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#### Grass roots action in the catchment

POLLUTION of Bannister Creek spurred experienced nurse Julie Robert into action in the mid-1990s.

"Bannister Creek didn't have frogs in the creek for about three years after a massive fuel spill," Mrs Robert said.

"I picked up dead birds and started to link animal health with what I was doing at work and the diseases that people were getting."

The first Bannister Creek Catchment Group meeting was held in March 1996 in response to a massive foaming event and a perceived lack of interaction and cooperation between stakeholder organisations.

The group relied on a few dedicated community members who originally focused on educating children by extending their classroom into the creek. Group members often spoke to stakeholders and learned from other inspirational environmental people.

"We used our own resources, didn't have a decent computer and email wasn't heard of. There were lots of coffees, walks down by the creek, meetings and forums." Mrs Robert said.

"The City of Canning held a stakeholder forum which resulted in the group establishing a dream to restore the top area of Bannister Creek from a deep sided drain into a living stream.

"It was the dream of a local resident who still walks the area several times a day."

The City of Canning set up a management plan and organisations started to work together. In 1997 the first planning meeting was held. It took three years for the first on-ground work to start, and in 2001 Bannister Creek Catchment Group held its first planting at the living stream site.

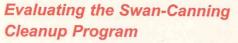
Mrs Robert said the success of the living stream reached far beyond the environmental benefits, with the creek becoming a focal point for the community.

She attributes the Swan-Canning Cleanup Program support and its ease of funding applications for much of this success, along with the autonomy of local organisations to help government agencies achieve their outcomes.

The Cleanup Program is about community capacity building, changing behaviour and water quality," she said.

"The Cleanup Program was willing to pay the people to work on the ground. It has achieved catchment management probably 100 per cent beyond what they

Mrs Robert was keen to see the direction the Cleanup Program would take after its evaluation.



AN EVALUATION of the Cleanup Program was planned as part of the fifth year of the Action Plan to ensure that work remained appropriate, effective and efficient. The Trust commissioned Oceanica Consulting to conduct the evaluation

Trust general manager Rod Hughes said the evaluation was designed to ascertain the achievements to date, and refocus the Action Plan in the light of scientific information and inevitable changes in institutional arrangements, as well as community priorities that occurred over the past five years.

"It has included technical input from experts from overseas, interstate and Western Australia," Mr Hughes said.

"The evaluation will also guide the Trust in defining the next suite of actions needed to sustain the health of the rivers. In the coming year we will be seeking community input in developing the new Action Plan, which will guide the Cleanup Program for the next five to 10 years."

The final evaluation report will be completed in July 2005.

## Looking forward

FURTHER development and the strategic direction of the Cleanup Program will be guided by the outcomes from the evaluation process, according to Minister for the Environment Dr Judy

"The Cleanup Program will continue to work closely with the Swan Catchment Council and stakeholders." Dr Edwards said.

"Additional financial support from the State Government in June 2003 and January 2004 has enabled the Cleanup Program to increase its support of the Swan Alcoa Landcare Program to

\$350,000. More nutrient intervention strategies will be developed and implemented, and an extensive range of information will be made available through the Trust website, publications and other mediums.

"The Trust will continue water quality sampling and provide environmental education opportunities for the rural and urban communities. They will also work with stakeholders across the Swan-Canning River System and Catchment on a range of projects designed to maintain and improve water quality and river health, as well as land quality and catchment health.

"This is an exciting time for the Cleanup Program and the Trust is eager to implement new recommendations resulting from the evaluation outcomes so they can ensure their endeavours are focused and properly implemented in the future."



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# Swan-Canning Cleanup Product 10TH BIRTHDAY

## A HEALTHY Swan-Canning River System is important to West Australians. For the past 10 years the Swan-Canning Cleanup Program has been working to protect and enhance the rivers.

In April 1999 the State Government approved \$17.5 million for a five-vear implementation program which was launched that June.

The Action Plan built on the research and management initiatives developed since 1994 by the Swan-Canning Cleanup Program Task Force to create projects across the Swan-Canning Catchment

Over the past five years, the Action Plan has resulted in the implementation of more than 20 projects. The projects range from financial support to community environmental groups working in the catchment, and sector-specific projects for local government. small landholders and light industry.

A range of environmental management projects have been implemented including water quality monitoring; oxygenation and the application of Phoslock™; the establishment of artificial wetlands at Liege Street; and drain retrofitting at the Mills Street Main Drain. In 2003 the program was increased with the establishment of the Drain Nutrient Intervention Program.

