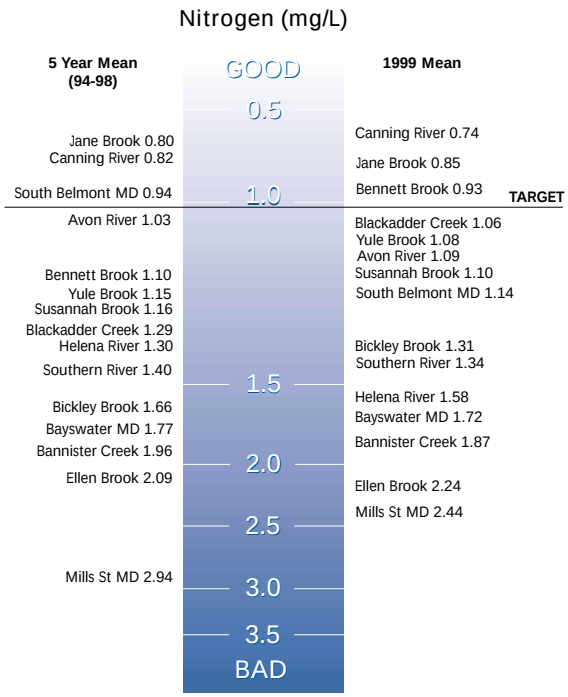
A measure of management performance is to analyse the level of nutrients in the rivers and drainage inflows to the Swan-Canning river system over time. Regular sampling of streams entering the Swan-Canning system collects water quality data which is then compared to management targets. The nutrient thermometers allow comparison of past and current nutrient levels in the rivers. Comparing the current years average with the past five year average provides a good indication of whether water quality is getting better or worse in each river. The five year mean smooths out variation between years and provides a good longer term measure of the general condition of the water quality for the rivers and drains.

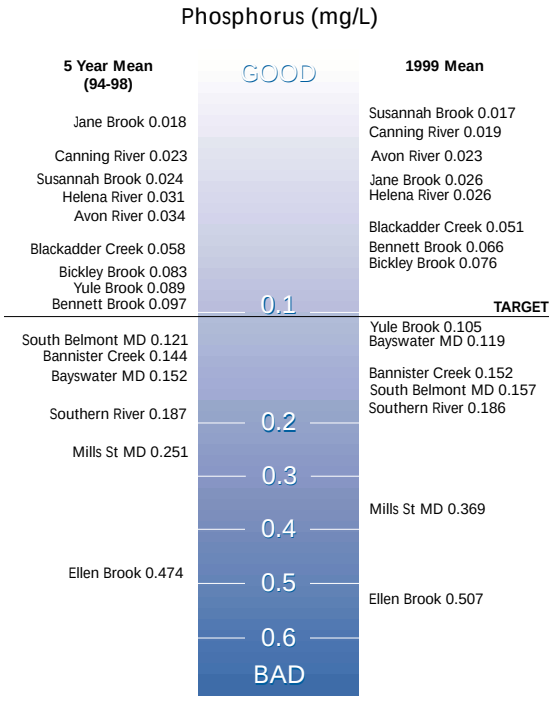
Total Nitrogen concentration target performance

The "therometer" figure below shows that in 1999, 12 out of 15 tributaries had concentrations of Total Nitrogen that were above the 1.0mg/L target. However, concentrations in most tributaries were lower than their five year average. This indicates a downward trend in nitrogen being delivered to the estuary. Only the Avon River, Ellen Brook, Helena River and South Belmont Main Drain had higher concentrations for 1999 than their five year averages. This indicates that nitrogen levels in these rivers may be increasing, possibly due to poor land use practices in their catchments.

Total Phosphorus concentration target performance

The "therometer" figure below shows that in 1999, 7 out of 15 tributaries had Total Phosphorus concentrations that were above 0.1mg/L target. Of these tributaries, six had their 1999 averages above their five year average (Bannister Creek, Ellen Brook, Jane Brook, Mills Street Main Drain, South Belmont Main Drain and Yule Brook). This indicates that phosphorus levels may be increasing in these rivers, possibly due to poor land use practices in their catchments. The other nine tributaries had lower 1999 averages compared to their five year averages, indicating that phosphorus levels are improving.



