SWAN RIVER TRUST

ANNUAL REPORT 1998 - 99

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SWAN RIVER TRUST

Hon. Dr Kim Hames, MB, BS, JP, MLA

Minister for Housing, Aboriginal Affairs, Water Resources

To the Hon. Dr Kim Hames, MB, BS, JP, MLA

Minister for Housing, Aboriginal Affairs, Water Resources

In accordance with Section 66 of the Financial Administration and Audit Act 1985, the Swan River Trust's draft Annual Report for the year ended 30 June 1999 is submitted for your consideration prior to presentation to Parliament.

The annual report has been prepared in accordance with the provisions of the Financial Administration and Audit Act 1985.

I wish to record my appreciation of the outstanding efforts of staff members who have contributed towards the Swan River Trust's achievements during the past 12 months.

Geoff Totterdell

CHAIRMAN

28 August 1999

Contents

Operations Summary

Swan-Canning Cleanup Program

AIMS

To provide an Action Plan and implementation strategy to reduce nutrient input, reduce the incidence of nuisance algae blooms, improve community awareness and involvement and help improve the ecological health of the Swan-Canning river system.

ACHIEVEMENTS

- The Draft Action plan was released in July 1998. A Community Forum was held and over 40 briefings were provided to government agencies, catchment management, community and recreational groups.
- The Premier announced funding for the SCCP Action Plan totalling $14 million over five years beginning in 1999-2000.
- Alcoa provided $1.25 million over five years for the Swan-Canning Urban Landcare Program for catchment and foreshore restoration work by community catchment groups.
- Successful use last summer (97/98) prompted a second oxygenation trial to be conducted in the Canning River. The technique was found to reduce nutrient levels in the bottom water.
- Sediment remediation trials were scaled up and conducted in partnership with the CSIRO in Lake Monger and in the Canning River. These trials were so successful that a commercial partner is now being sought so that cost-effective quantities can be tested in large-scale trials.
- In recognition of the effort and success of the SCCP Action Plan in providing for the future of Western Australia, the program and Action Plan were selected as a finalist in the Premier's Award in November 1998.

FUTURE DIRECTIONS

- Proceed with the implementation program for the Action Plan.
- Undertake large scale oxygenation and sediment remediation trials in the Swan-Canning river system.

Water Information

AIMS

To understand the Swan-Canning river system and to establish environmental standards to maintain the environmental quality.

ACHIEVEMENTS

- Continued monitoring water quality and ecosystem health in streams and estuaries of the Swan-Canning river system.
- Continued monitoring phytoplankton activity in the Swan and Canning rivers and providing information to the community.
- Provision of monitoring data for use in reporting progress of the Swan-Canning Cleanup Program to the WA community.

FUTURE DIRECTIONS

- Increase our knowledge of the factors contributing to the phytoplankton blooms in the Swan and Canning rivers.

Regulating Riverside Development

AIMS

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

ACHIEVEMENTS

- A review of the Management area boundaries has been completed.
- The first stage of the review of Swan River Trust policies has been completed. Several new policies were prepared dealing with signage around the river foreshore, boardwalks, fuel tanks and operation of floatplanes in the management area.
- The Trust adopted a policy in relation to commercial houseboats that allows for a five year trial of five hire and drive houseboats on the river, restricted to operating upstream of the Causeway.
- The precinct policy plan began with the preparation of a statement of key principles and the instigation of two pilot projects for the foreshore between Fremantle Bridge, Point Walter and Chidley Point Reserve and a stretch of river in the Shire of Swan between Ellenbrook and Bells Rapids.
- Precinct planning project to be continued as a joint project between SRT, the WA Planning Commission and local government.

FUTURE DIRECTIONS

- Implement recommendations in the review of clause 30A of the Metropolitan Regional Scheme to streamline development assessment process.

Management Planning

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

- Facilitated the completion of the Upper Canning/Southern Wungong catchment management plan. Contributed funding to the demonstration nutrient and wastewater recycling system at the Gladalan Nursery, Armadale. The system is designed to reduce nutrient losses the Southern River.
- Swan River Management Strategy implementation audit completed.
- Sir James Mitchell Park management plan will be finalised early next year.
- Freshwater Bay Management Plan completed.

- Complete preparation of the Comprehensive Management Plan for the Swan and Canning Rivers Environmental Protection Policy.
- Complete the Sir James Mitchell Park management plan.

Protection of Waterways and Foreshores

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

- 33 public beaches and 146 km of foreshores of the Swan and Canning rivers were regularly cleaned and maintained.
- 60 tonnes of sand were provided to the City of Canning to restore beaches on the Canning River. The Trust also removed 45 tonnes of concrete debris from the river along the Sir James Mitchell Park shoreline and planted the area with 1000 reeds.
- Erosion control works were undertaken by the Swan River Trust to protect riverbanks and trees along a 35 metre section of foreshore in Bassendean.
- Released report on the 'Airconditioner Wastewater Disposal Study'. As a result the Trust is working with the Water Corporation and Department of Environmental protection to ensure that wastewater containing chemicals from new airconditioning systems in the Perth CBD are discharged to the sewer system.
- As an extension of the Industrial Survey, the Trust completed a survey of the environmental management practices of yacht clubs and marinas adjacent to the Swan River.
- The Pollution Response Plan was reviewed during the year
- Finalised development of a partnership agreement with the Department of Transport on the management of boating activities and facilities on the Swan and Canning rivers.

- 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.
- Complete industry survey and assist local government and industries to develop pollution prevention plans.

Community Awareness and Involvement

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

- Distributed regular Riverview newsletter to key stakeholders
- Distributed Riverside Residents Newsletter to 50 000 homes adjacent to the Trust's management area.
- The Trust updated its Internet site and is online at http:\\www.wrc.wa.gov.au/srt.
- The Swan-River Education Kit was released. The kit provides a framework for ways to study the river environment across the primary and secondary school curricula.
- A community perception survey was conducted to assist in developing long-term plans for protection and management of the waterways and shorelines that make up the SRT management area and to provide information for the Trust's annual Performance Indicators.

- Telephone survey of riverside residents to be conducted to gauge community perception and expectation regarding the use and health of the Swan-Canning river system.
- Continue distribution of information to key stakeholders and river users.
- Commence implementation of the Swan-Canning Cleanup Program Communication Plan.

CHAIRMAN'S REPORT

GEOFF TOTTERDELL
Chairman

The year has been both busy and exciting with a number of achievements, the most significant being the completion of the Swan-Canning Cleanup Program (SCCP) Action Plan. The draft Action Plan was released by the Minister for Water Resources in July 1998. A community forum followed and over 40 briefings were provided to government agencies, catchment management, community and recreational groups.

In April 1999 the Premier announced funding for the SCCP Action Plan totalling $14 million over five years beginning in 1999-2000. The Plan was officially released by the Minister on the 10 June 1999.

The Action Plan represents the first significant and explicit opportunity for a whole-of-government, community and industry approach to owning and managing the problems of the Swan-Canning river system. It also offers unique opportunities for corporate and federal funding partnerships. The Plan will be an investment for the future as it restores the ecological health of the system and ensures it remains strong enough to cope with the increases in future demands as the city grows.

As well as the production of the Action Plan, there has been a tremendous amount of work "on the ground".

Successful trials of river intervention techniques have provided the basis for a river intervention "toolbox". No other program working on estuaries in Australia is developing these techniques or has progressed the two most promising techniques, sediment remediation and oxygenation, to the level that SCCP has. Both methods are now being scaled up to an operational level from field trials. These tools will work well for Swan-Canning conditions and other estuaries in the South West of Australia.

Activity in the catchments has continued successfully this year. The Upper Canning/Southern Wungong Catchment Management Plan was released and the Ellen Brook Integrated Catchment Group (EBICG) released a draft catchment management plan for public comment.

There are now over 85 community and environmental groups working towards improving the catchment, bushland and waterways environments. These groups are sustained by thousands of volunteers throughout the greater metropolitan region. There is now a multitude of projects large and small along rivers and streams, in wetlands and bushland throughout the catchment restoring the natural balance and functions.

These projects are funded from many sources including; state and federal government grants, public funding bodies, local government and the private sector. I would like to take this opportunity to thank all the volunteers and organisations and agencies that support them. Without this community approach the management goals cannot be achieved. I also commend the entry of Alcoa into this effort as a major sponsor.

The Swan and Canning Rivers Environmental Protection Policy (EPP) establishes a role for the Trust to influence catchment management beyond the management area to achieve the water quality targets for the rivers. The EPP requires a Comprehensive Management Plan to be prepared. This plan will provide an integrating framework for the Action Plan to improve conditions in the river.

The Environmental Protection Authority delegated the responsibility to prepare the Comprehensive Management Plan (CMP) to the Swan River Trust. The CMP has to be provided to the Minister for the Environment by 1 December 1999. The Trust was not able to start the Plan until June 1999 so meeting the December deadline will be challenging.

During the year the Trust began undertaking a review of its planning and development policies. As the policies have been revised they have been sent to local government and the Ministry for Planning for

comment. Once all of the policies have been through this process they will be made available for public comment before being adopted by the Trust.

The Trust and the WA Planning Commission are jointly undertaking the development of a policy plan for guiding town planning and development around the foreshores of the rivers. This is an ambitious project that will play an important role in the future management of the rivers and their surrounds. The project team will work closely with local government and other key stakeholders to achieve this. The project provides a good opportunity for local government to directly influence the future management of the rivers.

The Trust completed an assessment of environmental management practices at yacht clubs and marinas around the Swan and Canning rivers, particularly for boat maintenance on slipways and hard stand areas, storage and disposal of sump oil, bilge water and other wastes. It showed that while some clubs were addressing these issues, many were not and some practices posed an unacceptable environmental risk to the river. As a result of these findings the Trust is seeking to establish a working group with representatives of yacht clubs, marinas and the departments of Environmental Protection and Transport to develop environmental management plans for yacht clubs and marinas. I am sure this will greatly reduce the risk to the rivers from incidents such as the ruptured oil tank at East Fremantle last year.

A survey of yacht clubs has also commenced to gain an understanding of the range of vessels using club facilities, occupancy rates, and waiting lists. The survey will include any future plans clubs may have for upgrading or expansion of facilities. The survey will assist the Trust in assessing development applications made by clubs by providing a picture of the boating scene on the rivers. While this is a "snapshot" survey it will be a very valuable exercise until a more comprehensive recreation study can be done in the future.

Balancing development, including the need to provide facilities for the diversity of people's recreational use of the rivers, whilst maintaining the natural features of the rivers and protecting the ecosystem is a complex and difficult task. Consideration and the refusal of the two proposals to operate float plane flights from Perth Water illustrate this well.

The Trust received recognition for a number of projects this year. A highlight for the year was the Trust and Water and Rivers Commission being awarded a certificate as a finalist in the Premier's Award for Excellence in the Public Service for the Swan-Canning Cleanup Program (SCCP) draft Action Plan.

The Swan River Trust was awarded a bronze Lonnie Award for the standard of its 1997-98 Annual Report.

The Trust has long been concerned about the invasion of exotic weeds and aquatic plants along the riverbanks and in the waterways. Salvinia was successfully removed from the Canning River in the 1970's and Hydrocotyle in the mid 1990's. Both these species completely choked up the middle reaches of the Canning River. Over the years there has been a steady invasion of weeds along the rivers' banks.

The Trust has prepared a strategy to replace foreshore weeds with native vegetation starting with the giant rush or 'bamboo'. A pilot project was successfully undertaken at Claremont this year. A work for the dole program managed by Westrek is continuing this work. Local government is also supporting the program. This program is the beginning of a long-term commitment to control weeds. It will take many years and is dependent on support from local government and the community.

There was a change to the Trust membership during the year. The Minister appointed Mr Tim Mather as a new community member.

All in all, it's been a very busy year and I offer my thanks to the members of the Trust and to all staff for their valuable contributions. It is their combined expertise and commitment that enables the Trust to work towards its vision of managing the Swan River system for all Western Australians.

Geoff Totterdell

Chairman

MISSION

The Swan River Trust works with the community to ensure that the Swan and Canning river system is conserved and managed to enhance and maintain its environmental quality and public amenity.

VISION

The Trust's vision of the future sees the Swan-Canning river system as the cherished lifeblood of Perth, a healthy, functional river and estuary environment.

Its waters and foreshores should be clean and unpolluted. Wildlife and birds should populate numerous natural areas along its length. Fish, waterbirds and other organisms native to the river system should exist in viable populations. The river environment should display a variety of visual landscapes, planned and coordinated to provide opportunities for recreation, commercial development and conservation, presenting natural areas as a relief from the built up environment of the city and its suburbs.

Residents of and visitors to the Perth metropolitan area should have ready access to most of the rivers' foreshore areas for walking, cycling and canoeing. Activities with low impact on the environment, such as swimming, wading and yachting, should be available in many areas. Activities with a significant impact on the environment and development abutting the waterway and foreshores should be in harmony, restricted to a limited, planned number of well-controlled sites.

Where development abuts the foreshore, its visual impact should be minimal and designed to complement the environment and enhance vistas to and from the waterway. Commercial and transportation uses of the rivers should be encouraged in specified areas, providing their use is sustainable and has no negative impact on the waterways' aesthetic appeal, water quality, habitats or ecosystems which are identified and to be conserved.

In the upper reaches of the river system, enhancement of the natural environment will be most significant, whereas the lower reaches will have more activity nodes. Activity nodes should be linked by a variety of access modes which are in keeping with the natural environment. Planning must ensure that extensive areas retain a rural character, with development further away from the river banks than in the lower reaches.

Strategies for specific areas of the Swan-Canning system should be implemented as described in the document "Swan River Management Strategy" and further developed in the Trust's working plans. Management plans agreed to by the community will be prepared for the whole river system and implemented jointly by government and the community.

The Trust should be recognised as an innovative and consultative body, leading associated groups and agencies in ensuring a balanced environment in the Swan-Canning system, without undue emphasis on controlling mechanisms. Local government authorities should take the initiative in providing public facilities and access to the river foreshores in their areas. The local community will play an active role in conserving the river environment.

Issues affecting the Swan-Canning river system should be dealt with in an integrated manner through coordination between the community and local and State government agencies concerned with those waterways. The community and those government agencies should have a high degree of awareness of issues relating to the river environment.

About The Swan River Trust

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

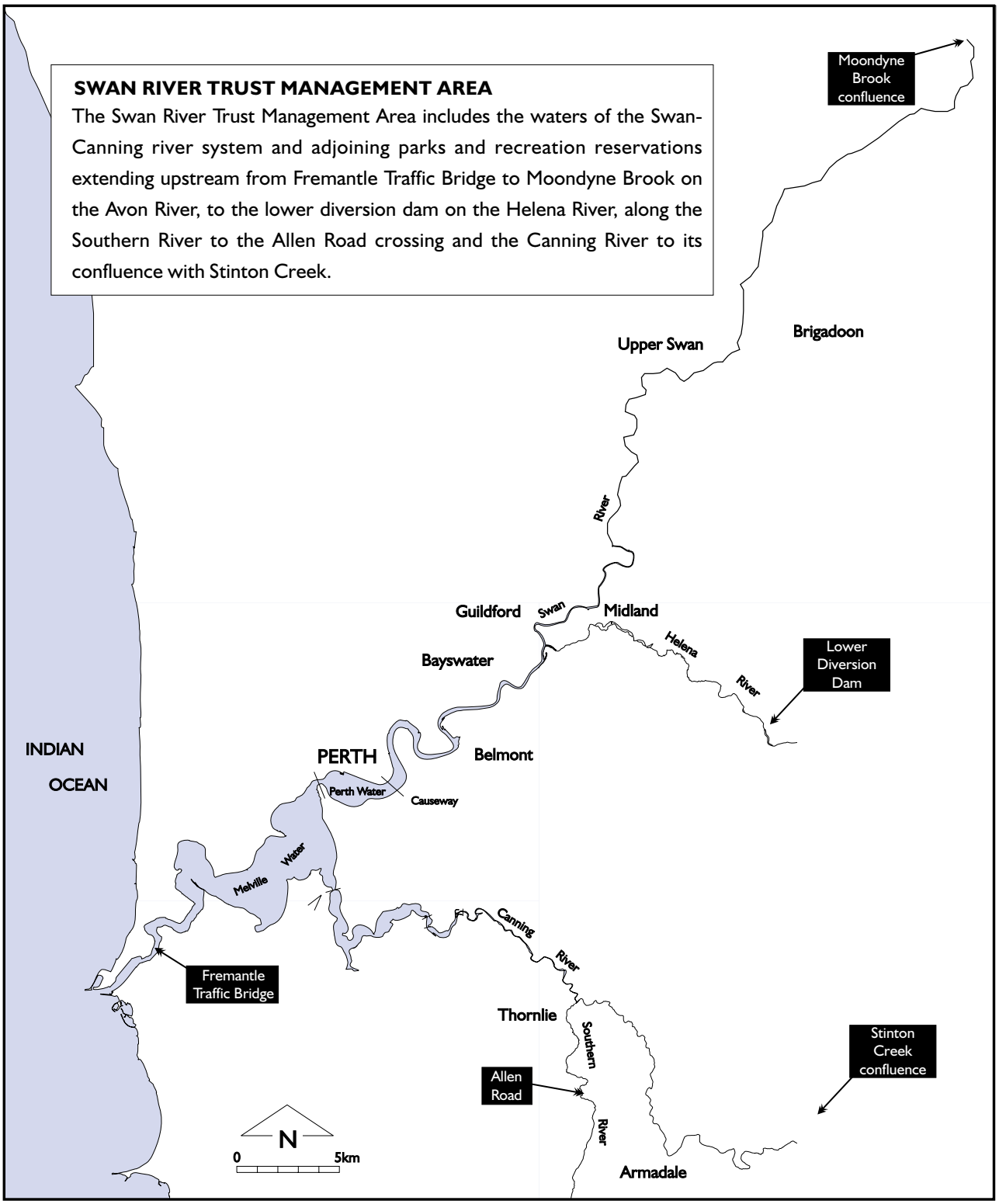
The Trust supports the development of management plans for sensitive parts of the river system and provides advice to the Minister, the Western Australian Planning Commission and local governments to guide the development of one of Perth's most precious natural features. It works with local government and landowners to control shoreline erosion. It also works to prevent pollution, clean up contamination and keep the waterways and shorelines clear of rubbish.