A wide range of community awareness initiatives were also implemented, including the establishment of the Cleanup Program logo, a key community message; the distribution of videos; the Swan River Action and Education kits and publications: environmental education; and participation at community events. media and advertising. The Drain Game and Corporate Care Day Program were launched in 2001, and Great Gardens workshops and the weekly Algae Activity Report were launched in 2003.

The Cleanup Program has been carried out in the Swan-Canning

Catchment in partnership with local and State Government. community volunteers and residents. In the Canning Catchment. the Canning Southern and Wungong Rivers Management Plan and the 'Caring for the Canning' Management Plan were developed with recommendations on nutrient and water quality management including environmental flows and other factors.

In the Swan Catchment, the Ellen Brockman Integrated Catchment Group celebrated planting their 500,000th plant and 100th kilometre of fencing in the Ellen Brook Catchment. Catchment groups are also active in the urban areas, with the North East Catchment Committee winning the overall State Environment Award in 2003.

Planning and land management use, and water sensitive urban design were a feature of partnerships with local and State government agencies, and a policy for local government Natural Resource Management was developed. The Department of Agriculture has implemented the award-winning Property Planning workshops and Heavenly Hectares seminars for rural land holders.

The Cleanup Program Action Plan is currently undergoing an external evaluation in order to determine its achievements and effectiveness, and identify areas in need of improvement and change. This evaluation will help the Swan River Trust continue to provide support to the community and ensure the health of the Swan and Canning rivers is maintained and improved so future generations can enjoy this wonderful natural asset.

## Celebrating the Cleanup Program's 10th birthday

HUNDREDS of people helped celebrate the Swan-Canning Cleanup Program's 10th birthday at the Perth Convention Exhibition Centre in August last year.

The celebrations were held as part of the Cleanup Program's annual Community Forum that was a feature of the free five-day

public exhibition WA On Show.

Environment Minister Dr Judy Edwards congratulated everyone involved with the Cleanup Program on their wealth of achievements over the past decade but noted there was still a long journey to reach the overall objectives.

Dr Edwards and Swan River Trust chairman Charlie Welker the Cleanup Program birthday cake. Community

members took the opportunity to find out more about the program and its initiatives outlined in the 2004 annual reporting brochure that was launched by Dr Edwards at the forum.

## History of the Swan-Canning Cleanup Program: 1994 - 2004

THE SWAN and Canning rivers and their estuarine basins were showing signs of stress in the early 1990s.

Algal blooms in the Swan River and toxic blue-green algal blooms in the Canning River focused community attention on the deteriorating health of the river system.

In 1994 the State Government commissioned the Swan River Trust to establish a five-year program to investigate the causes of algal blooms and prepare a plan to reduce their extent, frequency and duration. This became the Swan-Canning Cleanup Program.

The Swan-Canning Cleanup Program Task Force was established to develop the Action Plan to identify areas that would reduce algal blooms in the Swan and Canning rivers.

The Task Force brought together the main groups responsible such as State and local governments, community, and scientific organisations involved in the health of the rivers.

The Task Force established that high nutrient concentrations entering the rivers from the catchments was a major contributing factor in the occurrence of algal blooms, and that the Cleanup Program's focus would be tackling nutrients.

In 1999, the Swan River Trust launched the large scale, multi-disciplinary five-year Swan-Canning Cleanup Program Action Plan. It focused on four action areas with 10 key implementation recommendations and 44 sub-recommendations for specific actions needed to address nutrients and algal blooms.

More than 20 projects involving over 50 Cleanup Program staff have contributed annually to the Action Plan implementation.



# 1 – Support Integrated Catchment Management to reduce nutrient inputs

#### Taking green issues seriously

THE ROLE of future community environmental volunteers should be to lead environmental change by influencing State and local government, according to Swan Catchment Council General Manager Linda Soteriou.

Ms Soteriou's environmental interest and awareness grew from supporting environmental groups in the 1980s to becoming more involved through the community group Bayswater Green Work in 1989, the Bayswater Catchment Group in 1990 and the Bennett Brook Catchment Group in 1996.

She identifies 1990 as the turning point, when the environment started to become mainstream and community groups began to blossom.

"There were not many groups then, no method of networking within the community. Now there are more than 300 community environmental groups in Perth," Ms Soteriou said.