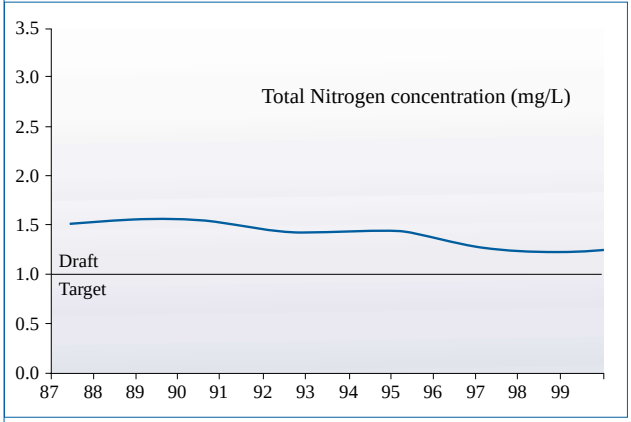


Comparisons of the five year means reported in previous years

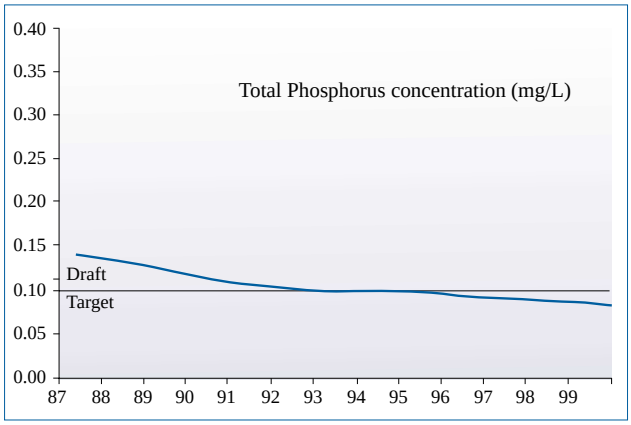
Referring to the "therometer" figures shown on previous page, the number of rivers and drains that have had their mean five year Total Nitrogen concentrations above target levels has varied substantially since 1996. The number in 1996 was seven, 11 in 1997, 13 in 1998 and now 12 in 1999. The same is true for five year concentrations of Total Phosphorus. The number of tributaries and drains above target levels was four in 1996, seven in 1997, six in 1998 and six again in 1999. This kind of variation reflects different rainfall patterns between years and/or changes in land use. For example, dry years generally have lower nutrient levels than wet years. Certainly improved catchment management is still warranted if we are to reduce the number of tributaries with excessive levels of nutrients.

Measure of long term performance

The following graphs use all of the nutrient water quality data collected from rivers and drains between 1987 and 1999. Between 1987 and 1993 the rivers were only monitored in winter. After 1994, the rivers were monitored throughout the year while they were flowing.



In general, the majority of nitrogen concentrations entering the Swan-Canning river system were above target concentrations. Concentrations between 1989 and 1998 have been slowly declining although concentrations in 1999 rose slightly. This slight upturn is believed to reflect the slightly above average rainfall received in parts of the Swan coastal catchment for the year.



In contrast to nitrogen, the majority of phosphorus concentrations were generally below target concentrations. Phosphorus concentrations have been decreasing since 1987. They reached a plateau between 1993 and 1996 before declining again.

The changes in nitrogen and phosphorus concentrations entering the Swan-Canning river system have to be interpreted with caution. Using compiled data means changes in concentrations may be reflecting long term rainfall patterns or changes in the monitoring programs. For example, sampling has increased in some tributaries and drains that have trickle flows during the summer that are the result of groundwater seepage.

While the figures show both nitrogen and phosphorus input to the estuary to be generally decreasing, it is not representative of nutrient levels for many individual monitored rivers and drains. As shown by the thermometers, many sites exceed nitrogen and phosphorus targets. These tributaries are contributing excessive nutrients to the estuary, causing algal blooms and require extensive catchment management to reverse these inputs. However, the overall trend is encouraging and coincides with the escalation in community based catchment management and the first positive effects of the SCCP *Action Plan*.

Key Effectiveness Indicator 2

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

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

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

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

Measure: Rate of implementation of the Government's Swan River Management Strategy

The Swan River Management Strategy is a whole of Government Policy that sets out a "blue print" for managing the Swan River Trust 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 1998, the third since its commencement. The next audit will be conducted in 2000 and reported in the 2000-2001 annual report.