To manage the health of the waterways the Trust maintains a water quality monitoring program and undertakes investigations to develop strategies to deal with the causes of environmental problems.

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

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

The Swan River Trust provides leadership in planning, managing and protecting the river system, but every member of the community has a part to play in protecting their heritage and making sure the waters and shorelines of the Swan and Canning rivers continue to sustain the city.


SWAN RIVER TRUST MANAGEMENT AREA
The Swan River Trust Management Area includes the waters of the Swan-Canning river system and adjoining parks and recreation reservations extending upstream from Fremantle Traffic Bridge to Moondyne Brook on the Avon River, to the lower diversion dam on the Helena River, along the Southern River to the Allen Road crossing and the Canning River to its confluence with Stinton Creek.
Moondyne Brook confluence
Upper Swan
Brigadoon
Swan River
Guildford
Midland
Bayswater
Helena River
Lower Diversion Dam
INDIAN OCEAN
PERTH
Belmont
Perth Water
Causeway
Melville Water
Canning River
Fremantle Traffic Bridge
Thornlie
Southern River
Allen Road
Stinton Creek confluence
N
0
5km
Armadale

Trust Membership

To achieve its mission, the Trust brings together key groups of people to coordinate the activities of community, local and State government groups concerned with the Swan-Canning river environment. This integrating role is critical to successful planning and management.

The Swan River Trust has eight members including:

- a Chairman appointed by the Minister
- a board member of the Water and Rivers Commission
- nominees of the Ministers for Planning, Transport and the Coordinator of Water Services
- a representative of the Local Government Association
- two independent members who represent the community.

An additional member may be nominated by a particular local government authority when a development affecting its area is being considered. That person is a full voting member of the Trust for that development. To improve communication and the involvement of local government, the Trust regularly invites local government representatives to its committee and other meetings.

L-R back Jeff Munn,Noel Robins,Barry Sanders,Pat Hart, Tim Mather. Front Geoff Totterdell, Dr Michael Paul
Absent when photo taken: Ray Stokes

Trust Members

Mr Geoff Totterdell B.Com, FCPA, CD
Chairman

Mr Totterdell was appointed Chairman of the Swan River Trust in August 1994. He has been an active river user since his childhood having been involved in swimming, fishing, canoeing, power boat time trialing and yachting.

Geoff holds a Bachelor of Commerce degree from the University of Western Australia. He is a Fellow of the Australian Society of Certified Practising Accountants and is a Partner of the firm PricewaterhouseCoopers.

Mr Noel Robins
Deputy Chairman, Water and Rivers Commission Board Member

Mr Robins was Commissioner for Waterways (Western Australian Waterways Commissioner) from 1979 to 1995. His extensive experience in river and estuary management has included chairing the Government Canal Development Steering Committee. He played a lead role in the creation of the Swan River Trust and also in establishing community-based management authorities to tackle environmental problems in the Albany waterways, Wilson Inlet and the Avon River. Mr Robins is a board member of the Water and Rivers Commission.

Cr Jeff Munn
Nominee of Local Government Association of Western Australia

Councillor Jeff Munn has been a member of the Trust since 1997. He was a Senior Engineering Surveyor with the Water Authority of WA. He is now a tutor in surveying at TAFE.

As an elected councillor, he has served 17 years on local government, with the City of Armadale. During this time he has been a member of financial and general purpose, technical services, health and building, and development services management committees. He is currently Deputy Mayor. Councillor Munn chaired the Settlers Common Advisory Committee and was a member of the Urban Water Management Committee and the Forrestdale Planning Advisory Committee.

Mrs Pat Hart
Community Representative

Mrs Pat Hart has been a Swan River Trust member since 1997 and chairs the Swan Catchment Council. She is a retired business proprietor and has over the past 30 years been involved with many and varied community organisations in rural and urban communities. As an elected councillor she served on local government with the City of Armadale for four years and was Deputy Mayor from 1993 to 1996.

Her interest and involvement with the Swan and Canning rivers spans many years and includes being a member of the Upper Canning/Southern Wungong Advisory Committee, chair of the Canning Catchment Group, and co-chair of the Swan/Avon Integrated Catchment Management Co-ordinating Committee. Mrs Hart is also a member of the Swan Canning Cleanup Program Taskforce.

Dr Michael Paul BE, MSc(Eng), PhD, MIEAust
Nominee of Minister for Transport

Dr Mike Paul has been the Minister for Transport's representative on the Swan River Trust since 1988. Dr Paul currently holds the position of Executive Consultant, Maritime Division, Department of Transport.

Dr Paul has primarily been working with the Department for Resources Development on the possible future port at Oakajee.

Dr Paul has also managed the projects being jointly undertaken by the Swan River Trust and Transport, in addition to providing technical advice on key projects such as future development of the Batavia Coast Marina at Geraldton.

Mr Barry Sanders BE, DipTRP, FIE Aust, MAWWA, MWEF, MAPWA, CIT.WA

Nominee of Coordinator of Water Services

Mr Sanders is General Manager of the Bulk Water and Wastewater Division at the Water Corporation and has been a member of the Swan River Trust and its predecessor since 1982. As well as providing the link with the water services activities in and around the river, he has made a major contribution towards pollution control and the elimination of virtually all industrial discharges to the river system.

Mr Ray Stokes Dip.TP (Nottingham), Dip.TD. (Liverpool), M.R.A.P.I.
Nominee of Minister for Planning

Mr Stokes is a qualified town planner and member of the Royal Australian Planning Institute. He is currently Senior Manager, Policy and Legislation, with the Ministry for Planning. His experience spans both State and local government and includes strategic planning, statutory planning and policy formulation both in Western Australia and the United Kingdom.

Dr Tim Mather BVSc MAICD Dip MAVA
Community Representative

A new member to the Trust Board Dr Mather was appointed in September 1998. An owner/manager of Dymocks Booksellers Claremont and retired Veterinarian he brings a wealth of experience in environment and human/animal ecosystem relationships. His training includes business and financial management and architectural studies. A graduate of the Outward Bound School he is also a regular user of the river in rowing and yachting sporting activities.

Swan River Trust

Board Meeting Dates 1998-1999

Month	River Management	Assessment and Policy	Swan River Trust Board
July 98	Wednesday 8	Monday 6	Tuesday 21
August 98	Wednesday 5	Monday 3	Tuesday 18
September 98	Wednesday 2	Monday, 31 August	Tuesday 15
October 98	Wednesday 7	Monday 5	Tuesday 20
November 98	Wednesday 4	Monday 2	Tuesday 17
December 98	Wednesday 2	Monday, 30 November	Tuesday 15
January 99	-	-	Tuesday 19
February 99	Wednesday 3	Monday 1	Tuesday 16
March 99	Wednesday 3	Tuesday 1	Tuesday 16
April 99	Wednesday 7	Tuesday 6	Tuesday 20
May 99	Wednesday 5	Monday 3	Tuesday 18
June 99	Wednesday 3	Monday, 31 May	Tuesday 15

Accountability and Independence

The Board operates within the guidelines of the *Swan River Trust Act 1988*. The Board also operates in accordance with the *Public Sector Management Act 1995* and the Swan River Trust Meeting Procedures (1996).

Performance and Monitoring

Written, monthly reports on the Trust's activities and financial statements are provided 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.

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).

Freedom of Information

The Trust received one application for information under the provisions of the Freedom of Information Act. This application was provided with edited information and is still in process. Fees totalling $30 were received for the processing of this application.

Ministerial Directions

Under Section 7 (3) of the *Swan River Trust Act 1988* the Minister may give directions with respect to the performance of its functions, either generally or with respect to a particular matter, the Trust shall give effect to these directions.

No direction was given by the Minister during the period in review.

Year 2000 Compliance

The Manager of the Trust is on a Water and Rivers Commission steering committee that has been assessing the organisation's compliance with year 2000 requirements and preparing a strategy to upgrade systems that do not comply.

Organisational Structure

The Swan River Trust maintains a core staff unit of about 18 and receives further administrative and technical support from staff of the Water and Rivers Commission.

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

The Assessment and Policy Section provides advice on and evaluates development applications within and next to the management area. Staff are involved in regular consultation with developers, local councils and other government agencies whose activities impact upon the health and amenity of the Swan and Canning rivers. This Section also prepares draft policies for the Trust.

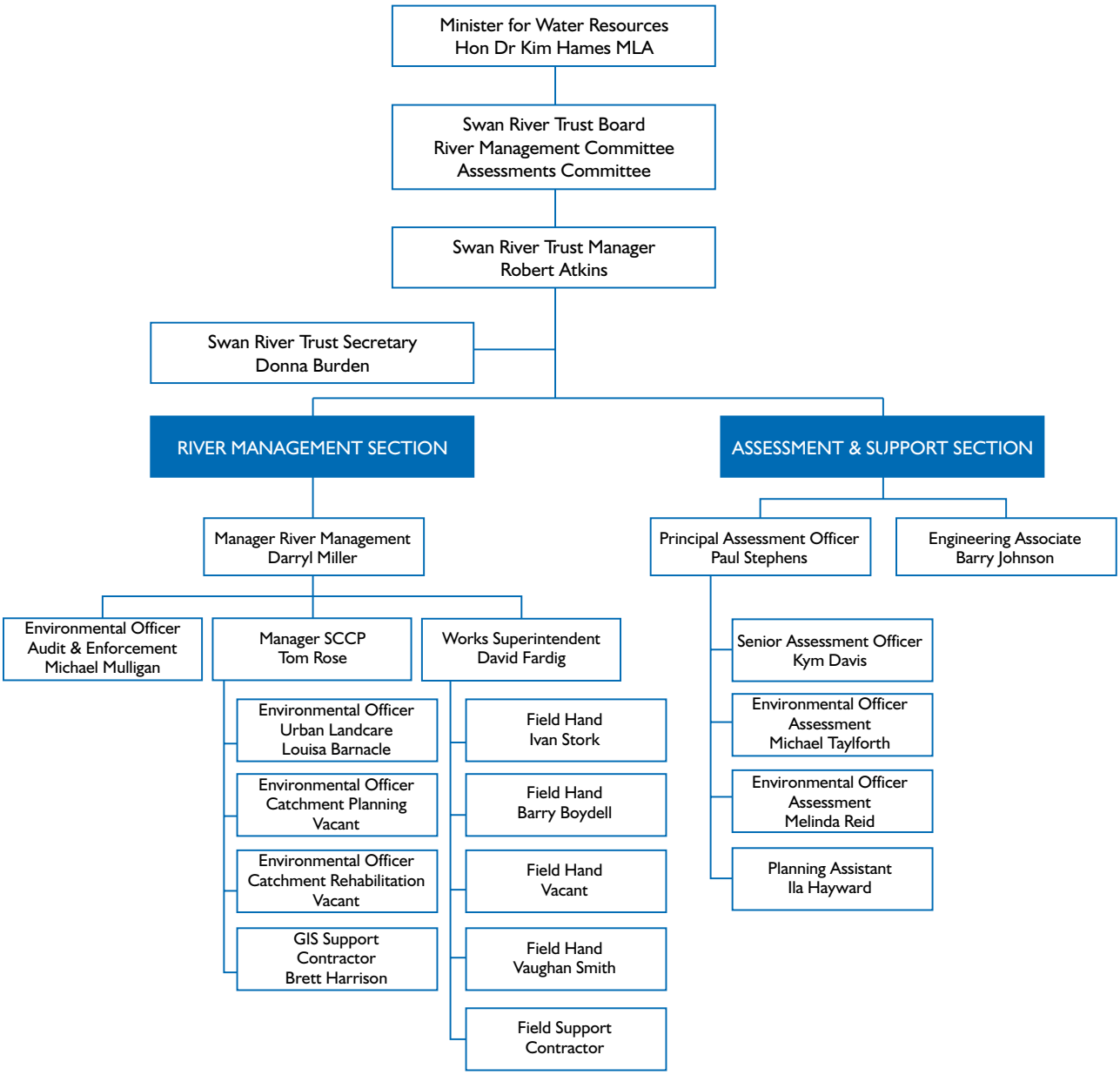
The River Management Section provides on-the-ground direction for erosion control, foreshore and waterway maintenance, pollution control and logistical support for research activities. The Section works closely with local councils undertaking foreshore works and with the Department of Transport in relation to management of jetties, moorings and boating activities on the rivers.

The Trust has a field crew on the river providing a wide variety of services to the public, local government and research institutions. These services include regular removal of litter and water weed from beach cleaning, removal of navigation hazards such as sunken boats and fallen trees, water sampling for the Trust's water quality monitoring program and river walling maintenance.

The Section also supports the development of catchment and foreshore management plans, environmental investigations monitoring, audit and enforcement and research.

Back row from left - Brett Harrison, Vincent D'Souza, David Fardig, Michael Taylforth, Donna Burden, Vaughan Smith, Robert Atkins, Ivan Stork, Rainer Kellen, Ila Hayward, Louisa Barnacle. Front row from left - Rita Sputore-Kellor, Nicola Vinicombe, Paraat Punyindu, Tom Rose, Marie Andersson, Darryl Miller

Swan River Trust Structure and Core Staffing 1998/99



Seasonal changes in rainfall and salt movement provide a context in which to discuss phytoplankton and macroalgae occurrences. This annual report focuses on the Swan River. Next year's report will include details of the Canning River.

SALT WEDGE AND STRATIFICATION

Seasonality is the dominating feature of the hydrology of the estuary due to the pattern of rainfall and runoff. During the summer months when the freshwater runoff is low, the upper estuary is brackish with a salinity gradient along its length. The salinity of the middle and lower estuary are close to that of the ocean. Occasionally, the salinity could exceed that of the ocean due to high evaporation.

During the winter months, the upper estuary is fresh and the middle and lower estuary are generally brackish. In a winter of high river flow, which may occur once every 10 years (however, the last flood was in 1971) the whole estuary is fresh, to a depth of about five metres. Under such conditions the deep saline water of the basin does not mix with the surface water and becomes deoxygenated. This is alleviated when river flow decreases and there is an intrusion of saline water from the ocean. The saltwater moves up the river as a wedge under the freshwater, bringing saline, nutrient-poor water, often with lower oxygen concentrations than the surface water

Figures 1 to 4 illustrate this movement by showing salinity and the associated oxygen levels. Figure 1 shows the position of the salt wedge on 5 October 1998. The fresher water still present in the Upper Swan can be seen lying over the saltier marine water, before moving upstream. The low oxygen (anoxia) associated with the saline bottom water is shown in Figure 2.

Figures 1 to 4 show depth (m) on vertical scale and distance upstream from Fremantle (km) on the horizontal.

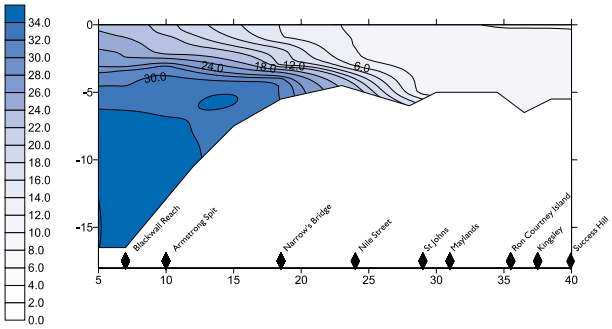


Figure 1. Salinity (ppt) of Swan River from Fremantle to Success Hill, 5 October 1998. It can be seen that the fresh water still present in the Upper Swan is lying over the saltier marine water.

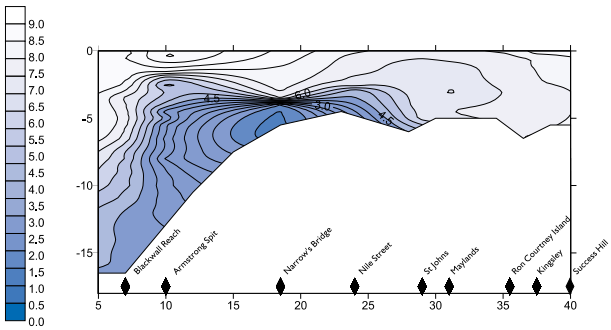


Figure 2. Oxygen concentration (mg/L) of water of Swan River from Fremantle to Success Hill, 5 October 1998. The low oxygen is associated with the saline bottom water.

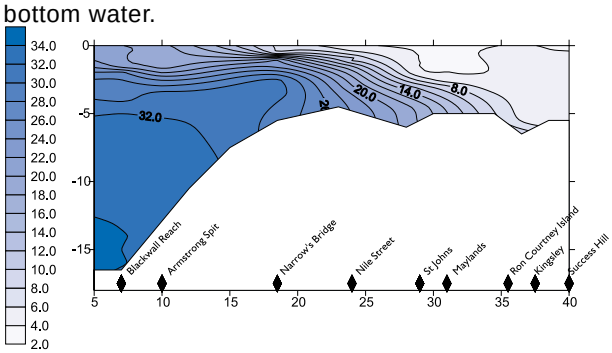


Figure 3. Salinity (ppt) of Swan River from Fremantle to Success Hill, 8 October 1998. It can be seen that the fresh water still present in the Upper Swan is lying over the saltier marine water.

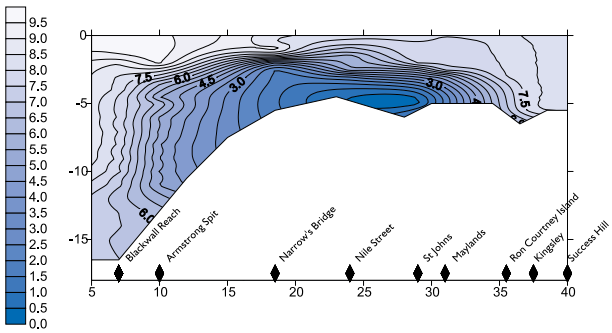


Figure 4. Oxygen concentration (mg/L) of water of Swan River from Fremantle to Success Hill, 8 October 1998. The low oxygen is associated with the saline bottom water.