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

Year	1993 –94	1997 – 98	1998 – 99	1999 - 2000
% Accepted	95%	96%	100%	99%
% Modified	2%	2%	0%	0%
% Rejected	3%	2%	0%	1%

Key Effectivness Indicator 3

The extent to which the waterways are protected while providing facilities for public use.

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.

In early 2000 a consultant commissioned by the Trust conducted a telephone poll of 400 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 32 percent.

The measures have been compared to previous surveys conducted in 1997-98 and 1998-99.

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

Survey	**1997-98**		**1998-99**	**1999-00**
Survey method	Adjacent residents telephone poll	Shoreline users self administered questionnaire	Telephone poll	Telephone poll
Level of satisfaction	72%	73%	67%	70%

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

Survey	**1997-98**		**1998-99**	**1999-00**
Survey method	Adjacent residents telephone poll	Shoreline users self administered questionnaire	Telephone poll	Telephone poll
Level of satisfaction	69%	73%	64%	68%

Survey questions in 1998-99 and 1999-00 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.

The changes in level of satisfaction are not considered to be significant because of the variability in survey methods and level of survey error. However the trends indicate an increasing level of satisfaction with the access to the river and facilities around the foreshores.

Measure: Total number of pollution complaints/ incidents.

The number of pollution complaints in 1999-00 sees a continuation of the downward trend of the previous years. The trend indicates that the Trust's education programs are raising awareness of individuals and businesses to the vulnerability of the river ecosystem and suggests an increasing level of care being taken to prevent pollution.

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.

The active public awareness program conducted during the major Cyanobacteria bloom in February 2000 negated a large number of algal bloom complaints at that time.

Year	Number of complaints
1994-95	151
1995-96	97
1996-97	96
1997-98	97
1998-99	86
5 year average	**103**
1999-00	82

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

	1998/99 Actual	1999/2000 Target	1999/2000 Actual
Cost/unit			
Cost of waterway monitoring and reporting per km^2 of catchment and waterway	$182	$294	$289
Average cost per project of research & development	$47 000	$268 000	$264 000

NR = not reported

The increased level of funding in 1999-2000 is due to the initiation of the Swan-Canning Cleanup Program (SCCP) Action Plan.

OUTPUT 2: Regulate riverside development

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

	1998/99 Actual	1999/2000 Target	1999/2000 Actual
Cost/unit			
Cost of development control policy and advice per km² of management area	$8 400	$6 100	$6 400
Average cost per development application assessed	$2 400	NR	$2 000

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.

	1998/99 Actual	1999/2000 Target	1999/2000 Actual
Cost/unit			
Average cost of production of management plan or strategy	$214 000	$51 000	$48 000

The reduced level of expenditure is due to the completion of developing the Swan-Canning Cleanup Program (SCCP) Action Plan. The main focus of expenditure for this program is now through Outputs 1 and 4.

OUTPUT 4: Protection of waterways and foreshores

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

	1998/99 Actual	1999/2000 Target	1999/2000 Actual
Cost/unit			
Cost of maintenance and restoration per km of foreshore	$3 600	$2 700	$2 500
Cost of waterway and foreshore protection per km² of management area	$2 400	$2 000	$1 900
Cost of water quality improvement projects per km² of waterway and catchment	NR	$960	$890

The cost of water quality improvement projects is a new measure reporting on the major cost of implementing the restoration initiatives of the Swan-Canning Cleanup Program (SCCP) Action Plan. The reduction in expenditure compared to the target is due to the delay in commencing some of the new projects.

FINANCIAL STATEMENTS

Auditor General

To the Parliament of Western Australia

SWAN RIVER TRUST
FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 2000

Scope
I have audited the accounts and financial statements of the Swan River Trust for the year ended June 30, 2000 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 Operating Statement, Statement of Financial Position and Statement of Cash Flows and the Notes to and forming part of the financial statements are based on proper accounts and present fairly in accordance with applicable Accounting Standards, other mandatory professional reporting requirements and the Treasurer's Instructions, the financial position of the Trust at June 30, 2000 and the results of its operations and its cash flows for the year then ended.

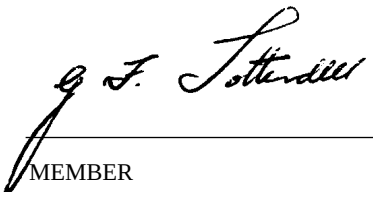
D D R PEARSON
AUDITOR GENERAL
November 8, 2000

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

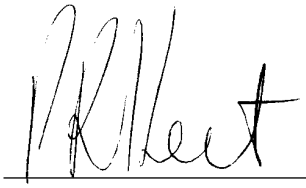
Certification of Financial Statements

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 twelve months ending 30 June 2000 and the financial position as at 30 June 2000.

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.



MEMBER



PRINCIPAL ACCOUNTING OFFICER

MEMBER

22 August 2000

DATE

OPERATING STATEMENT

For the year ended 30 June 2000

	Note	1999-00 ($)	1998-99 ($)
COST OF SERVICES			
Operating expenses			
Salaries and Wages		844,218	995,573
Interest		14,005	14,678
Depreciation	2	62,447	104,040
Grants & Contributions		320,402	23,181
Service Related Expenses	3	3,458,325	1,315,065
Goods & Materials	4	51,215	51,365
Other Operating Expenses	5	148,492	81,846
Total operating expenses		4,899,104	2,585,748
Revenues from services			
Commonwealth Grants and Contributions	6	57,250	27,000
Net Surplus on Sale of Non Current Assets	7	53,924	26,906
Other Operating Revenue	8	55,654	71,534
Total revenues from services		166,828	125,440
Net Cost of Services		**4,732,276**	**2,460,308**
REVENUES FROM GOVERNMENT			
Consolidated Fund - Recurrent Appropriation		5,138,000	2,315,000
Consolidated Fund - Capital Appropriation		110,000	0
Contribution from State Government Agency	9	71,200	0
Resources Received Free of Charge	10	16,600	7,821
Total revenues from Government		5,335,800	2,322,821
Change in Net Assets Resulting from Operations		**603,524**	**(137,487)**
Add			
Opening Balance of Accumulated Surplus		157,060	294,547
Closing Balance of Accumulated Surplus		**760,584**	**157,060**

STATEMENT OF FINANCIAL POSITION

As at 30 June 2000

	Note	1999-00 ($)	1998-99 ($)
CURRENT ASSETS			
Cash Resources	11	561,066	106,379
Accounts Receivable	12	6,872	6,494
Prepayments	13	592	608
Total Current Assets		568,530	113,481
NON CURRENT ASSETS			
Plant and Equipment	14	239,498	113,014
Land	14	280,000	280,000
Buildings	14	34,185	36,476
Total Non Current Assets		553,683	429,490
Total Assets		**1,122,213**	**542,971**
CURRENT LIABILITIES			
Accounts Payable	15	2,001	4,679
Accrued Expenses	16	42,549	16,956
Employee Entitlements	17	65,479	110,136
Developer Bond	18	0	4,250
Borrowings from WA Treasury Corporation	19	7,603	7,603
Total Current Liabilities		117,632	143,624
NON CURRENT LIABILITIES			
Employee Entitlements	17	67,238	57,926
Borrowings from WA Treasury Corporation	19	176,759	184,361
Total Non Current Liaibilities		243,997	242,287
Total Liabilities		**361,629**	**385,911**
Net Assets		**760,584**	**157,060**
EQUITY			
Accumulated Surplus		760,584	157,060
Total Equity	20	**760,584**	**157,060**