It can be seen from Figure 4 that as the salt wedge moves upstream (Figure 3), the zone of anoxic water also moves upstream. The area from Fremantle to Blackwall reach is well mixed with high oxygen greater than 7 mg/L to the bottom as shown by the vertical contour lines. The high concentration of both salinity and oxygen contour lines at the narrows (18kms) shows how poorly mixed the water is at that point and illustrates how difficult it is for oxygen from the atmosphere to mix into the bottom water. Values below 5 mg/L of oxygen are considered unhealthy and below 2 mg/L are considered anoxic, at which point fish cannot survive.

The salt wedge does not move uniformly and predicably upstream but fluctuates back and forth between two and four kilometres with each tide ending just a little further upstream from the previous excursion. The movement of the wedge also depends on the rainfall and river flow. Early summer rain impedes the movement of the wedge and can even push it back down to the Narrows. Both events have been seen in the Swan in the past four years. The passage of low-pressure systems also affects the movement of the wedge. Low pressure systems cause seawater to flow in leading to high river-estuary levels; conversely high-pressure systems lead to low river-estuary levels.

Seasonal Dynamics in the Swan

Oxygen

Movement of the salt wedge creates a microenvironment where oxygen is low and nutrients are recycled in the bottom waters. In the same way that oxygen cannot mix from the atmosphere, nutrients released from the sediments cannot mix into the surface waters.

Once the salt wedge reaches the Midland area, generally late January or February, the stratification is not as extreme. Most of the lower and middle reaches of the river have a saline water body. Deoxygenation events still occur in the bottom waters, but this is mainly due to the input of organic material with a high biological oxygen demand (BOD) from crashing phytoplankton blooms or the input of high organic material from summer rain.

Nitrogen

Changes in Total Inorganic Nitrogen (TIN), comprising the dissolved species of nitrate, nitrite and ammonia (NOx, $NH4^+$) are important in seasonal terms. The TIN component is the most available nitrogen source for phytoplankton blooms.

In Figure 5, TIN in the Swan River estuary surface and bottom waters are plotted with TIN from catchment inflows for the section of river between the Narrows and Garrett Road Bridge. The catchment inflow is calculated as the median concentration of the drains that flow into that region of the river.

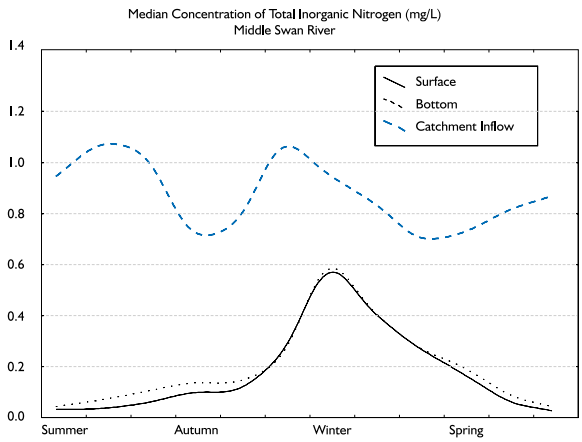


Figure 5: Median concentration of total inorganic nitrogen (mg/L) in the middle Swan River (Narrows Bridge to Garrett Road Bridge). Water depths range from two to six metres.

The middle Swan shows a strong seasonal nutrient pattern peaking in winter when the water column is well mixed as illustrated by the high bottom and surface concentrations. Flux studies show that much of the nitrogen entering the Swan in the winter is exported to the ocean.

During summer and autumn, the bottom water concentrations are higher than the surface water concentrations. In the bottom waters the TIN is mostly ammonium. This reflects the increased frequency of algal blooms in the summer and autumn months and a source of ammonium from the sediment and

groundwater. When the blooms crash, the phytoplankton breaks down and releases ammonium through ammonification. Deoxygenation of the bottom water also occurs.

In spring concentrations of TIN are higher in the bottom waters than in the surface waters due to the migration of the salt wedge and the increasing stratification.

The catchment inflows into this region of the estuary show a peak in the median nutrient concentration of TIN at the end of summer. These catchments are urban and industrial. They flow all year round. Although the flow volume is low, the high concentration of nutrients in the water can have a significant input and effect on the phytoplankton in the system. The median concentration of TIN in the surface water in the middle Swan is higher than that in the lower or upper Swan, possibly reflecting the nutrient input from these urban drains.

Phosphorus

The seasonal patterns for phosphorus are quite different from nitrogen. In figure 6 the inorganic phosphorus, measured as the dissolved phosphate or filterable reactive phosphorous (FRP), in estuary surface and bottom waters is plotted with FRP from catchment inflows for the same stretch of river as used in the nitrogen example.

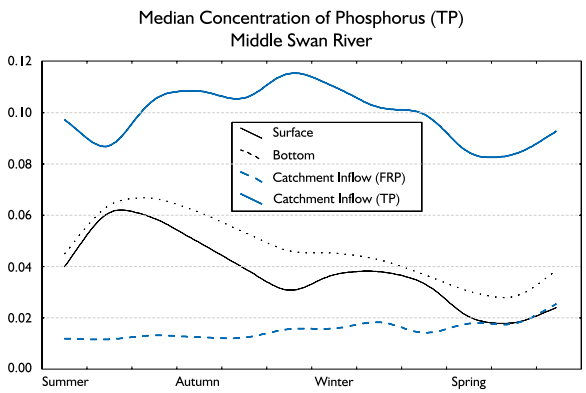


Figure 6: Median concentration of phosphorus as FRP (mg/L) in the middle Swan River (Narrows Bridge to Garrett Road Bridge).

Most of the phosphorus entering this part of the river is in the particulate form. This can be seen by plotting the total phosphorus which includes particulate forms, as well as the dissolved phosphorus. Dissolved phosphorus attaches to particles and there is a huge supply of suspended sediment coming from the Avon. Note that the winter peak of phosphorus is much less marked than for nitrogen. Phosphorus concentrations in catchment inflows are high throughout the year.

Concentration of dissolved phosphorus in the bottom waters is always higher than the surface waters, illustrating that the sediments (and groundwater) are a major source of phosphorus to the overlying water. Low oxygen levels in the bottom waters also favour the release of phosphorus. The dissolved phosphorus in bottom waters is always higher than the catchment. This partly reflects the release of particle bound phosphorus through bacterial action in the sediments.

Most of the phosphorus coming into the river in the winter is not flushed to the ocean. It is deposited in the upper Swan attached to particles where it is available to fuel algal blooms in the next summer.

Summary

The information gathered on the Swan in the past four years has greatly improved our understanding of the dynamics of the salt wedge, the patterns of nutrient supply and delivery and the response of phytoplankton to these changes. It was originally thought that phosphorus was the only nutrient that should be reduced. We now know that nitrogen, phosphorus and organic carbon need to be reduced to reduce algal blooms. We now know that most of the nitrogen delivered to the estuary in the winter rains is flushed out to sea but that most of the phosphorus is deposited in the upper estuary.

We have confirmed that the sediment is an important source of nutrients for algal growth, however the fresh loadings into the sediment from each year's riverflow may be enough to drive blooms in the subsequent year. This sediment is distributed in a thin layer throughout the river rather than concentrated in deep holes.

This new understanding has guided our approach to the actions proposed in the Swan Canning Cleanup Program and improved our understanding of estuarine behaviour throughout the South West of WA.

Phytoplankton

Phytoplankton activity in the Swan is determined by the seasonal cycles of rainfall and flow and delivery of nutrients. Reduced circulation and stratification, mean most Phytoplankton problems occur upstream of the narrows.

The nutrient plots shown below (Figure 7) show a constant supply of phosphorus, although nitrogen fluctuates with rainfall and, to a lesser degree, with mixing. Phytoplankton therefore exhausts nitrogen supplies before phosphorus supplies. Nitrogen is therefore said to be the limiting factor. The response to summer rainfall can be dramatic, with blooms occurring about two weeks after rain in response to the fresh supply of nitrogen.

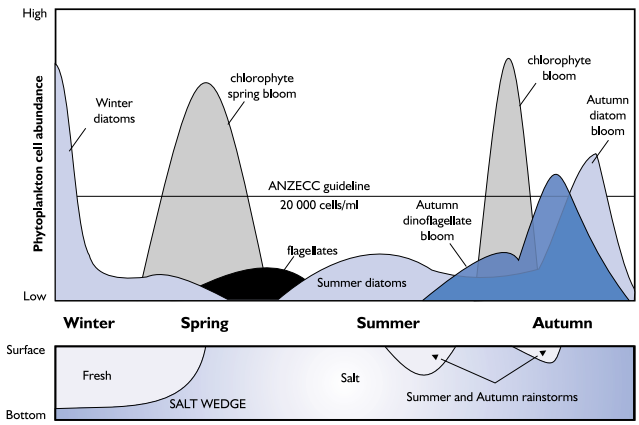


Figure 7: The succession of phytoplankton during 1998-99. The pattern is similar to the general pattern expected, except for the diatom bloom in autumn, primarily in response to autumn rains. Dinoflagellates were not significant in the Upper Swan in the last year but did occur in the lower Swan from Maylands to the Causeway.

Swan Estuary Upstream of Rivervale

Figure 7 is an idealised view of activity in this region. Phytoplankton activity was greater and more variable upstream of Rivervale between May and June, reflecting the effects of short term runoff. A diatom (*Nitzschia* and *Cyclotella*) bloom was stopped in late July by significant river flow. These diatoms continued to be abundant in August and September. A low abundance of cyanobacteria was detected during August and was attributed to runoff from eutrophic tributaries in the upper catchment after heavy rainfall. During spring there were low to moderate densities of phytoplankton with Chlorophytes, particularly *Chlamydomonas*, dominating. These low densities were the result of intermittent riverflow and cold conditions. The dry conditions in December and January allowed marine diatoms to penetrate upstream and the potential mucus-producing flagellate *Heterosigma* was recorded in moderate abundance.

In January anoxic waters caused fish deaths between Lilac Hill Farm and Middle Swan Bridge. A significant Chlorophyte bloom followed. Both events resulted from significant rainfall on the 23-24 January 1999. Small blooms of the harmless red dinoflagellate *Gymnodinium cf. simplex* were recorded sporadically up to April.

Swan Estuary Central Business District

The abundance of phytoplankton in the Perth and East Perth waters was low to moderate for most of the year. The estuarine diatoms, particularly *Skeletonema* and dinoflagellates were dominant components. Two small blooms of the harmless *Gymnodinium cf. simplex* were recorded in December and March, producing a red discolouration of the water.

Swan Estuary Downstream of Narrows to East Fremantle

Between May and July and between November and

March the lower reaches of the Swan River estuary contained low to moderate densities of marine species (primarily the diatoms *Skeletonema, Chaetoceros* and *Thalassiosira*) as is normal for these periods. Nutrients and silicates from runoff caused several diatom peaks.

Canning River Upstream of the Kent Street Weir

In May, phytoplankton abundance increased upstream of the Kent Street Weir, mainly Cyanophytes (blue-greens) and Chlorophytes. This increase coincided with substantial rain and is believed to be due to algae being washed into the river from the catchment via drains. Once the weir boards were removed estuarine water was able to move upstream and this was reflected by the phytoplankton collected. The cyanobacterium *Oscillatoria* was found in all the upstream samples during this period.

A small bloom of diatoms and Chlorophytes occurred in September and cyanobacterial densities were also proportionally high. A bloom of the gazetted potentially toxic species *Anabaena cf. flos-aquae* occurred in January. A media alert was issued and warning signs were erected. A range of algal blooms developed in February and March from the Xantophyte, Chlorophyte, Chrysophyte and Cyanobacterial groups. By April the abundance of phytoplankton was low enough to remove the warning signs.

Canning River Downstream of the Kent Street Weir

A bloom of *Heterosigma sp.* (Raphidophyta) was recorded in May and June downstream of the Kent Street Weir. In June there was also a small bloom of the harmless, small dinoflagellate *Katondinium sp.* and small Chlorophytes. Densities were low to moderate in July and August with freshwater species occurring in the freshwater runoff. A bloom of the harmless diatom *Cyclotella* occurred in September and the benthic cyanobacteria *Oscillatoria* and *Merismopedia sp.* were collected. A small diatom bloom of dinoflagellate (*Katodinium sp*.) occurred in October. After that densities reduced and remained low to moderate, consisting of diatoms, dinoflagellates and Cryptophytes.

MACROPHYTES

In October, the declared weed *Sagittaria graminea* re-invaded the Canning River. At the Nicholson Rd Bridge and downstream of the Yule Brook confluence. These plants were removed by the Trust. Another declared weed *Hydrocotyle* was found below the Nicholson Road Bridge in February and sprayed with Roundup Biactive. There was also an *Azolla* outbreak in the upper Canning River during summer.

In January thick mats of *Chaetomorpha linum*, a green filamentous alga was recorded along the shoreline from the Applecross jetty to 50 metres. It was up to 0.3 metres thick in areas close to shore and was also washed on to the beach where it dried harmlessly. Some other green macroalgae, *Cladophora* and *Enteromorpha* were also present. The mats were completely smothering the seagrass up to 20 metres from shore. Futher out from shore, only fine layers of *Chaetomorpha* that did not smother the seagrass were present. By mid February the alga had dissipated and no further blooms were reported.

Swan Canning Cleanup Program

Providing an Action Plan and implementation strategy to reduce nutrient input, algae blooms, improve community awareness and help improve the health of the Swan-Canning river system

The Action Plan

The Swan-Canning Cleanup Program was launched by the State Government in May 1994 as a five-year project to understand the causes of poor water quality affecting the Swan-Canning rivers and estuary. More specifically, it was developed to identify the mechanisms that trigger algal blooms and control their growth, and to recommend actions to reduce the frequency of occurrence of algal blooms, and help maintain water quality now and in the future. In late 1995 the Swan River Trust established a Task Force to advise on the Swan-Canning Cleanup Program, prepare an Action Plan and report back to the Trust and Government.

The past year has been exciting and productive for the Swan-Canning Cleanup Program. The draft Action Plan was completed and released by the Minister for Water Resources to the public in July 1998. A Community Forum (organised by the Western Australian Estuarine Research Foundation and the Water and Rivers Commission) was held in conjunction with the release of the draft Action Plan. Over 40 briefings were held with government agencies, catchment management, community and recreational groups.

Fifty-three submissions, encompassing over 350 comments, were received on the Action Plan. Overall, the submissions provided strong support for the Action Plan with fifty-two submissions supporting it.

In response, 35 changes were made to the draft and included in the final Action Plan. Analysis of Public Submissions and Your Questions Answered were published to report on the community consultation.

In April 1999 Cabinet approved funding for the SCCP Action Plan totalling $14 million over five years beginning in 1999-2000. The Minister for Water Resources officially released the final Action Plan 10 June 1999.

SCCP in Action

The Action Plan has four key strategies supported by 10 recommendations and 44 sub-recommendations. They are grouped into those which

1. strengthen catchment management,
2. improve statutory planning and decision making,
3. develop a “river intervention tool box,” and
4. monitor, regularly report and investigate gaps in our knowledge.

The Plan proposes that $32 million be spent over five years and is broken into:

- Approximately $10 million as existing funding which is supporting current SCCP and related programs, including state, commonwealth and local government projects;
- $14 million as core and essential funding;
- $8 million as dependent funding, which will be determined by the outcome of action taken and funded by the $14 million core funding.

Minister for Water Resources, Kim Hames with Penrhos College students Alex Simeon (left) and Georgia Baker at the Action Plan launch. The girls, representing Millennium Kids, presented their generation’s view on the importance of keeping the Swan River healthy for them and for their children.

Management committees have been established to provide a direct link between senior and operational officers, organisational goals and the various parties involved in implementing the Action Plan.

Other supporting funding

The successful development of the SCCP draft Action Plan and its release in July 1998 has helped attract corporate and Federal funding. For example, Alcoa has funded the Swan-Canning Urban Landcare Program which provides $1.25 million over five years for restoration work by community catchment groups. The Federal Government Clean Seas Program (related to Natural Heritage Trust funding) has also recently contributed $1.5 million to the following projects on the Swan-Canning system:

- Mill Street Main Drain Water Sensitive Design and artificial wetlands;
- Ellen Brook artificial wetlands;
- Oxygenation trial on the Canning and Swan rivers; and
- Further development of Light Industrial Survey and Education Program.

Support for catchment management

Integrated Catchment Management (ICM) has become established in the Swan-Canning catchment in the past five years. When SCCP was set up in 1994-95, the only active ICM group in the Swan-Canning system was the Bayswater Main Drain ICM Group. In 1998-99, 13 ICM groups and four Land Conservation District Committees (LCDCs) with catchment-wide ICM membership and interests are established. The success of groups such as the Canning and Bayswater ICM Coordinating Groups is encouraging others to take a coordinated approach to local environmental issues. There are now over 85 community and environmental groups working towards improving the catchment, bushland and waterways environments. These groups are sustained by thousands of volunteers throughout the greater metropolitan region.

SCCP has provided significant catchment management support to community catchment groups. It has focussed most of this support on Ellen Brook and the Upper Canning-Southern Wungong catchments.

The draft Ellen Brook Catchment Management Plan was recently released for community consultation and adoption. The development of the Catchment Management Plan is an objective of the Ellen Brook Integrated Catchment Group and also a product of the Ellen Brook and Surrounding Environment Project. This project has undertaken development of a Catchment Management Plan for the Ellen Brook, a land use and capability study for the Shire of Gingin, and has identified environmental constraints associated with the proposed extension of the North-East Corridor of the Metropolitan Regional Scheme. The project was funded by the SCCP, Agriculture WA, shires of Chittering and Swan and the Ministry for Planning. The Ministry for Planning has been project manager for this two year study.

The Upper Canning Southern Wungong Catchment Management Plan was released in May 1999 after public comment with 12 submissions received.

In 1998-99, considerable effort went into finalising the Action Plan and incorporating community submissions. A large part of the Action Plan is to strengthen and expand ICM in the Swan-Canning catchments, and support catchment management groups to specifically include strategies for reducing nutrient losses from the catchments. Well-targeted and strategic support is needed.