STATEMENT OF CASH FLOWS

For the year ended 30 June 2000

	Note	1999-00 Inflows (Outflows) $	1998-99 Inflows (Outflows) $
CASH FLOWS FROM GOVERNMENT			
Consolidated Fund - Recurrent Appropriation		5,138,000	2,315,000
- Capital Appropriation		110,000	0
Contributions State Government Agencies	9	71,200	0
Net Cash Provided by Government		5,319,200	2,315,000
Utilised as follows:			
CASH FLOWS FROM OPERATING ACTIVITIES			
Payments			
Payments to Employees		(873,346)	(1,001,192)
Payments to Suppliers		(3,624,734)	(1,436,870)
Grants & Contributions		(320,402)	(23,181)
Interest Paid to Treasury Corporation		(13,989)	(14,661)
Developer Bond		(4,250)	0
Receipts			
Other Receipts		55,276	74,043
Commonwealth Grants and Contributions		57,250	27,000
Net Cash Used in Operating Activities	21	(4,724,195)	(2,374,861)
CASH FLOWS FROM INVESTING ACTIVITIES			
Payments for Property, Plant and Equipment		(182,716)	(2,152)
Proceed from sale of Plant and Equipment		50,000	49,500
Payments associated with Sale of Equipment		0	(1,120)
Net Cash From Investing Activities		($132,716)	46,228
CASH FLOWS FROM FINANCING ACTIVITIES			
Repayment of Borrowings to WA Treasury Corporation		(7,602)	(7,434)
Net Cash Used in Financing Activities		(7,602)	(7,434)
TOTAL CASH FLOWS FROM OPERATING, INVESTING AND FINANCING ACTIVITIES		(4,864,513)	(2,336,067)
Net Decrease in Cash Held		**454,687**	**(21,067)**
Cash at the beginning of the reporting period		106,379	127,446
Cash at the End of the Reporting Period	11	**561,066**	**106,379**

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 preceding 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.

(a) Appropriations

Appropriations in the nature of revenue, whether recurrent or capital, are recognised as revenues in the period in which the Trust gains control of the appropriated funds. The Trust gains control of appropriated funds at the time those funds are deposited into the Trust's bank account. 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 Commission 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. 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. Annual leave loading has only been calculated on amounts accrued up to and including 31 December 1997.

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 1997, 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 payment 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 Swan River 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) Accounts Receivable

Accounts Receivable 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) Accounts Payable

Accounts Payable, 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. Accounts payable are generally settled within 30 days.

(i) Borrowings

Borrowings 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) Comparative Figures

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

	1999-00 ($)	1998-99 ($)
2. DEPRECIATION		
Buildings	2,290	2,290
Plant, Machinery and Equipment	60,157	101,750
	62,447	104,040
3. SERVICE RELATED EXPENSES		
Service related expenses include professional and non professional service contracts, chemical analysis, legal charges, consultants, advertising, and other service related expenses.	3,458,325	1,315,065
4. GOODS & MATERIALS		
Goods and materials include office supplies, library acquisitions, laboratory supplies, motor vehicle running expenses, utilities and other consumable equipment and materials.	51,215	51,365
5. OTHER OPERATING EXPENSES		
Other operating expenses include communication expenses, asset maintenance costs and other sundry operating expenses.	148,492	81,846
6. COMMONWEALTH GRANTS & CONTRIBUTIONS		
National Heritage Trust Fund	57,250	27,000
7. NET SURPLUS ON SALE OF NON CURRENT ASSETS		
Plant, Machinery and Equipment	53,924	26,906
Gross proceeds from disposal of assets	**50,000**	**49,500**
8. OTHER OPERATING REVENUE		
Sundry Revenue	55,654	71,534
9. CONTRIBUTION FROM STATE GOVERNMENT AGENCY		
Water and Rivers Commission Contribution to Swan River Algal Bloom Clean Up	71,200	0
10. 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	6,250	6,100
Treasury Department	0	296
Crown Solicitors Office	10,350	1,425
	16,600	7,821

	1999-00 ($)	1998-99 ($)
11. CASH RESOURCES		
Operating Account	561,066	106,379
12. ACCOUNTS RECEIVABLE		
Accounts receivable for goods and services supplied	6,872	6,494
The Trust considers the carrying amounts of accounts receivable approximate their net fair value.		
13. PREPAYMENTS		
WA Treasury Corporation	592	608
14. FIXED ASSETS		
Plant, Machinery and Equipment at cost	524,137	428,771
Less: Accumulated Depreciation	(284,639)	(315,757)
	239,498	113,014
Land at cost	280,000	280,000
Buildings at cost	43,725	43,725
Less: Accumulated Depreciation	(9,540)	(7,249)
	34,185	36,476
Total Written Down Value	**553,683**	**429,490**
Government Property Register Land is recorded on the Government Property Register at the following valuations performed by the Valuer General's Office: $230,000 "Hypothetical Alternate Land Value" and $92,000 "Current Use". The valuations are dated 1 July 1999.		
15. ACCOUNTS PAYABLE		
Accounts payable for goods and services received	2,001	4,679
The Trust considers the carrying amounts of accounts payable approximate their net fair values.		
16. ACCRUED EXPENSES		
Goods and Services	19,376	0
2% pay rise to be back dated to 29 May 1999	0	881
Members fees outstanding at 30 June 1999	0	4,576
Salaries owing for 6 working days at 30 June 2000	23,173	11,499
(1999 – 4 working days)	42,549	16,956

	1999-00 ($)	1998-99 ($)
17. EMPLOYEE ENTITLEMENTS		
Current Liability		
Liability for Annual Leave	46,315	73,215
Liability for Long Service Leave	19,164	36,921
	65,479	110,136
Non-Current Liability		
Liability for Long Service Leave	67,238	57,926
18. DEVELOPER'S BOND		
Developer bond	0	4,250
19. BORROWINGS FROM WA TREASURY CORPORATION		
Balance of Loan 1 July 1999	191,964	199,692
New Borrowings	0	0
	191,964	199,692
Less: Capital repayments	(7,602)	(7,728)
Balance of Loan 30 June 2000	184,362	191,964
20. EQUITY		
Opening Balance	157,060	294,547
Change in Net Assets resulting from operations	603,524	(137,487)
	760,584	157,060
21. RECONCILIATION OF NET CASH USED IN OPERATING ACTIVITIES TO NET COST OF SERVICES		
Net cash used in operating activities (Cashflow Statement)	4,724,195	2,374,861
Adjusted for:		
Increase/(Decrease) in Accrued Expenses	25,593	7,770
Increase/(Decrease) in Accounts Payable	(2,678)	3,586
Increase/(Decrease) in Employee Entitlements	(35,345)	(13,390)
(Increase)/Decrease in Accounts Receivable	(378)	2,509
(Increase)/Decrease in Prepayments	16	17
Resources received Free of Charge	16,600	7,821
Depreciation	62,447	104,040
Gain on Sale of Non Current Assets	(53,924)	(26,906)
Developer Bond (Decrease)	(4,250)	0
Net Cost of Services (Operating Statement)	4,732,276	2,460,308

22. REMUNERATION OF ACCOUNTABLE AUTHORITY

	1999-00 ($)	1998-99 ($)
The total fees, salaries and other benefits received or due and receivable for the financial year, by members of the accountable authority.	31,757	17,389

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:

	99-00	98-99
$ 0,000 - $10,000	3	3
$10,001 - $20,000	1	0

23. 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	1,399	776
Contributions to other superannuation funds	824	4,576
	2,223	5,352

24. REMUNERATION OF THE AUDITOR

External Audit (refer also note 10)	6,250	6,100

25. 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 1999-00 Budget Statements are provided at note 32 b) with comparisons to actual results.

26. CAPITAL COMMITMENTS

The Trust has no capital commitments at 30 June 2000.

27. CONTINGENT LIABILITIES

The Trust has no contingent liabilities at 30 June 2000.

28. EVENTS OCCURRING AFTER REPORTING DATE

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

29. DISCLOSURE OF WRITE OFFS AND LOSSES

Accounts receivable	2,663	0
Losses through theft, fraud and other causes	0	0
	2,663	0

30. RELATED AND AFFILIATED BODIES

The Swan River 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.

31. 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 1999-00	Non interest bearing 1998-99	Total 1999-00	Total 1998-99
		1 year or less	1 to 5 years	Over 5 years				
	%	$'000	$'000	$'000	$'000	$'000	$'000	$'000
ASSETS								
Operating Account					561	106	561	106
Accounts Receivable					7	6	7	6
Prepayments					1	1	1	1
Total Financial Assets					**569**	**113**	**569**	**113**
LIABILITIES								
Accounts Payable					2	5	2	5
Borrowings from WATC 99-00	7.3%	8	35	141			184	
Borrowings from WATC 98-99	7.33%	8	32	152				192
Accrued Expenses					43	17	43	17
Developer Bond					0	4	0	4
Employee Entitlements					133	168	133	168
Total Financial Liabilities 99-00		**8**	**35**	**141**	**178**		**362**	
Total Financial Liabilities 98-99		**8**	**32**	**152**		**194**		**386**
Net Financial Assets (Liabilities) 99-00		**(8)**	**(35)**	**(141)**	**391**		**207**	
Net Financial Assets (Liabilities) 98-99		**(8)**	**(32)**	**(152)**		**(81)**		**(273)**

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:

	1999-00 $	1998-99 $
Western Australian Government agencies	1,717	3,831
Government agencies of other jurisdictions	30	0
Private Sector	5,125	2,663
Total	**6,872**	**6,494**

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.