The Action Plan recommends executive and administrative support for Integrated Catchment Management Groups in the Swan-Canning system. It also recommends the appointment of Catchment Coordinators to support completion and implementation of Catchment Management Plans in the four focus catchments (Ellen Brook, Southern-Wungong River, Canning River and Bayswater Main Drain). Other recommendations support and

establish additional ICM groups and appoint Catchment Coordinators to further ICM processes and to develop and implement Catchment Management Plans in the other "second priority" catchments that have high nutrient concentrations entering the rivers and estuary (South Belmont Main Drain, Bennett Brook, Bannister Creek, Mills Street Main Drain, Blackadder Creek, Yule Brook, Susannah Brook and Bickley Brook).

Plans are also underway to provide direct on-the-ground resources and establish a process to undertake restoration and rehabilitation of catchments and foreshores including the use of agreements so that ICM and community catchment groups can operate and be effective.

A report on the Catchment of the Swan-Canning River System, a technical report to support the Swan-Canning Cleanup Action Plan, was prepared and endorsed by the Task Force. It will be released later in 1999.

Support for community awareness and involvement

The goal of community awareness, education and involvement is to achieve the objectives of the Swan-Canning Cleanup Program by changing attitudes and behaviour. Objectives of the community awareness program are to:

- Raise awareness of river and catchment issues in the Swan-Canning catchment;
- Develop a sense of respect and responsibility for the river and catchment environments and their management;
- Engender support for the Cleanup Program objectives and for specific river and catchment management initiatives;
- Guide lifestyle and behaviour that are appropriate to protecting and improving river water quality;
- Support community involvement in river and catchment management.

In 1998-99, the focus was on informing and involving the community in developing the Action Plan.

Extensive consultation with the key stakeholders in Government and the community generated significant feedback on the Action Plan and helped identify where activities will need to be better coordinated or improved to ensure cross-government and community outcomes. Over 1000 individuals, 75 catchment/community/environmental groups and over 50 schools and libraries received copies of the Action Plan.

Key catchment and recreation groups, peak councils, staff and corporate executives of relevant state agencies, and key local governments were briefed. A community forum in July 1999 invited discussion from the wider community.

SCCP has also ensured that riverside residents and community groups are aware of SCCP programs, the results of river intervention trials and progress on the development of the Action Plan. This information has been provided by regular releases of the Riverview newsletter. Advertising, notices and press releases have been regularly provided to the print and television media to inform the wider community about SCCP events and activities.

A comprehensive communication plan for the SCCP was finalised and endorsed by the Task Force. The report Swan-Canning Cleanup Program Communication Plan will be released later in 1999. The Communication Plan will guide community awareness, information, training and support for catchment management and reporting to the community as the Action Plan is implemented.

Support for monitoring river conditions and investigations

More than five years of technically rigorous water quality monitoring data has been gathered in the course of the SCCP program. These data have been used to develop water quality targets for nutrients in the freshwater tributaries and drains of the Swan-Canning system. These targets are presented in the Action Plan. Estuarine water quality targets will be released

later this year. Most importantly, SCCP has established baseline water quality information that can be used to compare long-term changes or trends in water quality. Analysis for trends in water quality will now be a feature of Action Plan reporting and will be done at regular intervals, from annually to five-yearly. An analysis of trends in phosphorus and nitrogen levels in tributary inflows to the Swan-Canning system was released in June 1999.

Nutrient and other water quality information will be summarised as part of a technical report on river intervention techniques to support the recently released Action Plan. The report will be released later in 1999.

Development of a "river intervention tool box"

This is a central objective for SCCP. Work done for SCCP this year to develop this toolbox includes:

1. **Dredging-bathymetric smoothing** Dredging and smoothing out the contours of the bottom of the river has been suggested as a way to remove nutrient rich sediments and improve flushing. The Task Force reviewed current information on tidal exchange, river topography and restriction points in the lower Swan-Canning rivers and estuary. Studies were commissioned to address gaps in information.

   The results enabled the Task Force to rebut the popular notion that widespread dredging would help the system. The Task Force did recognise, however, that selective dredging in some restricted places might be helpful. When improved dredging technologies become available the technique will be reviewed again. The major constraint to dredging is the nature of the sediment causing water quality problems. Every year a thin layer of fine, easily suspended sediments is deposited after winter and spring rains. This nutrient-rich material is extremely difficult to dredge and is replaced every year. Despite these constraints dredging options for a short length of the Canning River upstream of the Kent Street Weir were reviewed and a decision will be made next year.

2. **Sediment remediation and the development of a commercial partner for using modified clays** The SCCP commissioned the CSIRO to investigate the use of sediment materials which could be added to bottom river sediments to absorb nutrients and thereby prevent their availability to algae. This led to further evaluation of the effectiveness of using modified clay. Experiments carried out on the rivers of the Swan-Canning system and nearby lakes (Lake Monger) were so successful that a commercial partner is now being sought so that cost-effective quantities can be tested in large-scale trials. It is now thought it would be better to use them in upstream drainage basins and wetlands, closer to the source of nutrient inputs, rather than in the estuary itself. The use of modified clays is a world first. Patents are pending and the commercialisation and royalty aspects of this potential tool are exciting.

3. **Oxygenation trials** Oxygenation is a technique that pumps out low-oxygen water from the bottom of the river and brings it into a mixing system. The water is then super-saturated with oxygen and pumped back to the bottom. In this way, oxygenation works with existing natural stratified conditions (layering in the water, with fresher water overlying heavier, high salinity, low oxygen water) and injects oxygenated water into the part of the river where it is needed to reduce nutrient release feeding algae blooms.

   Oxygenation was tested on the Canning River over the 1997-98 and 1998-99 summers. Prior to the trials, SCCP invited a world expert on the technique to review its possible use in the Swan-Canning system. The advice was that it would be possible to use the technique on either a barge, like the Thames Bubbler used in London, or at a fixed plant with mixing facilities on shore and that the technique would likely work in shallow systems. Oxygenation had not been trialled before in Australian estuaries. A report on the oxygenation trial on the Canning River during the

summer of 1997-98 is now available. Successful use last summer was followed by a further larger-scale trial on the Canning in the 1998-99 summer.

The successful trial of these techniques has allowed the SCCP to begin assembling a river intervention toolbox. No other program working on estuaries in Australia is developing these techniques or has progressed the two most promising techniques, sediment remediation and oxygenation, to the level that the SCCP has. In response to a lack of river intervention techniques available, the SCCP has undertaken the necessary experimentation and scaling up exercises to have the basics of a toolbox developed. Most importantly, they are tools that will work well for Swan-Canning conditions and other estuaries in the South West of Australia.

The Action Plan will be the foundation for a healthier river system for fishing, swimming, boating and other activities so highly valued by the community. Most importantly, the fundamental ecological processes, which ensure the health of the system, will be strengthened and restored. It is an investment for the future.

In recognition for the effort and success of the SCCP in providing for the future of Western Australia, the program and Action Plan were nominated a finalist in the Premier's Award in November 1998. The Swan River Trust and the Water and Rivers Commission shared the finalist award with five other State agencies.

Malcolm Robb (Water and Rivers Commission) at the oxygenation trial on the Canning River.

Understanding how the waterway responds to human impacts provides the basis for management.

The SRT and the WRC operate an extensive sampling and analysis program to provide water information in support of the Swan Canning program. This program is modified from year to year as the information needs change. Data collected from this program are used to develop an understanding of the dynamics of the system in response to annual variations in rainfall and patterns of nutrient delivery, dynamics and patterns of phytoplankton occurrence, potential health risks, and progress against targets. Data are also supplied to university researchers and students working on collaborative projects with the SRT.

The Catchment

This program was commissioned in 1987 with the aim of determining nutrient levels entering the estuaries. The monitoring network contains 15 sites which are located on the major inflows to the estuaries which are sampled weekly. The samples are labelled and then taken to a laboratory to be analysed for nutrient and organic carbon levels. The temperature and depth of the stream are also measured and recorded on each visit.

Other Catchment Monitoring

An autosampler has been in use at Ellen Brook since 1986. Ellen Brook is of interest in the Swan Canning catchment, as it contributes just eight per cent of the total volume to the Swan River, yet it contributes 14 percent of its nitrogen input and 50 percent of its phosphorus input. Samples were collected automatically in response to changes in flow and analysed for total nitrogen (TN), total phosphorus (TP) and total suspended solids (TSS). This was done to determine exactly how nutrient and sediment concentration varied in response to flow and to produce reliable nutrient and sediment load estimates for Ellen Brook.

The resulting data generated from regular and irregular sampling in the rivers and drains, and from the autosampler at Ellen Brook, is entered into a database (EDICT) and the data analysed and reported on as required. Other chemical, physical and biological parameters are irregularly sampled in response to pollution events, fish kills and algal blooms.

Site	Number of Samples Collected in 1998	Total Number of Samples Collected since 1994
Bannister Creek	50	265
Bayswater Main Drain	50	346
Bennett Brook	50	253
Bickley Brook	46	158
Blackadder Creek	38	204
Canning River	50	327
Ellen Brook	30	254
Helena River	29	314
Jane Brook	26	197
Mills St Main Drain	49	317
South Belmont Main Drain	50	256
Southern River	50	320
Susannah Brook	24	156
Swan River	50	182
Yule Brook	50	321
Total	**642**	**3870**

Table 1. Monitored sites in the Swan-Canning catchment and the total number of samples collected in 1998 and since 1994.

The Estuary

Commencing in 1995, the Swan River Trust has been monitoring water quality in the Swan and Canning river estuaries. The monitoring network includes 20 sites, nine in the Swan River estuary and 11 in the Canning River estuary which are sampled weekly (see Figures 8 and 9). While collecting samples for analysis, the scientific crew measure and log the temperature of the water (from the surface to the bottom), its acidity, salinity, turbidity and oxygen content.

Water samples are delivered to a laboratory to be analysed for nitrogen and phosphorus, organic carbon, and plant chlorophyll concentration the day they are collected. The results of chemical analyses are sent to the Trust electronically by the laboratories. All data are verified against field collection records before being downloaded to the database archive.

Water samples from the sites are also examined under a microscope by scientific staff of the Phytoplankton Ecology Unit. The number, size and species of phytoplankton observed in each sample are recorded and entered into the database along with sample details.

The Data

Measurements covering all seasons and from a range of depths from Fremantle to Bassendean on the Swan and to Langford on the Canning Estuary are summarised in Table 2.

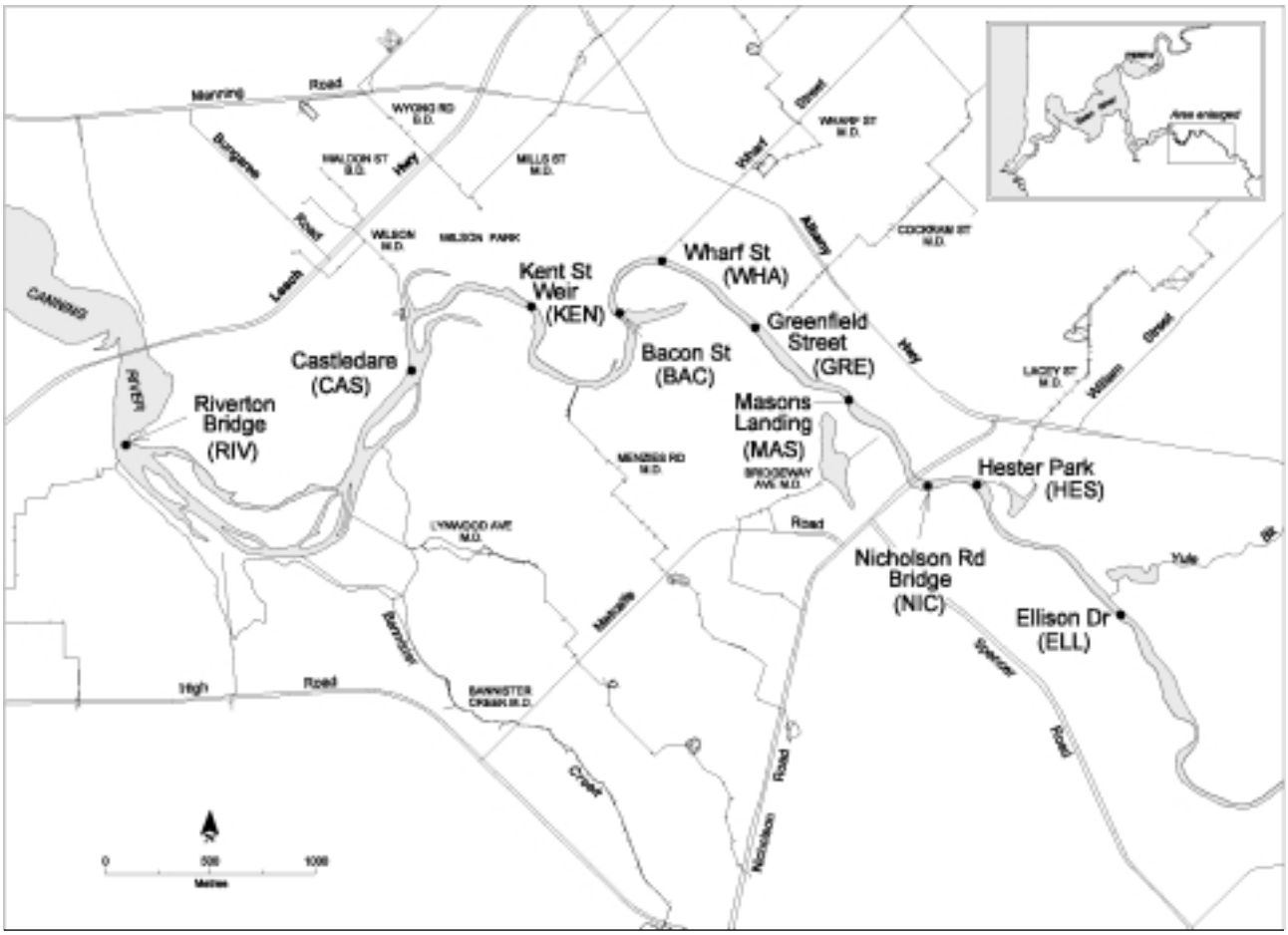


Figure 8. Canning River estuary and weir pool water quality monitoring sites.

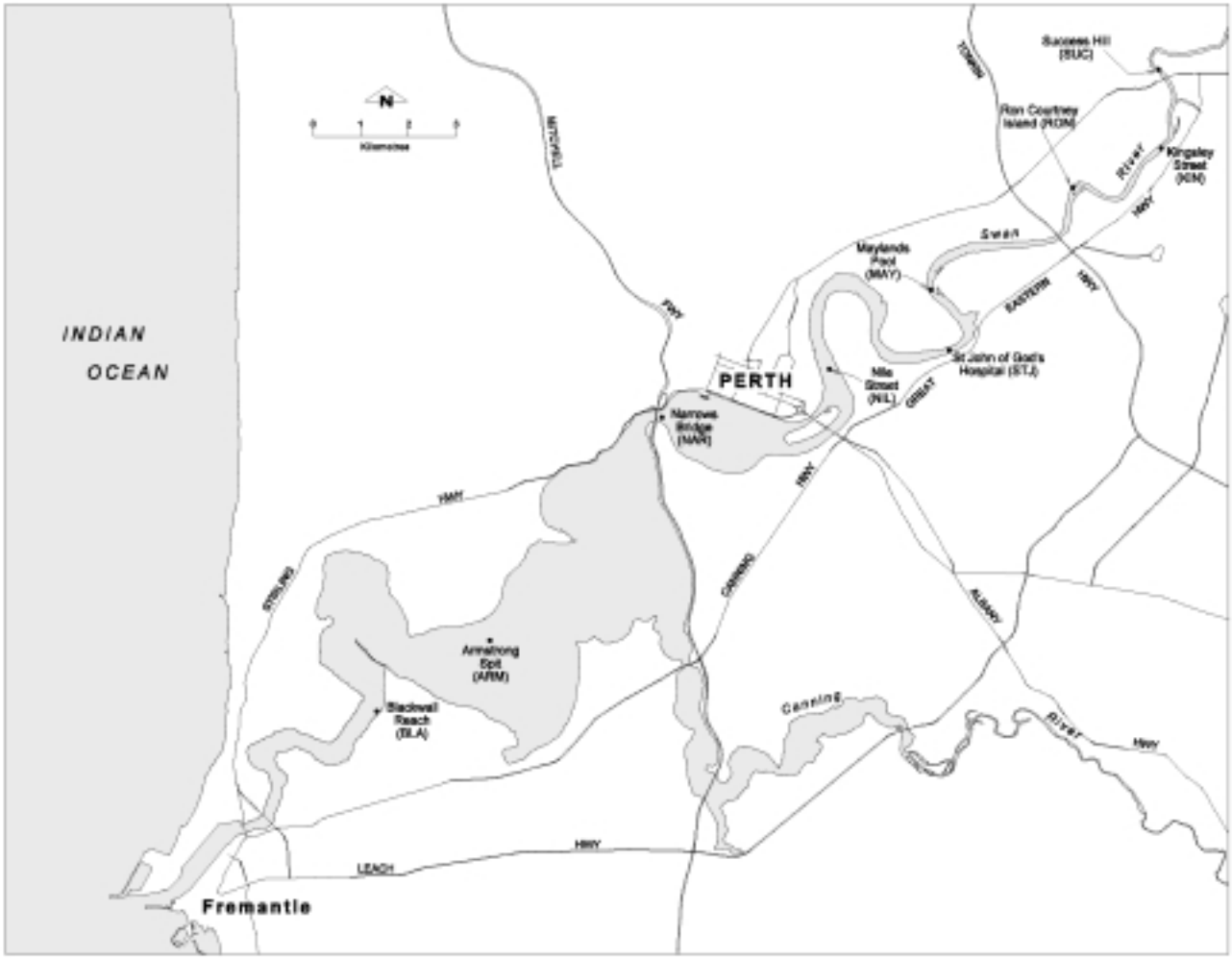


Figure 9. Swan River estuary water quality monitoring sites.

These data are used to build a picture of how the estuaries work, how they vary naturally between seasons and change from one year to the next. For example, it is important to know the population dynamics of phytoplankton in the estuaries now, so future changes can be identified. Information from the monitoring also allows the SRT to identify other possible problems and to begin the difficult task of finding solutions.

The numbers themselves do not provide this information. To turn the numbers into information that can be used by management it must be analysed. The data analysis is carried out by staff of the SRT as well as by other management and research agencies. For example, the data from monitoring in the Swan Estuary has been used by scientists from the CSIRO and various universities to construct a numerical computer model of the estuaries. The modellers aim to build a predictive tool that links land use in the catchment with nutrient loading and phytoplankton ecology. When the model is finished it can be used by the SRT to test various solutions to the problem of nutrient enrichment. The benefits of any combination of possible management options can first be simulated before they are actually implemented.

The data are also being used to report progress of the Swan-Canning Cleanup Program to the WA community. The monitoring data are analysed regularly by staff of the SRT so trends in water quality can be identified and the overall condition of the catchments, rivers and estuaries can be assessed. The data were recently used to develop water quality targets for the estuary, which are currently being reviewed by ANZECC.

Estuary	Site name	Depth(m)	Measurements		Samples collected	
			1998	Total	1998	Total
Swan	Blackall Reach	12	1069	3993	75	612
Swan	Armstrong Spit	12	895	3478	72	609
Swan	Narrows Bridge	6	503	2027	123	514
Swan	Nile Street	4	346	1329	123	515
Swan	Saint Johns Hospital	5	517	2017	123	510
Swan	Maylands	4.5	397	1532	122	514
Swan	Ron Courtney Island	5	521	2070	120	505
Swan	Kingsley Street	6	583	2211	120	507
Swan	Success Hill	5.5	474	1848	120	507
Canning	Salter Point	4.5	136	180	44	52
Canning	Riverton Bridge	2	202	867	79	229
Canning	Castledare	3	297	1170	124	477
Canning	Kent Street Weir	3.5	320	1611	123	475
Canning	Bacon Street	5.5	424	1881	92	421
Canning	Wharf Street	2.5	223	946	92	412
Canning	Greenfield Street	1	66	421	23	135
Canning	Masons Landing		6	6		
Canning	Nicholson Rd Bridge		5	5		
Canning	Hester Park		6	6		
Canning	Ellison Dr		8	8		
TOTAL			**6998**	**27606**	**1575**	**6994**

TABLE 2. Swan River Estuary and Canning River Estuary Sampling Sites. The column headed ‘Measurements’ contains the number of measurements of temperature, pH, salinity, turbidity and oxygen levels taken at each site since the summer of 94-95. The column ‘Samples collected’ contains the number of samples collected and sent to the chemistry laboratory for analysis. It also shows the number of samples that have been analysed by staff of the Phytoplankton Ecology Unit up until April 1999.

Regulating Riverside Development

The manner in which riverside development occurs has a profound impact on the aesthetic and landscape values of the Swan-Canning river system.

A primary function of the Trust is to provide advice to the Minister for Water Resources concerning applications for development within and adjoining the Swan River Trust Management Area. In its consideration of applications the Trust consults widely with other agencies and local governments, which have an interest in or may be affected by particular proposals.

The Trust is aware of the high value Perth people place on the protection of the river and its environs. The decisions the Trust makes and the advice it provides on each application has a cumulative effect on the river system. The protection of the river as an ecological system, a recreational resource and landscape setting are of paramount importance and guides the decisions the Trust makes. Within these parameters the Trust is keen to encourage improved public access and a variety of river-based activities and recreational opportunities.

Over the past 12 months the Trust has dealt with several applications which had significant implications for the future of the river system. There were two applications to conduct commercial floatplane operations on Perth Water. Both applications were refused because the Trust and the Minister were of the view that they were likely to compromise the amenity of the river and interfere with existing river-based recreational uses.

During the year the Government initiated a project to duplicate the Narrows Bridge. The Trust was involved from the outset in the approval process for the new bridge and placed a number of conditions on the project to protect the river.

The Trust issued an approval for the construction of a bell tower and spire at Barrack Square to house the bells of St Martins. The proposal is part of a larger plan by the Government to redevelop the Barrack Square precinct.

A plan for the development of a large hotel and serviced apartment complex at Northbank has been finalised through negotiations involving the Trust, the City of Fremantle and the Western Australian Planning Commission (WAPC). It is expected that the development will provide another riverside venue where the public can enjoy the riverside setting while dining.

A private marina with more than 60 pens has been approved as part of the Ascot Waters development in Belmont. The marina is unique in the metropolitan area as it is incorporated in an urban commercial setting on an artificial waterway. It provides boat owners upstream of the Causeway with a facility to safely moor their boats in a sheltered environment close to their homes.

Balancing public access to the foreshore while protecting its ecological and landscape values remains of paramount importance to the Trust. During the past 12 months boardwalks have been approved at Redmond Reserve in South Perth and at the Waterford Foreshore Reserve. Several applications have been refused because proposals for private development impinged on land reserved for Parks and Recreation under the Metropolitan Region Scheme (MRS).

A Long Term View

The Trust has continued to pursue its long-term objectives through several strategic projects.

The precinct policy plan has begun with the preparation of a statement of key principles and the instigation of two pilot projects for the foreshore between Fremantle Bridge and Point Walter and

Chidley Point Reserve and a stretch of river in the Shire of Swan between Ellenbrook and Bells Rapids. The two pilot precincts have been chosen to identify as many issues as possible pertinent to suburban and rural areas. The project is a joint initiative of the Trust and the WAPC and will continue in 1999-2000. Local government and community groups will be involved in preparing the precinct plans within their area.

Swan River Trust Management Area Review

The Swan River Trust Management Area Review has been completed. The review included consultation with all local governments along the river and as far as possible will align the Trust management area boundary with the MRS Parks and Recreation Reservation as described in the Act. The alignment of the two boundaries will make the administration of applications and communication with the public much easier. The intent of the Act was to include the MRS Parks and Recreation Reservation in the Trust's management area.

Policy Review

The first stage of the review of Trust policies has been completed. All policies have been redrafted in a standard form and content and released for comment by stakeholders and local government. Several new policies have been prepared which deal with signage around the river foreshore, boardwalks, fuel tanks and the operation of floatplanes in the management area.

Houseboat Operations

The Trust has adopted a policy in relation to commercial houseboat operations which allows for a five year trial of five hire and drive houseboats on the river, restricted to water upstream of the Causeway. The Trust has advertised the policy calling for expressions of interest from potential operators. The choice of operator will be largely based on compliance with the requirements set out in the policy.

Barrack Square Redevelopment

The Premier has announced a project to redevelop Barrack Square with improvements to jetties, commercial buildings and additional public facilities. The Trust has already advised on the construction of a bell tower and spire within the square and has been closely involved in preparing a master plan to guide the rest of the development, which will link the river with the heart of the Perth Central Business District.

MANAGEMENT PLANNING

There is a high level of community interest in the waterways of the Swan and Canning rivers and the adjacent parks and reserves that make up the Swan River Trust Management Area.

Effective planning based on sound information is the key to conserving and enhancing the Swan and Canning river systems while providing for appropriate development and recreational use.

There is a high level of community interest in the waterways of the Swan and Canning rivers 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, coordinating studies and preparing plans for areas inside and outside the management area. This includes activities that are likely to have an impact on the waterways of the Swan and Canning river system or on the adjacent parks and reserves.

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, a vantage point for views of the river and city and an important area for a wide range of recreational activities.

The City of South Perth and the Trust continue to work on a plan for the park. The need to address issues that have arisen since the draft was developed and the Trust's commitment of resources to the Swan Canning Cleanup Plan have delayed its completion.

It is expected that the Plan will be provided to the City of South Perth "Friends of Sir James Mitchell Park" Implementation Group in August 1999 for Review. 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, managing commercial development and establishing a special events program, extending and improving picnic sites and facilities, and managing shrubs and trees.

Freshwater Bay

The Freshwater Bay Foreshore Management Plan, covering one of the most spectacular areas of the Swan River, has been completed. Its recommendations include:

- Developing a foreshore heritage trail;
- Weed control and revegetation of the foreshore;
- Marking of the foreshore reserve boundary; and
- Rationalising the foreshore Parks and Recreation Reservation under the MRS.

Swan River Trust crew removing bamboo at Claremont foreshore.

A brochure outlining the Plan for residents in the vicinity of the foreshore has been produced. It will be distributed when the Plan is released early next year. To ensure continuing consultation with the community on management of the foreshores of Freshwater Bay, the Town of Claremont has established an advisory committee consisting of local residents, representatives of the Town of Claremont and the Swan River Trust.

CATCHMENT MANAGEMENT

Rural, urban and industrial use and development of the catchments of the Swan and Canning rivers has a significant impact. It affects water flows, nutrient levels and sediment loads and the biological functioning of the ecosystems that determine the health of the rivers.

The Trust is supporting the community in integrated catchment management (ICM) as a means of limiting the adverse impact of activities in the catchment on the Trust's Management Area. This support is the basis of the Trust's strategy under the Swan Canning Cleanup Program to achieve long term reduction of the levels of nutrients entering the estuary from the catchments.

The Trust has encouraged the community to develop ICM groups throughout the catchment and is funding catchment management in the Ellen Brook and Upper Canning-Southern Wungong catchments, which are critical to maintaining the health of the estuary.

The Trust is also working to identify and address potential sources of pollution from light industry.

Upper Canning-Southern Wungong

The Upper Canning-Southern Wungong Catchment covers 40,000 hectares and includes most of the cities of Gosnells and Armadale and parts of the shires of Serpentine-Jarrahdale, Kalamunda and Cockburn. Contamination of the waterways from excessive nutrient loss from rural and urban areas is of concern to the Trust. However for those living and working in the area, sedimentation and erosion, degradation of native vegetation, weed infestation, stormwater management, water extraction, altered streamflow patterns and the potential impact of further development are also significant issues.

The Trust has continued to provide support to the Upper Canning-Southern Wungong Catchment Team. The Catchment Team is a coalition of 11 community based environmental groups and several private individuals and representatives of the Swan River Trust, the cities of Armadale and Gosnells, the Ministry for Planning and the Water and Rivers Commission.

The Trust provided a part time catchment support officer to guide the final stages of the production of the Upper Canning Southern Wungong Catchment Management Plan, which was released in May 1999. The Water and Rivers Commission and cities of Armadale and Gosnells contributed to funding this position. The support officer was also successful in obtaining for the Catchment Team NHT funding for a full time catchment coordinator for the three years commencing May 1999. The catchment coordinator will oversee the implementation of the Catchment Management Plan.

The demonstration nutrient and wastewater recycling system at the Gladalan Nursery, Armadale, which was partly funded by the Trust, was launched by the Minister for Water Resources on 18 February 1999. The system is designed to reduce nutrient losses to the Southern River and to demonstrate the environmental and commercial benefits of recycling water used in commercial plant nurseries.

The Trust also assisted the Catchment Team to continue the work to restore the Roley Pool in the Canning River at Roleystone and provided its restoration trailer for a Green Corps volunteer team to help restoration of the Southern River at Lake Road, Armadale.

Protection of Waterways and Foreshores

Maintaining the environmental and amenity values of urban waterways requires a continuous effort to deal with the effects of human activity and the influences of weather and tides.

The community places a high priority on ensuring that the Swan and Canning rivers are well maintained, 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 these expectations.

The Trust is unable to resource a comprehensive program for the whole of its Management Area and directs its attention to areas of most intensive use and debris and rubbish accumulation. Since much of the rubbish, debris and pollution is the result of irresponsible human activity it is avoidable and the Trust also works to reduce the problems by encouraging people to change how they deal with rubbish and material that may cause pollution.

The summary of material removed from the waterways and foreshores shows significant improvement with a substantial decrease in the numbers of tyres, drums and discarded syringes collected. Unfortunately the number of shopping trolleys removed continued to increase, chiefly from the Canning River. The Trust has requested supermarket managers in the area concerned to improve shopping trolley security arrangements and collection procedures to deal with the problem. It has also advised the supermarket managers that in

MATERIAL COLLECTED	UNITS	TOTAL	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Domestic rubbish	tonne	767.3	92.5	177	207.25	123.05	80	87.5	85
Logs and timber	tonne	1473.35	199	598	162.75	252.6	152	109	150
Seagrass and macroalgae	tonne	2549	182.5	451	496	347.5	460	612	350
Tyres	each	371	24	55	46	72	68	106	70
Drums (assorted)	each	167	2	24	30	17	38	56	23
Display signs	each	33	3	3	3	8	7	9	8
Sunken boats salvaged	each	26	5	1	5	4	5	6	1
Shopping trolleys	each	158	7	17	12	32	28	62	92
Dead fish	tonne	68.09	3.24	6.85	23.2	12.45	11.35	11	10
Dead birds	each	233	No Stats	No Stats	No Stats	26	31	176	120
Syringes left on beaches and public places	each	617	No Stats	No Stats	120	109	146	242	118
Dead animals (cattle & sheep)	each	42	12	5	3	5	9	8	6
Whitegoods (washing machines, fridges)	each	16	1	0	3	5	3	4	7
Vehicles	each	2	0	0	0	0	0	2	4

Table 3. Summary of material removed from waterways and foreshores.

future the Trust will advise their trolley collection service of any trolleys that are in the river and request their removal.

WATERWAY CLEANING

Beach and Foreshore Cleaning

Of the 45 river beaches and approximately 300 kilometres of foreshores of the Swan, Canning, Helena and Southern rivers within the Trust's Management Area, 33 public beaches and approximately 146 kilometres of foreshores are regularly cleaned by the Trust's field operation staff. Throughout the summer the beaches between Goodwood Parade in Rivervale and the Stirling Bridge in Fremantle were cleared of rubbish and debris three times a week and foreshores less accessible to the public were inspected fortnightly and scheduled for cleaning. In winter the beaches were cleaned twice weekly.

Summer winds and tides push detached seagrass and macroalgae onto the foreshores. High temperatures cause this material to decay and produce noxious odours. Accumulations of this material were removed weekly from locations where the odour causes problems for the public or nearby residents.

Swan River Trust and Swan Catchment Centre staff joined Catchment Group members and local residents to tackle weeds and rubbish at Blackadder Creek.

Cleanup Australia Day

As their contribution to Clean Up Australia Day on 7 March 1999 Swan River Trust staff and family members assisted with clean up sites at Blackadder Creek in Midland and the Canning River in Ferndale. A group of 25 volunteers including catchment group members, local residents and Swan River Trust and Water and Rivers Commission staff removed rubbish from Blackadder Creek. The group removed cans, bottles and plastic bags, car tyres, 12 shopping trolleys and over a tonne of bamboo and castor oil plants.

At the Canning River site, the Trust assisted the Canning River Regional Park volunteers and local residents to remove an array of rubbish from the river and foreshore.

In the following week, Trust staff also collected and disposed of bags of rubbish left on the beaches and shorelines around the rivers.

Removal of Waterway Debris

When found, any items that may be a navigational or public safety hazard were removed. Before the onset of winter flows the upper reaches of the Swan and Canning Rivers were inspected. Floating debris, fallen trees and other obstructions were removed. During the winter months jetties and bridges were kept clear of debris carried into the rivers by flooding.

WATERWAYS PROTECTION AND ENHANCEMENT

The Trust works with other state agencies, local government and community groups on a cost sharing basis to undertake foreshore rehabilitation, maintain foreshore protection works and control erosion on the foreshores of public reserves. This partnership maximises the use of the Trust's resources and enables other state agencies and local governments to benefit from the Trust's expertise in this area. Advice is also provided to private landowners on the management and protection of their foreshores.

Beach Renourishment

During spring and early summer swimming beaches were renourished with 533 tonnes of sand and levelled to replace sand lost during winter storms. The sand is taken from areas in the rivers where it accumulates, principally from underneath the Narrows Bridge. Gullies caused by stormwater discharging across foreshores were also filled.

Ron Courtney Island Revegetation

Ron Courtney Island, in the Swan River opposite Garvey Park at Redcliffe, is managed by the Trust.

The island is being progressively revegetated and field operations staff visited the island four times to enable open areas of weed to be mown and cleared from around trees, reeds and understorey vegetation. This work reduces the risk of fire and reduces competition to regenerating native vegetation. Additional planting was also undertaken. Hollow logs are provided for wildlife shelter and nesting sites . As a result of this work birds are using the island in increasing numbers.

Foreshore Restoration and Erosion Control

The Trust provided 60 tonnes of sand to the City of Canning to restore beaches on the Canning River and the Amateur Rowing Association of Western Australia to maintain the foreshore at its Mount Pleasant site. This sand was taken from where it accumulates underneath the Narrows Bridge.

Swan River Trust crew at Sir James Mitchell Park, South Perth planting 1000 reeds.

The Trust also removed 45 tonnes of concrete debris from the river along the Sir James Mitchell Park shoreline and planted the area with 1000 reeds. The City of South Perth assisted by disposing of the concrete.

The Town of Bassendean contributed $20 000 to help control erosion and protect trees along a 35 metre section of riverbank at the foot of Anstey Road in Bassendean. Due to the steepness of the riverbank it was necessary for the Trust to use a barge to transport material and as a platform from which to undertake the work.

Erosion control works were undertaken by the Swan River Trust to protect river banks and trees along a 35 metre section of foreshore in Bassendean.

Kent Street Weir

The Trust removes and installs stop boards at the Kent Street Weir on behalf of the Water and Rivers Commission, which is responsible for the weir and its operation.

At the end of winter, boards were installed to prevent salt water moving upstream. Maintaining a freshwater environment upstream of the weir protects the riparian rights of shoreline property holders licensed to draw water from the river. It also protects shoreline vegetation which, since the construction of the weir, consists of species with low salt tolerance.

At the beginning of winter the boards were removed to prevent upstream flooding.

Weed Management

Aquatic Weed Control, Canning River

Hydrocotyle, a serious weed of aquatic systems, covered the Canning River from the Kent Street Weir to the Nicholson Road Bridge before the Trust's removal program began in 1994. This resulted in the almost total removal of the weed. Reinfestation occurs from seed germination and from plants being washed into the river from areas outside the Trust's Management Area. The Canning River was periodically inspected and during the year several small patches of *Hydrocotyle* were located and eradicated.

The Trust also eradicated two patches of *Saggitaria platyphylla* from a drain near Nicholson Road Bridge in Canning. *Saggitaria* is a serious aquatic weed and was found in the Canning River for the first time last year.