32. 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.

	Note	1999-00 Actual $	1998-99 Actual $	Variance $	Variance %
Operating Expenses					
Salaries and Wages	1	844,218	995,573	(151,355)	(15)%
Interest		14,005	14,678	(673)	(5)%
Depreciation		62,447	104,040	(41,593)	(40)%
Grants and Contributions	2	320,402	23,181	297,221	1282%
Service Related Expenses	3	3,458,325	1,315,065	2,143,260	163%
Goods and Materials		51,215	51,365	(150)	0%
Other Operating Expenses	3	148,492	81,846	66,646	81%
Total Expense		**4,899,104**	**2,585,748**	**2,313,356**	89%
Revenues					
Commonwealth Grants and Contributions		57,250	27,000	30,250	112%
Net Surplus Sale of Non Current Assets		53,924	26,906	27,018	100%
Other Operating Revenue		55,654	71,534	(15,880)	(22)%
Total Revenues		**166,828**	**125,440**	**41,388**	33%
Net Cost of Services		**4,732,276**	**2,460,308**	**2,271,968**	92%

Explanation of Variances

1. Salaries and Wages

During 1998-99 Salaries and Wages included time spent by Water and Rivers Commission staff members working on Swan River Trust projects. In 1999-00 (and future years) the use of Water and Rivers Commission staff has been (will be) treated as the purchase of services under the category of Service Related Expenses.

2. Grants and Contributions

The major factors contributing to the increase in this expenditure category were grants to community catchment groups totalling $195,000 and grants to community groups for river restoration works totalling $100,000.

3. Service Related Expenses and Other Operating Expenses

The increase in expenditure in these categories is as a result of increased budget allocations from Government. Funding was increased for the 1999-00 period to allow for the Swan-Canning Cleanup Program. A lot of this expenditure is reflected under service related expenditure as some projects were performed by the Water and Rivers Commission who re-couped expenditure for services provided.

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.

	Note	1999-00 Actual $'000	1999-00 Estimate $'000	Variance $'000	Variance %
Output					
Collect water information to support state planning, agencies and community		1,931	2,056	(125)	(6)%
Regulate riverside development		442	422	20	4%
Management plans		143	158	15	(9)%
Protection of waterways and foreshores	1	2,384	2,637	253	(10)%

Explanation of Variances

1. Protection of Waterways and Foreshores

Funding for this output was increased significantly in 1999-00 for the Swan-Canning Cleanup Program. Some of the projects initiated for this program are still in progress and funding has been carried over to the next period resulting in underspending in the current period.

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 newly adopted Swan River Trust Code of Conduct 2000. Individual Board members declared a conflict of interest on eight occasions when considering matters before the Board, and did not vote on those occasions. This included: Geoff Totterdell (1), Noel Robins (3), Jeff Munn (1), Tim Mather (1) and Kim Stone (2).

Freedom of Information

The Trust received two applications for information under the provisions of the Freedom of Information Act 1992. Of these, one was given edited information and one was withdrawn. Fees and charges totalling $162 were received for the processing of these applications.

Advertising and Marketing

Expenditure incurred by the Swan River Trust during 1999-2000 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 $1500
Advertising agencies	$14 751.62	Marketforce Productions
Direct mail organisations	$2 700.00	Progress Printers & Distributors
TOTAL EXPENDITURE	**$17 451.62**	

Two Year Plan for Women

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

Disability Services Plan

The Swan River Trust has a close relationship with the Water and Rivers Commission. The philosophies of the Trust and Commission are very similar and their functions complementary.

The Commission continued to work towards providing appropriate services and facilities for stakeholders who have disabilities. A ‘Disability Access Audit’ was undertaken in August 1999. This report identified all physical and sensory barriers to the Commission’s building in the Hyatt Centre which also houses the Swan River Trust.

Further improvements to facilities are planned and continuing efforts will be made to cater for all of our stakeholders who have disabilities.