Foreshore Weeds

Bamboo, castor oil, pampas grass and other environmental weeds occur along many sections of the Swan and Canning river foreshores. These plants restrict the growth of native vegetation, interfere with access to foreshores and reduce the visual amenity of the foreshores. The remaining foreshore wetlands of the Swan and Canning rivers are particularly vulnerable to weed invasion.

The Trust has developed a draft foreshore weed control strategy. The strategy was initiated at Claremont and the Trust is working with the Town of Claremont, Methodist Ladies College and Christ Church Grammar School to remove bamboo from the foreshore of this section of Freshwater Bay. Initial mechanical removal provided a low cost and effective means of dealing with the dense bamboo stands on this site. However manual removal is generally a more environmentally sensitive method but is labour intensive and expensive.

To enable weed control work to continue the Trust enlisted the support of the City of Melville and the Town of Claremont and assisted WESTREK International to develop a Work for the Dole weed control and environmental restoration program. This program is assisting those involved gain work skills and enabling the weed control work to continue. Interest in this approach has increased and the cities of Bayswater, Melville and Canning and the Town of Claremont, the Trust and the Water and Rivers Commission have supported a second WESTREK International Work for the Dole application.

Beating bamboo in Claremont.

Canning River Regional Park Fire Suppression

Fire suppression in the Canning River Regional Park is likely to require the Department of Conservation and Land Management (CALM) to fight fires in the park from the waterway. CALM has asked the Trust to provide support for these activities. Trust staff would deploy and operate its vessels to enable CALM personnel to fight the fires.

Protocol defining the role of the Trust, operational and occupational safety and health procedures and training requirements is being prepared.

AUDIT AND ENFORCEMENT

The Trust's responsibilities include:

- Ensuring compliance with conditions on development approvals and provisions of the S*wan River Trust Act 1988* and its regulations;
- Administering controls on pollution under Part V of the *Environmental Protection Act 1986* as they relate to the Trust's Management Area.

Planning officers visit development sites and regular river patrols are conducted by the Audit and Enforcement officer. The patrols, using the Trust's vessel the Jack Mattinson, raise the Trust's public profile and reinforce its role as custodian of the Swan and Canning rivers.

These patrols enable the Trust to identify unapproved developments, damage to vegetation, riverbanks and the riverbed, the use of boats as residences, boats being launched away from authorised boat ramps and pollution incidents.

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

POLLUTION 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 Investigation

Airconditioner Wastewater Disposal Study

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 wastewaters from systems in the Perth central business district are generally discharged to stormwater drains that empty into the Swan River. The Trust released a study commissioned in 1997 to assess whether these systems should discharge to the sewer system rather than the stormwater drainage system. As a result of this study the Trust is working with the Water Corporation and the Department of Environmental Protection to ensure that wastewater containing these chemicals from new airconditioning systems in the Perth central business district are discharged to the sewer system.

Industrial Survey of Non-Licensed Industrial Premises

The Trust, Water and Rivers Commission and the Department of Environmental Protection, together with eight local government authorities (Bayswater, Bassendean, Belmont, Canning, Gosnells, Melville, Stirling and Swan) began an investigation in 1996 into the management practices of small light industrial businesses. The pilot survey identified practices that can reduce the risks of water resource pollution. Pollution incidents, such as the 1997 Belmont Park Racecourse pesticide spill, often result from the absence of simple operational procedures and basic emergency response plans and equipment that would have prevented them.

The draft report on the survey includes pollution prevention strategies to help small businesses prevent pollution incidents. Analysis of the survey results has shown how poor practices are widespread. It also provides a means of targeting information and encouraging businesses to use best management practices for materials storage, handling and waste disposal. Targeted information is being developed for operational practices that modify or reduce the risk of pollution to water resources.

These practices include:

- Having emergency management practices to deal with accidental spills;
- Ensuring that wastewater is decontaminated before being discharge to surface or ground water or removed to an appropriate disposal or treatment facility;
- Provide appropriate storage conditions to prevent spillage or leakage of chemicals;
- Recycling wastes; and
- Preventing wastes from contaminating stormwater.

The Trust continued to coordinate the Industrial Wastes Audit Task Group and the local governments involved have been using the survey method to continue surveys of local industrial premises. In response, education materials, which have included stickers, posters, workplace signs and stencils, have been developed and distributed to promote best management practices.

A database has been developed and is an essential analytical tool for the survey. It also helps provide feedback to enable local governments to identify industry practices and areas of light industrial activity that require improvement.

The significance of the project has been recognised by the Commonwealth Government, which will be providing $90 000 over the next two years under its Coast and Clean Seas Program to extend the survey throughout the Swan Canning catchment and provide training for local government and industry participants.

Survey of yacht clubs and marinas

Antifouling, maintenance, repair and refitting of boats are integral to the operation of yacht clubs and marinas. They also require storage and use of paints, solvents, resins, fuels and oil. As an extension of the Industrial Survey, the Trust assessed the environmental management practices of yacht clubs and marinas adjacent to the Swan River. The survey showed that while there was a high level of environmental awareness the yacht clubs and marinas varied widely in the standards of their environmental management. The leakage of 1500 litres of sump oil from a yacht club storage tank in 1997 illustrated how minor oversights can have major consequences.

The survey report recommended environmental management plans be developed by each club and marina. The Trust is discussing the report with each of the yacht clubs and marinas and has found support for the recommendations and for the proposal that a working group be formed to develop a common approach to preparing such plans.

Pollution Response

The Trust's field operations' staff are trained and equipped to provide a rapid response to pollution incidents. Their objective is to contain and deal with small incidents and, in the case of major incidents, to contain the pollution and assist agencies that have the specialised resources to deal with the problem.

The Pollution Response Plan that outlines the operational and management procedures for dealing with pollution incidents guide the Trust's responses to pollution incidents. The Plan is integrated with the Fire and Rescue Service WESTPLAN - HAZMAT, and the Western Australian Marine Oil Pollution Emergency Management Plan (WAMOPEM). It was reviewed during the year and is being redrafted to bring it into line with recent changes to WAMOPEM and WESTPLAN - HAZMAT and to include sections on the investigation of incidents, the protection of evidence during clean-up operations and management of media relations.

Trust staff were also trained in handling incident reports and participated in drills to ensure the Trust is able to provide an effective response to these reports.

Seventy two incident reports required a response. Most involved oil spills, sewage spills, dewatering or waste dumping. None of the incidents was of major significance.

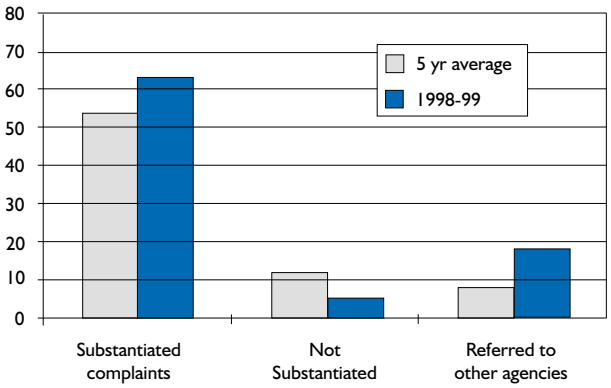
Pollution complaints/incidents by category

Pollution complaint/incident	5 year average	1998 - 1999
Oil slicks/spills	20	18
Offensive odour	7	4
River discolouration	8	13
Industrial discharge/dewatering	22	10
Sewage discharge	12	11
Herbicide/pesticide spraying	2	1
Chemical spills	2	8
Waste dump	30	18
Foaming	2	3
Other	10	-
Total	115	86

The number of incidents involving industrial discharge is far below the five year average and well down on the 1997/98 level of 19 incidents. This decline corresponds to increased environmental awareness in light industries as a result of the Trust's Industrial Survey.

Of the incidents reported to the Trust in 1998/99, 73 per cent were substantiated. Delays in incidents being reported to the Trust, or insufficient information being provided to the Trust, prevented cases from being substantiated.

Summary of pollution complaint/ incident responses



Oil Spills

Eighteen minor oil slicks were reported. The majority were near Barrack Square and the Leeuwin Boat Ramp in East Fremantle.

Minor slicks were visible on several occasions in Perth Water adjacent to the Barrack Square ferry terminal. Ferry operators have improved refuelling practices which has significantly reduced reports of slicks from this area. Minor incidents have still occurred. The highly reflective film of diesel fuel can be visible for some hours, until the fuel evaporates or is dispersed by wave action.

At Leeuwin Boat Ramp in East Fremantle refuelling of pleasure craft being launched at the boat ramp also resulted in minor fuel spills. Evaporation and the strong tidal movement in the area quickly removed the resultant slicks.

Sewerage Contamination

Four sewage spills occurred in 1998/99, mainly from ruptured pipes. They caused no significant damage as little sewage entered the river. Only one resulted from pump station failure. This is a significantly better performance than the expected number of incidents (4.7 per year) determined by the overflow risk assessment used in the Control Measures to Reduce Sewage Overflows into the Swan and Canning rivers position paper. It reflects the continuing benefit of changes made by the Water Corporation to the management and operation of sewage pump stations.

There were seven other reports of sewage discharges. Two could not be substantiated and five were found to be discoloured water and not sewage discharges.

Date	Location	Estimated quantity (kL)	Environmental Hazard Assessment
12.1.99	Jetty Road, Claremont	2	Low - little reached the river
13.12.98	Wright Street, Belmont	3	Low - pump failure overflow bunded before entering river.
16.11.98	Katanning Street, Bayswater	2	Low - large dilution volume.
1.9.98	Marshall Park, Midland	10	Low - most did not reach river.

Sediment plume from dewatering operation, East Fremantle.

COMMUNITY EDUCATION AND INVOLVEMENT

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.

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 river and catchment issues by:

- Providing information on issues affecting protection and management of the river system;
- Seeking community views on river issues;
- Supporting community-based activities aimed at restoring and protecting shorelines and other elements of the river system;
- Distributing river and catchment information via publications, videos, talks to schools and community groups and displays at special events such as the Boat Show;
- Keeping the media informed about river issues and the Swan-Canning Cleanup Program, community group activities and issues important to the river's health.

PROMOTIONS

Swan River Trust officers have been working with local government and community groups to improve skills and help with environmental and development planning. Local governments are taking a greater role in protecting their foreshore areas and raising community awareness of issues affecting the health of the river. Many local government officers now work closely with community and school groups in their area to protect and enhance sections of river foreshore. The Trust supports their efforts to help promote better environmental awareness and management.

Awareness of the Trust and its objectives are also promoted through regular visits to schools and community groups.

Business people, local governments and other government agencies need to be familiar with the policies of the Swan River Trust and issues affecting the health of the river. Trust officers meet regularly with business and council groups to increase community awareness of Trust policies. This helps streamline the development application process by reducing the number of applications that do not conform to Trust guidelines.

Newspaper articles and television news coverage of research and community projects help raise awareness of the importance of a healthy river and catchment.

Major issues covered by the media in the past year include the use of sea-planes on the Swan and Canning rivers, a sediment research project and oxygenation trial being undertaken as part of the Swan-Canning Cleanup Program, algal blooms in the Swan and Canning rivers, and the trial of commercial (hire and drive) houseboats. The release of Black Bream into the Swan River, development at Minim Cove and Pier 21, the Ellen Brook Action Plan, and rubbish in the river were also in the news.

RIVER MANAGEMENT AWARENESS

In July 1998, the Trust invited representatives from the community to a forum about the Swan-Canning Cleanup Program Draft Action Plan. Over 100 people heard talks from Trust officers and the West Australian Estuarine Research Foundation, on the main recommendations in the draft Action Plan to clean up the Swan-Canning rivers and estuary.

The aim of the community forum was to promote awareness of the SCCP and issues relating to the health of the river and its foreshores and to encourage the community to have their say by making submissions to the draft Action Plan.

The community forum was well received by participants and 53 submissions were received on the draft Action Plan.

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 Trust and community group activities and is a valuable resource for school projects. Each issue contains a feature on important issues related to the health of the river system, such as stormwater drains, water quality protection, landcare activities in the region, the history of community involvement, algae and algal blooms and the progress of the Swan-Canning Cleanup Program.

A half-yearly edition of RiverView newsletter was also distributed to around 50,000 near river residents within the Trust's management area. This newsletter informs residents about the Trust's operations and includes advice on how they can contribute to the management of the river.

As part of the Swan Canning Industry Survey, the Trust and local government officers have provided advice to industries found to have problems with operational procedures that may cause potential pollution incidents. An education pack including stickers, posters, workplace signs and stencils is continuing to be distributed to industry and other interested parties.

The Swan River Trust updated its internet site and is on-line at http://www.wrc.wa.gov.au/srt. The web site is linked to the Water and Rivers Commission and the Swan Avon Integrated Catchment Management site to enable easy access for the community.

Publications produced during the 1998-99 financial year were:

Reports

- Annual Report 1997-98
- SRT 29 Freshwater Bay Management Plan
- SRT 31 Swan-Canning industry survey: Pilot survey report: Swan Canning cleanup program project (Pending)
- SRT 31 Swan-Canning industry survey: Pilot survey report: Swan Canning cleanup program project: Executive summary (Pending)
- Swan-Canning Cleanup Program, A Draft Action Plan to clean up the Swan-Canning Rivers and Estuary
- Swan-Canning Cleanup Program, Action Plan
- Swan-Canning Cleanup Program, Analysis of Public Submissions
- Swan-Canning Cleanup Program, Your Questions Answered

Pamphlets

- Swan-Canning Cleanup Program: Your chance to have your say
- Swan-Canning Cleanup Program: Summary
- Swan River Education Kit. Curriculum support activities and resources for schools (promotional pamphlet)

Newsletters

- RiverView, Issues No. 15,16,17.

Posters

- Don't let your river go down the drain (residential) Reprint
- H2Only (industry) Reprint

SPECIAL PROJECTS

Swan-River Education Kit

This project is funded by the National Landcare Program to provide a framework for ways to study the river environment across the primary and secondary school curricula. Curriculum materials and background information on the Swan and Avon rivers and their catchments have been compiled to link to the curricula areas of "Science" and "Society and Environment". The Swan River Education Kit is now available.

Swan River Community Perceptions Survey

The Swan River is regarded as one of Perth's icons. People's ideas about the rivers, the shoreline reserves and their management is an important part of the information needed by the Trust to carry out its role of protecting and managing these areas. A telephone survey of perceptions and expectations to determine community views on the state of the river and its shoreline reserves, the management of these areas and the extent to which environmental and recreational aspects of these areas meet the expectations of the community was conducted in January 1999.

Kath Broderick, Water and Rivers Education Officer, with Noel Nannup, CALM, at the launch of the Swan River Education Kit.

The survey provided a comparison of "stakeholder satisfaction" to compare with results from the pilot survey in 1998. The survey will be repeated every three to five years to establish changes in community views and expectations. In the interim years, a telephone survey of riverside residents will be conducted.

Results from this survey will be used in this and future Trust annual reports as part of its Performance Indicators and to assist the Trust in developing its long term plans for protection and management of the waterways and shoreline reserves that make up the Swan River Trust Management Area.

The survey has demonstrated that community awareness needs to be improved and the Trust is working on raising levels of community awareness.

Interestlingly though, the Water and Rivers Commission also undertook a survey and their results showed a higher degree of awareness of the Swan River Trust.

Performance Indicators

OPINION OF THE AUDITOR GENERAL

To the Parliament of Western Australia

SWAN RIVER TRUST

PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 1999

Scope

I have audited the key effectiveness and efficiency performance indicators of the Swan River Trust for the year ended June 30, 1999 under the provisions of the Financial Administration and Audit Act 1985.

The Swan River 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 and timeliness.

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 effectiveness and efficiency performance indicators of the Swan River Trust are relevant and appropriate for assisting users assess the Trust's performance and fairly represent the indicated performance for the year ended June 30, 1999.

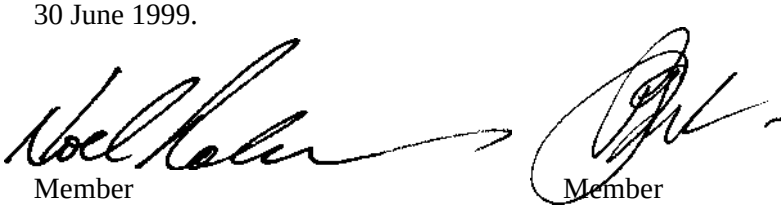
D D R PEARSON

AUDITOR GENERAL

November 17, 1999

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 1998 to 30 June 1999.



Member Member

THE SWAN RIVER TRUST'S ROLE

Outcome

Conservation and management of the Swan and Canning river system

Objectives

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

Goals

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

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

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

KEY EFFECTIVENESS INDICATOR 1

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

MEASURE: Data analysis from water quality monitoring river & drain nutrient inputs

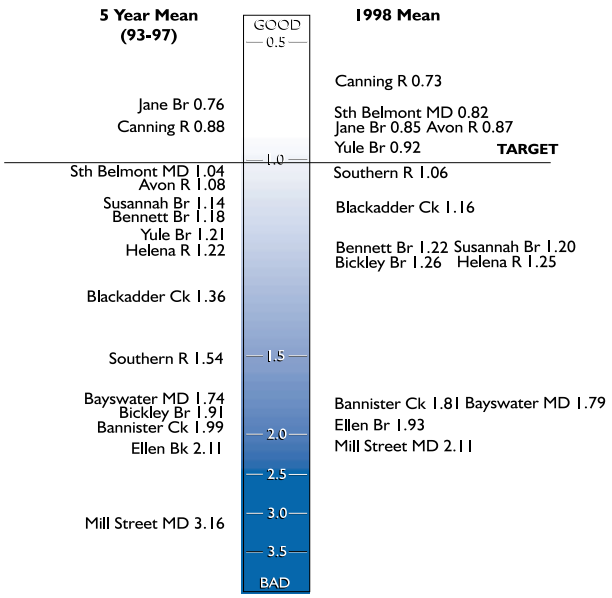
Comparison against targets

Excess nitrogen and phosphorus input to the Swan Canning estuary 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 degradation in water quality.

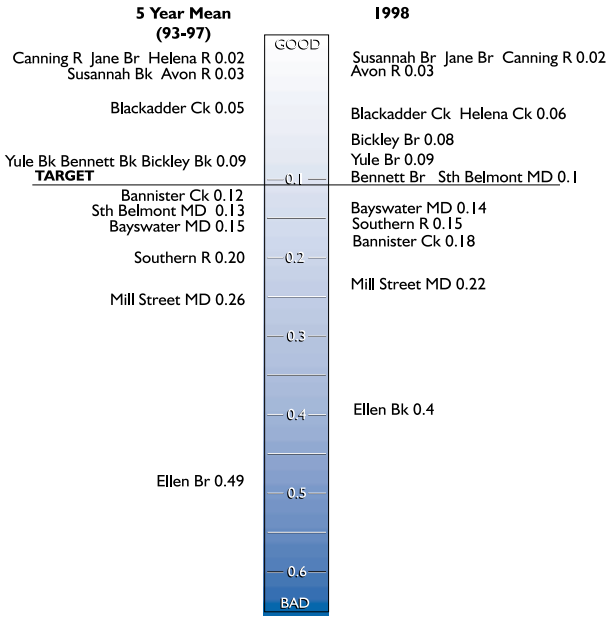
Long-term targets in nitrogen and phosphorus concentration for the Swan Canning estuary are used as management objectives. Nutrient targets for rivers and drains have been developed based on guidelines recommended by the National Water Quality Management Strategy Guidelines (ANZECC) and now have been adopted for the Swan Canning Cleanup Program Action Plan. The recommended target concentrations in rivers and drains are 1.0 mg/L for nitrogen and 0.1 mg/L for phosphorus. The rivers and drains below the target concentration have achieved the management objective.

Concentration of nutrients in streams entering the estuary, 1998/99

Nitrogen (mg/L)



Phosphorus (mg/L)



An effective measure of management performance is to compare the nutrient data from water quality monitoring of the rivers and drainage inflows to the Swan-Canning estuary. Comparing annual mean nutrient concentrations to five year means gives an indication of the past and present condition of the rivers and drains. Although the figures can illustrate the present (1998) condition of the rivers and drains, variation due to rainfall and flow can influence the mean nutrient concentration for any single year. Therefore, the five year mean provides a better measure of the general condition of the water quality for the rivers and drains.

In 1998 the five year mean for the following sites complied with the nitrogen target concentration: Canning River, Jane Brook. The five year mean for the following sites complied with the phosphorus target concentration: Bennett Brook, Bickley Brook,

Blackadder Creek, Canning River, Helena River, Jane Brook, Susannah Brook, Avon River and Yule Brook. Those rivers and drains exceeding the target concentrations require management attention in the catchment to reduce the amount of nutrients exported to the Swan Canning estuary.

In 1996 the five year mean showed that only four (50 per cent) of the eight streams monitored showed phosphorus levels below the target and only one (12.5 per cent) showed nitrogen levels below the target. The five year mean in 1997 and 1998 was based on 15 streams. These data show that the percentage of streams sampled that were below the target for phosphorus increased from 53 per cent to 60 per cent. In the case of nitrogen the five year mean remained at 13 per cent. This indicates a continuing improvement in the quality of water entering the estuary for phosphorus. A reduction in nitrogen as a result of changing land management in the catchments is still to be observed. However the annual mean data indicate that early signs of improvement for nitrogen are beginning to appear.

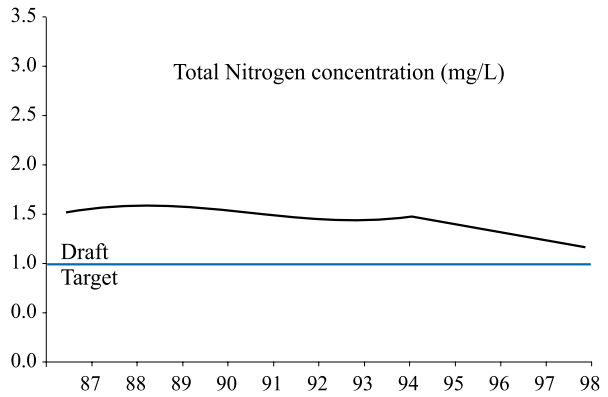
Measure of long-term performance

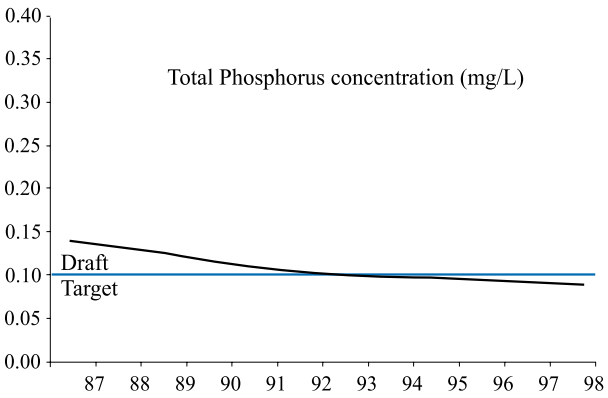
The following graphs use the nutrient water quality data collected from rivers and drains in the Swan Canning catchment from 1987-98. Some sites were monitored continuously, while others have only been monitored for a short period of time.

In general, nitrogen concentrations entering the Swan Canning estuary are currently above the target concentration. There was little overall change in nitrogen concentration from 1987-95, although a decreasing change is apparent over the past few years. In general, phosphorus concentrations entering the Swan Canning estuary are currently below the target concentration. Phosphorus concentrations appear to have decreased between 1987-92, levelled out between 1992-95 and decreased again in recent years. These changes in nitrogen and phosphorus entering the Swan Canning estuary must be interpreted with a degree of caution. Using compiled data means that changes in concentration may be reflecting long-term rainfall patterns or a change in the sampling program.

While the figures show that both nitrogen and phosphorus input to the Swan Canning estuary are generally decreasing in recent years, this may not be representative of the nutrient water quality for many individual monitored rivers and drains. As shown previously, many monitored sites still exceed the nitrogen and phosphorus targets and contribute excessive amounts of nutrients to the Swan Canning estuary. However the overall trend is encouraging and does coincide with the escalation of community based catchment management.

Concentration of nutrients in streams entering the estuary, 1987-1998





KEY EFFECTIVENESS INDICATOR 2

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

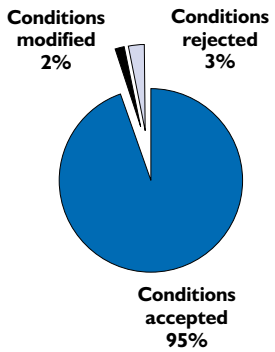
Measure: Level of acceptance of conditions recommended by the Trust for developments

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

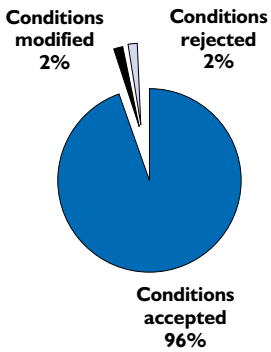
The Trust makes recommendations to the Minister on applications to commence development within and affecting the management area. The Minister determines refusal or approval of the Part 5 applications, and whether the recommendation is acceptable to be forwarded to the Minister for Planning in the case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

Previous audits have only assessed the level of acceptance of the Trust's recommendations on Part 5 applications. The current audit included both Part 5 and Clause 30A recommendations and indicates a consistently high level of performance by the Trust.

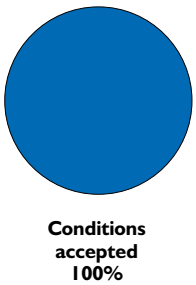
1993/94



1997/98



1998/99



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 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.

General Recommendations	1994	1998
Implemented (Completed)	23	24
Ongoing	65	91
Initiated	27	8
Seeking advice	9	0
No action	9	10
Total	**133**	**133**

Specific Area Recommendations	1994	1998
Implemented (Completed)	32	42
Ongoing	32	56
Initiated	35	13
Seeking advice	3	0
No action	24	15
Total	**126**	**126**

- Some of the recommendations that appear as initiated and seeking advice in 1994 have now been progressed and appear in the ongoing column in 1998.

The results indicate that there are only 25 recommendations that remain without action and eight of those are no longer relevant. Since 1994 eleven more recommendations have been completed, a 20 per cent increase on the previous audit. The number of recommendations that are now ongoing has increased from 97 in 1994 to 147 in 1998, which is almost a 50 per cent increase.

The strategy is now in its eleventh year and work remains to be commenced on those recommendations highlighted in the 1994 report as having a high priority eg. the preparation of a detailed management program, completion of the precinct policies for the landscape plan, and the preparation of a SPP policy statement. These outstanding issues are being addressed in the development of the landscape precincts policy and review of the statutory mechanisms for implementation of the Swan Canning Cleanup Program.

KEY EFFECTIVENESS INDICATOR 3

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

A Trust objective is to plan for the conservation, enhancement and appropriate development of the river system. Environmental quality, aesthetics, access and use are values placed on the Swan and Canning rivers by the community.

In early 1999 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.

The measures have been compared to previous surveys conducted in 1993-94 and 1997-98. No significant change in community perceptions or expectations has been recorded.

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

Survey	1993-94	1997-98		1998-99
Survey method	Shoreline users interviews	Adjacent residents telephone poll	Shoreline users self administered questionnaire	Telephone poll
Level of satisfaction	70.5%	72%	73%	67%

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

Survey	1993-94	1997-98		1998-99
Survey method	Shoreline users interviews	Adjacent residents telephone poll	Shoreline users self administered questionnaire	Telephone poll
Level of satisfaction	63%	69%	73%	64%

Survey questions in 1997-98 and 1998-99 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.

Measure: Total number of pollution complaints/incidents

Year	Number of Complaints
1993/94	133
1994/95	151
1995/96	97
1996/97	96
1997/98	97
5 year average	**115**
1998/99	86

The number of pollution complaints in 1998/99 sees a continuation of the trend of the previous years. The trend is a reflection of the increased awareness individuals and businesses have of the vulnerability of the river ecosystem and 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. There is no consistent trend in the levels of these complaints.

Key Efficiency Indicators and Output Measures

The Swan River Trust has further developed these measures since the 1997/98 Annual Report and the publication of the Budget Statements for 1998/99 by the Parliament of Western Australia. In order to present a better coverage for each Output, the measures published in the 1999/2000 Budget Statements have been used as the basis for reporting the output performance for 1998/99. The performance for 1997/98 and the targets for 1998/99 have been recalculated on this basis for comparative purposes.

The Trust considers that the output measures published in the Budget Statements are also key indicators of output performance and has therefore chosen to present the audited performance efficiency indicators and the comparison of actual against targets identified in the Budget Statements together.

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	1997/98 Actual	1998/99 Target	1998/99 Actual	Reason for variation
Cost $'000				
Cost of waterway monitoring and reporting			384	
Cost of research and development (R&D)			187	
Cost of Output	**751**	**584**	**571**	
Quantity/units				
Area of waterway & catchment monitored km^2	2116	2116	2116	
Number of R&D projects	4	4	4	
Quality				
Extent to which the monitoring network covers the waterway & catchment	n/a	n/a	90%	
Reliability of monitoring information	n/a	95%	95%	
Timeliness				
Projects completed on time	3	4	3	Sediment remediation project delayed due to extended negotiations on patent and commercial arrangements
Audited Efficiency Indicators				
Cost/unit $'000				
Cost per km^2 of waterway monitoring and reporting	0.151	0.184	0.182	Research conducted for Swan Canning Cleanup Program reducing with the completion of the Action Plan
Average cost per R&D project	108	49	47	

Performance measures for Output

Effectiveness: The information is relevant to and supports the effective development of management actions and strategies.

OUTPUT: Regulate riverside development

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

Performance measures for Output

Measure	1997/98 Actual	1998/99 Target	1998/99 Actual	Reason for variation
Output cost $'000	**450**	**471**	**581**	
Quantity/units				
Management Area subject to development control policy & advice (km^2)	69	69	69	
Number of development applications assessed	214	200	246	
Quality				
Acceptance of recommendations on development	95%	95%	100%	
Acceptance of recommended approval conditions	96%	n/a	100%	
Timeliness				
Average No days to process planning & development applications	61	n/a	53	Improved procedures and liaison with referral agencies and applicants
Audited Efficiency Indicator				
Cost/unit $'000				
Cost of development control policy and advice per km^2 of management area	6.5	6.8	8.4	Increased number of applications and an increase in operating costs including those associated with development of the computer based work flow management system.
Average cost per application assessed	2.1	2.4	2.4	

Effectiveness: Development does not adversely affect conservation, environmental and amenity values of the Swan and Canning rivers and enhances the community's enjoyment of the rivers.

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.

Performance measures for Output

Measure	1997/98 Actual	1998/99 Target	1998/99 Actual	Reason for variation
Output cost $'000	**534**	**441**	**428**	
Quantity/units				
Production of management plans and strategies	5	2	2	Three of the plans in 1997/98 were specific issue or local area plans. The two plans completed in 1998/99 were the SCCP Action Plan and a catchment management plan.
Quality				
Stakeholder acceptance of management plans & strategies [1]	n/a	80%	96%	High level of community support for two plans part of the Swan Canning Cleanup Program
Timeliness				
Plans prepared within timeframe	n/a	n/a	2	
Audited Efficiency Indicator				
Cost/unit $'000				
Average cost per plan or strategy	107	221	214	All of the plans took more than one year to complete with the major cost of the plans completed in 1998/99 being incurred in that year.

Effectiveness: Provides strategic framework for activities required to ensure long term conservation and management of the Swan and Canning rivers.

[1] Measured for those plans advertised for public comment or referred to selected stakeholders, assessed on submissions.

OUTPUT: Protection of waterways & foreshores

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

Performance measures for Output

Measure	1997/98 Actual	1998/99 target	1998/99 Actual	Reason for variation
Cost $'000				
Cost of maintenance and restoration			531	
Cost of waterway and foreshore protection			165	
Cost of Output	**671**	**711**	**696**	
Quantity/units				
Length of foreshore subject to maintenance & restoration (km)	146	146	146	
Management area subject to waterway & foreshore protection km^2	69	69	69	
Area of the waterway & catchment impacting on water quality management km^2	2116	2116	2116	
Quality				
Length of foreshore scheduled for maintenance & restoration as % of total foreshore	53%	53%	41%	The length of river foreshore has been recalculated and is estimated to be 358 km.
Percentage of sub-catchments within phosphorus input target	53%	n/a	60%	Catchment management, a key SCCP strategy is showing an improvement in water quality in more catchments.
Percentage of sub-catchments within nitrogen input target	13%	n/a	13%	While there is no improvement based on 5 year means, a comparison between the annual mean for the 2 years shows a 6% improvement
Timeliness				
Percentage achievement of scheduled maintenance & restoration program completed on time	n/a	80%	89%	Reduction in the amount of Ad hoc and urgent response work impacting on planned activities.
Audited Efficiency Indicators				
Cost/unit $'000				
Cost of maintenance & restoration per km	3.5	3.8	3.6	Previously only included cleaning program ($1356/km)
Cost of waterway & foreshore protection per km^2	2.3	2.3	2.4	

Effectiveness: Community satisfaction with the condition of Swan and Canning rivers waterways and shorelines

OUTPUT: Community education & awareness

Output description: Produces the Annual Report of the Trust's activities, technical reports and information on river management and the community's role in living by and using the waterways. Organises functions to promote the Trust's activites and promote good river management practices.

Performance measures for Output

Measure	1997/98 Actual	1998/99 target	1998/99 Actual	Reason for variation
Output cost $'000	**149**	**178**	**176**	
Quantity/units				
Number of stakeholder events	2	4	3	
Number of publications	15	10	15	Demand for reports and pamphlets for SCCP exceeded target.
Quality				
Change in community awareness of the Swan River Trust	n/a	n/a	10%	Survey conducted in 1997/98 established the baseline that 19% of respondents were aware of the SRT. This increased to 29% in 1998/99.
Timeliness				
Audited Efficiency Indicator				
Cost/unit $'000				
Cost per 1000 head of Perth population 1.3342 million	0.111	0.133	0.132	

Effectiveness: Community awareness of the value of the Swan and Canning rivers and support for their conservation and management is raised.

Financial Statements

OPINION OF THE AUDITOR GENERAL

To the Parliament of Western Australia

SWAN RIVER TRUST

FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 1999

Scope

I have audited the accounts and financial statements of the Swan River Trust for the year ended June 30, 1999 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.

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 transactions for the year ended June 30, 1999 and the financial position at that date.

D D R PEARSON

AUDITOR GENERAL

November 17, 1999

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 to 30 June 1999 and the financial position as at 30 June 1999.

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

23 August 1999

SWAN RIVER TRUST

OPERATING STATEMENT

for the year ended 30 June 1999

	Note	1998/99 ($)	1997/98 ($)
COST OF SERVICES			
Operating expenses			
Salaries and Wages		973,608	1,186,026
Interest		14,678	15,837
Depreciation	2	104,040	72,625
Members Fees		21,965	21,005
Grants & Contributions		23,181	29,650
Service Related Expenses	3	1,315,065	1,124,009
Goods & Materials	4	51,365	81,682
Other Operating Expenses	5	81,846	83,136
Net Loss on Sale of Non Current Assets	6	0	11,458
Total operating expenses		2,585,748	2,625,428
Revenues from services			
Commonwealth Grants and Contributions	7	27,000	16,000
Net Surplus on Sale of Non Current Assets	8	26,906	0
Other Operating Revenue	9	71,534	48,272
Total revenues from services		125,440	64,272
Net Cost of Services		**2,460,308**	**2,561,156**
REVENUES FROM GOVERNMENT			
Consolidated Fund - Recurrent Appropriation		2,315,000	2,284,000
Resources Received Free of Charge	10	7,821	6,000
Total revenues from Government		2,322,821	2,290,000
Change in Net Assets Resulting from Operations		**(137,487)**	**(271,156)**
Add			
Opening Balance of Accumulated Surplus		294,547	565,703
Closing Balance of Accumulated Surplus		**157,060**	**294,547**

SWAN RIVER TRUST

STATEMENT OF FINANCIAL POSITION

as at 30 June 1999

	Note	1998/99 ($)	1997/98 ($)
CURRENT ASSETS			
Cash Resources	11	106,379	127,445
Accounts Receivable	12	6,494	9,003
Prepayments	13	608	918
Total Current Assets		113,481	137,366
NON CURRENT ASSETS			
Plant and Equipment	14	113,014	234,086
Land	14	280,000	280,000
Buildings	14	36,476	38,766
Developer Bond	15	0	694
Total Non Current Assets		429,490	553,546
Total Assets		**542,971**	**690,912**
CURRENT LIABILITIES			
Accounts Payable	16	4,679	1,093
Accrued Expenses	17	16,956	9,186
Employee Entitlements	18	110,136	129,350
Developer Bond	19	4,250	4,250
Borrowings from WA Treasury Corporation	20	7,603	7,331
Total Current Liabilities		143,624	151,210
NON CURRENT LIABILITIES			
Developer Bond	15	0	694
Employee Entitlements	18	57,926	52,101
Borrowings from WA Treasury Corporation	20	184,361	192,360
Total Non Current Liabilities		242,287	245,155
Total Liabilities		**385,911**	**396,365**
Net Assets		**157,060**	**294,547**
EQUITY			
Accumulated Surplus		157,060	294,547
Total Equity	21	**157,060**	**294,547**

SWAN RIVER TRUST

STATEMENT OF CASH FLOWS

for the year ended 30 June 1999

	Note	1998-99 Inflows (Outflows) ($)	1997-98 Inflows (Outflows) ($)
CASH FLOWS FROM GOVERNMENT			
Consolidated Fund - Recurrent Appropriation		2,315,000	2,284,000
Net Cash Provided by Government		2,315,000	2,284,000
Utilised as follows:			
CASH FLOWS FROM OPERATING ACTIVITIES			
Payments			
Payments to Employees		(983,803)	(1,152,562)
Members Fees		(17,389)	(21,005)
Payments to Suppliers		(1,436,870)	(1,322,261)
Grants & Contributions		(23,181)	(29,650)
Interest Paid to Treasury Corporation		(14,661)	(15,736)
Receipts			
Other Receipts		74,043	43,520
Commonwealth Grants and Contributions		27,000	16,000
Net Cash Used in Operating Activities	22	(2,374,861)	(2,481,694)
CASH FLOWS FROM INVESTING ACTIVITIES			
Payments for Property, Plant and Equipment		(2,152)	(4,793)
Proceed from sale of Plant and Equipment		49,500	939
Payments associated with Sale of Equipment		(1,120)	0
Net Cash From Investing Activities		46,228	(3,854)
CASH FLOWS FROM FINANCING ACTIVITIES			
Repayment of Borrowings to WA Treasury Corporation		(7,434)	(7,272)
Net Cash Used in Financing Activities		(7,434)	(7,272)
TOTAL CASH FLOWS FROM OPERATING, INVESTING AND FINANCING ACTIVITIES		(2,336, 067)	(2,492,820)
Net Decrease in Cash Held		**(21,067)**	**(208,820)**
Cash at the beginning of the reporting period		127,446	336,266
Cash at the End of the Reporting Period	11	**106,379**	**127,446**

SWAN RIVER TRUST

NOTES TO THE FINANCIAL STATEMENTS

for the year ended 30 June 1999

1 STATEMENT OF 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.

(a) General System of Accounting

(i) The financial statements are prepared in accordance with the Financial Administration and Audit Act 1985.

(ii) The accrual basis of accounting is being applied during the preparation of the general purpose financial report.

(iii) Subject to the exceptions noted in the paragraphs below dealing with valuation of fixed assets, the accounts have been drawn up on the basis of historical cost principles.

(iv) The financial statements constitute a general purpose financial report which has been prepared in accordance with Australian Accounting Standards and UIG Consensus Views as applied by the Treasurer's Instructions. Several of these are modified by the Treasurer's Instructions to vary the application, disclosure, format and wording. The Financial Administration and Audit Act and the Treasurer's Instructions are legislative provisions governing preparation of financial statements and take precedence over Australian Accounting Standards and UIG Consensus Views. The modifications are intended to fulfil the requirements of general application to the public sector, together with the need for greater disclosure and also to satisfy accountability requirements. If any such modification has a material or significant financial effect upon the reported results, details of that modification and where practicable the resulting financial effect is disclosed in individual notes to these financial statements.

(b) Valuation of Non-Current Assets

All assets acquired after 30 June 1988 are shown at cost unless otherwise stated. Items costing less than $1000 and with an expected useful life of less than one year are expensed on acquisition.

(c) Depreciation

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 [refer also note 1(h)]
Plant and Equipment	5-7 years

(d) Employee Entitlements

(i) Provision for Annual and Long Service Leave

Annual and Long Service Leave entitlements are provided 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, 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".

(ii) 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 balance 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 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.

(e) Revenues

Revenues from Commonwealth Grants & Contributions are fully described in the notes to the accounts and are recognised upon receipt.

Other Operating Revenue represents river restoration fees, recoups of expenditure and other sundry revenue. Other Operating Revenue is recognised upon receipt.

(f) Comparative Figures

Where necessary comparative figures have been adjusted to conform with changes in presentation in the current year.

(g) Net Fair Values of Financial Assets and Liabilities

Net fair values of financial instruments are determined on the following bases:

- Monetary financials assets and liabilities not traded in an organised financial market - cost basis carrying amounts of accounts receivable, accounts payable and accruals(which approximates net market value);
- Fixed rate borrowings and leave liabilities - current risk adjusted market rates.

(h) Change in Accounting Policy

In previous years buildings have been depreciated over their estimated useful life on a straight line basis. The estimated useful life was considered 50 years. From 1 July 1999 the estimated useful life has been re assessed as 20 years. Depreciation is still calculated on a straight line basis.

The financial effect of the change was an increase in the annual depreciation charge from $875 to $2,290. A net increase of $1,415.

		1998/99 $	1997/98 $
2	DEPRECIATION		
	Buildings	2,290	875
	Plant, Machinery & Equipment	101,750	71,750
		104,040	72,625
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.	1,315,065	1,124,009
4	GOODS & MATERIALS		
	Goods and materials include office supplies, library acquisitions, laboratory supplies, motor vehicle running expenses, utilities and other consumable equipment and materials.	51,365	81,682
5	OTHER OPERATING EXPENSES		
	Other operating expenses include communication expenses, asset maintenance costs and other sundry operating expenses.	81,846	83,136
6	NET LOSS ON SALE OF NON CURRENT ASSETS		
	Plant, Machinery and Equipment	0	11,458
	Gross proceeds from disposal of assets	**0**	**939**
7	COMMONWEALTH GRANTS & CONTRIBUTIONS		
	National Heritage Trust Fund	27,000	16,000
8	NET SURPLUS ON SALE OF NON CURRENT ASSETS		
	Plant, Machinery and Equipment	26,906	0
	Gross proceeds from disposal of assets	**49,500**	**0**
9	OTHER OPERATING REVENUE		
	Sundry Revenue	71,534	48,272
10	RESOURCES RECEIVED FREE OF CHARGE		
	Service related expenses	7,821	6,000
	Resources received free of charge has been determined on the basis of the following estimates provided by agencies:		
	Office of the Auditor General		
	- audit services	6,100	6,000
	Treasury Department		
	- bank fees paid to Reserve Bank of Australia	296	0
	Crown Solicitors Office		
	- legal service charges	1,425	0
		7,821	6,000

		1998/99 $	1997/98 $
11	CASH RESOURCES		
	Operating Account	106,379	127,445
12	ACCOUNTS RECEIVABLE		
	Accounts receivable for goods and services supplied	6,494	9,003
	The Trust considers the carrying amounts of accounts receivable approximate their net fair value.		
13	PREPAYMENTS		
	WA Treasury Corporation	608	918
14	FIXED ASSETS		
	Plant, Machinery & Equipment at cost	428,771	603,047
	Less: Accumulated Depreciation	315,757	368,961
		113,014	234,086
	Land at cost (refer also to note 27)	280,000	280,000
	Buildings at cost	43,725	43,725
	Less: Accumulated Depreciation	7,249	4,959
		36,476	38,766
	Total Written Down Value	429,490	552,852
15	DEVELOPER BOND		
	Sale of abandoned property	0	694
16	ACCOUNTS PAYABLE		
	Accounts payable for goods & services received	4,679	1,903
	The Trust considers the carrying amounts of accounts payable approximate their net fair values.		
17	ACCRUED EXPENSES		
	2% pay rise to be back dated to 29 May 1999	881	0
	Members fees outstanding at 30 June 1999	4,576	0
	Amounts owing for 4 working days at 30 June 1999	11,499	9,186
	(1998 - 3 working days)	16,956	9,186
18	EMPLOYEE ENTITLEMENTS		
	Current Liability		
	Liability for Annual Leave	73,215	68,602
	Liability for Long Service Leave	36,921	60,748
		110,136	129,350
	Non-Current Liability		
	Liability for Long Service Leave	57,926	52,101
19	DEVELOPER'S BOND - CURRENT LIABILITY		
	Developer bond	4,250	4,250

		1998/99 $	1997/98 $
20	BORROWINGS FROM WA TREASURY CORPORATION		
	Balance of Loan 1 July	199,692	206,970
	New Borrowings	0	0
		199,692	206,970
	Less: Capital repayments	7,728	7,278
	Balance of Loan 30 June	191,964	199,692
21	EQUITY		
	Opening Balance	294,547	565,703
	Change in Net Assets resulting from operations	(137,487)	(271,156)
		157,060	294,547
22	RECONCILIATION OF NET CASH USED IN OPERATING ACTIVITIES TO NET COST OF SERVICES		
	Net cash used in operating activities (Cashflow Statement)	2,374,861	2,481,694
	Adjusted for:		
	Increase/(Decrease) in Accrued Expenses	7,770	3,510
	Increase/(Decrease) in Creditors	3,586	(31,989)
	Increase/(Decrease) in Employee Entitlements	(13,390)	18,608
	(Increase)/Decrease in Debtors	2,509	(5,091)
	(Increase)/Decrease in Prepayments	17	91
	Resources received Free of Charge	7,821	6,000
	Depreciation	104,040	72,625
	Loss on Sale of Non Current Assets	0	11,458
	Gain on Sale of Non Current Assets	(26,906)	0
	Increase in Developer Bond	0	4,250
	Net Cost of Services (Operating Statement)	2,460,308	2,561,156

Note: a portion of a loan principal repayment was treated as a prepayment in 1997-98. Therefore the change in prepayments in 1998-99 relating to expense items was only $17.

23 REMUNERATION OF ACCOUNTABLE AUTHORITY

The total fees, salaries and other benefits received or due and receivable for the financial year, by members of the accountable authority.	17,389	20,302

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:

	1999	1998
$ 0 000 - $10 000	3	5
$10 001 - $20 000	0	1

	1998/99 $	1997/98 $
24 RETIREMENT BENEFITS		
In respect of members of the Accountable Authority, the following amounts were paid or became payable for the financial year:		
Contributions to the West State Superannuation Scheme	776	118
Contributions to other superannuation funds	4,576	0
	5,352	118
25 REMUNERATION OF THE AUDITOR		
External Audit (refer also note 10)	6,100	6,000

26 SEGMENT REPORTING

The Swan River Trust operates in one industry and geographical segment being the conservation and management of the Swan and Canning river system. The Trust's outputs as detailed in the 1998-99 Budget Statements are provided at note 28 b) with comparisons to actual results.

27 GOVERNMENT PROPERTY REGISTER

Land is recorded on the Government Property Register at the following valuations performed by the Valuer General's Office: $220,000 "Hypothetical Alternate Land Value" and $95,000 "Current Use". The valuations are dated 1 July 1998.

28 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.

	1998-99 Actual $	1997-98 Actual $	Variance $	Variance %
Operating Expenses				
Salaries and Wages	973,608	1,186,026	(212,418)	(a) 18%
Interest	14,678	15,837	(1,159)	7%
Depreciation	104,040	72,625	31,415	43%
Members Fees	21,965	21,005	960	5%
Grants & Contributions	23,181	29,650	(6,469)	22%
Service Related Expenses	1,315,065	1,124,009	191,056	(a) 17%
Goods & Materials	51,365	81,682	(30,317)	37%
Other Operating Expenses	81,846	83,136	(1,290)	2%
Net Loss on Sale of Non Current Assets	0	11,458	(11,458)	n/a
Total Expense	**2,585,748**	**2,625,428**	**(39,680)**	**2%**
Revenues				
Commonwealth Grants and Contributions	27,000	16,000	11,000	69%
Net Surplus on Sale of Non Current Assets	26,906	0	26,906	n/a
Other Operating Revenue	71,534	48,272	23,262	48%
Total Revenues	**125,440**	**64,272**	**61,168**	**95%**
Net Cost of Services	**2,460,308**	**2,561,156**	**(100,848)**	**4%**

Explanation of Variances

(a) During 1997-98 Salaries and Wages included time spent by Water and Rivers Commission staff members working on Swan River Trust projects. In 1998-99 (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.

28 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.

	1998-99 Actual $'000	1998-99 Estimate $'000	Variance $'000	Variance %
Output				
Collect water information to support state planning, agencies and community	571	584	(13)	2%
Regulate riverside development	581	471	110	(a) 23%
Management plans	428	441	(13)	3%
Protection of waterways and foreshores	696	711	(15)	2%
Community education and awareness	176	178	(2)	1%
TOTAL	2,452	2,385	67	3%

Explanation of Variances

(a) The variation in the Regulate riverside development output is as a result of increased salary and operating costs including the development of a computer based work flow management system.

29 CAPITAL COMMITMENTS

The Trust has no capital commitments at 30 June 1999.

30 CONTINGENT LIABILITIES

A claim of $21.5 million for compensation for injurious affection has been made under section 63 of the Swan River Trust Act by Cape Bouvard Investments Pty Ltd in respect of its property in Downey Drive Mosman Park which has not yet been settled.

31 EVENTS OCCURRING AFTER REPORTING DATE

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

32 LOSSES

There were no losses of public moneys, moneys of a statutory authority or other moneys and public or other property through theft, default or otherwise for the Trust as at 30 June 1999 (nil 1998).

33 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.

34 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 1998-99	Non interest bearing 1997-98	Total 1998-99	Total 1997-98
		1 year or less	1 to 5 years	Over 5 years				
	%	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Assets								
Operating Account					106	127	106	127
Accounts Receivable					6	9	6	9
Pre payments					1	1	1	1
Total Financial Assets					113	137	113	137
Liabilities								
Accounts Payable					5	1	5	1
Borrowings from WATC 98-99	7.33%	8	32	152			192	
Borrowings from WATC 97-98	7.55%	8	32	160				200
Accrued Expenses					17	9	17	9
Developer Bond					4	5	4	5
Employee Entitlements					168	181	168	181
Total Financial Liabilities 98-99		8	32	152	194		386	
Total Financial Liabilities 97-98		8	32	160		196		396
Net Financial Assets (Liabilities) 98-99		(8)	(32)	(152)	(81)		(273)	
Net Financial Assets (Liabilities) 97-98		(8)	(32)	(160)		(59)		(259)

Credit Risk Exposure

The Trust's accounts receivable financial assets are unsecured.

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 of 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.

The following is an analysis of amounts owing by other government agencies:

	1998/99	1997/98
	$	$
Western Australian Government agencies	3,831	6,699
Government agencies of other jurisdictions	0	314
Total	3,831	7,013

Statement of Compliance

Enabling Legislation

The Swan River Trust is constituted under the Swan River Trust Act 1988, which was proclaimed on 1 March 1989.

Legislation impacting on the Swan River Trust

In the performance of its functions the Trust complies with the following relevant written laws:

- Aboriginal Heritage Act 1972-1980
- Conservation and Land Management Act 1984
- Control of Vehicles (Off-road Areas) Act 1978
- Disability Services Act 1993
- Environmental Protection Act 1986
- Equal Opportunity Act 1984
- Financial Administration and Audit Act 1985
- Freedom of Information Act 1992
- 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
- 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
- Navigation Act, Navigable Waters Regulations
- Occupational Health, Safety and Welfare Act 1987
- Parliamentary Commissioner Act 1971
- Pollution of Waters by Oil and Noxious Substances Act 1987
- Public and Bank Holidays Act 1972
- Public Sector Management Act 1994
- 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

In financial administration, the requirements of the *Financial Administration and Audit Act 1985* and every other relevant written law have been complied with and controls exercised which provide reasonable assurance that the receipt and expenditure of moneys and the acquisition and disposal of public property and incurring of liabilities have been in accordance with legislative provisions.

In the administration of the Swan River Trust, we have complied with public sector standards in human resource management, the code of ethics and in developing our code of conduct. We have put in place procedures designed to ensure such compliance and conducted appropriate internal checks to satisfy ourselves that the statement made in the paragraph above is correct.

No applications for breach of these standards were received.

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

Noel Robins
ACTING CHAIRMAN
27 August 1999

Robert Atkins
MANAGER
27 August 1999

APPENDIX 1

Ministerial approval to extend completion date of 1997/98 Annual Report

The Swan River Trust omitted to publish details of an approved extension to the completion date of 31 August 1998 in its 1997/98 Annual Report as required by section 65(4)(b) of the FAAA. This was an oversight.

On 28 August 1998, the Trust sought approval from the Minister for Water Resources to extend the closing date for publishing its draft 1997/98 Annual Report. Approval was granted in accordance with section 65(2)(b) of the FAAA.

The 1997/98 Annual Report was submitted to the Minister for Water resources on 23 September 1998 in accordance with the extension granted.

APPENDIX 2

Reporting requirement under Section 175ZE of Electoral Act 1907 - Public agencies to report on certain expenditure.

Statement of expenditure incurred by certain classes

Class of expenditure	Total expenditure for class	Name of person, agency or organisation where total annualpayments are greater than $1 500
Advertising agencies	$12 267.33	Marketforce $12 267.33
Market research organisations	$9 070.00	David Hides Consulting $9070.00
Polling organisations	0	0
Direct Mail Organisations	$1 578.85	Salmat - $1 578.85
Media advertising organisations	0	0