She said the Bayswater Integrated Catchment Management Group was the first urban landcare group in Perth. The Swan-Canning Cleanup Program's direct priority catchment funding helped fill the gaps and add to what was already happening.

Ms Soteriou said the priority catchment funding remained one of the Cleanup Program's best achievements, with the Swan Alcoa Landcare Program providing practical and easy to apply for funding.

"It is not usual that programs are so flexible. Priority catchment funding was a true partnership, with the Cleanup Program really trying to help," she said.

Ms Soteriou said the environment was now enjoying a better image than ever, but it still had not shaken off the message that it was all about community volunteers.

"The scale of on-ground outcomes are never going to be achieved by volunteers," she said.

Ms Soteriou suggested that volunteers would continue to play an important part in caring for the environment, but there was a growing role for the newly established bush regeneration industry to undertake major on-ground works. Volunteers also had a major role to play in influencing State and local government and inspiring the wider community.

She said within the past 15 years most local governments started to see the environment as their responsibility and had employed environmental officers. Some also had bushcare teams.

"The community has driven this change and it has worked extremely well across the regions," she said.

Other success stories for the Cleanup Program were the Swan-Canning Industry Survey, Property Planning for small landholders, and the Natural Resource Management manual for local government.

Ms Soteriou visualised a close partnership between the Swan River Trust and the Swan Catchment Council, where *Riverplan*, the Cleanup Program and the Swan Region Strategy identified and shared NRM priorities.



# 2 - Improve planning and land-use management to reduce nutrient inputs

#### Connection of land and rivers

**EFFECTIVE** environmental regulation and land use planning is essential to back up catchment management actions in Action Area One of the Swan-Canning Cleanup Program, according to Cleanup Program manager Adrian Tomlinson.

"Action Area Two of the Cleanup Program underpins and supports the other sections," he said.

"Most of the program is about giving people the tools and capacity to achieve Cleanup Program goals. Action Area Two is about creating the framework and regulatory backbone that enables the on-ground work to be completed.

"The Trust's landcare ethic that we need healthy catchments to have healthy rivers is evident through much of this work.

"Addressing land use planning is also important. The Cleanup Program has been involved with water sensitive urban design, catchment modelling and drainage management forums in order to look at land uses and how current trends impact on the rivers.

"The implementation of *Riverplan* will aid in consistent decision making throughout the Swan-Canning Catchment."

"The Swan-Canning Industry Working Group, involvement in drainage management forums, and development and provision of an environmental best management practice directory and fact sheets are initiatives implemented through the Cleanup Program for industry to help keep our rivers healthy."

Mr Tomlinson said the Cleanup Program was heading into an

exciting new era. Five sustainable industry officers have started working with the subregional catchment groups that were established with the recent restructure of Natural Resource Management positions throughout the Swan Region.

"These officers are forming partnerships with local industry and encouraging best management practice to protect the environment while increasing industry productivity," he said.

"And throughout the region, businesses are also encouraged to participate in the Corporate Care Day Program, which provides team building opportunities in the catchment planting trees, weeding, and learning about the impact of land-based activities including industrial pollution on the health of the rivers."

# 3 – Modify river conditions to reduce algal blooms

## Tackling nutrients

TWO major intervention techniques used as a support system for the lower Canning River are oxygenation and Phoslock™ applications.

Water in the Canning River has historically been retained above the Kent Street Weir to provide fresh water for agriculture and maintain a freshwater ecosystem. However, the weir also enables a build up of organic matter in the

bottom of the upper Canning River that is not flushed out regularly, leading to a decrease in oxygen.

Oxygenated water piped from two oxygenation plants during summer and autumn intervenes in the natural cycle and enables organisms to continue breaking down nutrients, prolonging the onset of algal blooms and decreasing their severity.

According to Department of Environment Aquatic Science Branch manager Malcolm Robb, in 1994 an upper Canning River algal bloom completely covered the river and was 10 to 15 centimetres

thick. Now the annual bloom does not cover the entire river and is much thinner

The phosphorus binding clay substance Phoslock™ has also been successful, taking 95 per cent of phosphorus permanently out of the water in its two years of application.

Phoslock™ was developed by the CSIRO, Water and Rivers Commission and the Swan River Trust through the Cleanup Program to address the high phosphorus levels in the rivers.

Mr Robb said the product had been

licensed to a commercial company to market and manufacture and was now sold internationally. However, it was not economical to treat the entire length of the Swan and Canning rivers, and it was important to address the source rather than the end problem.

## Cleanup Program based on science

"GOOD monitoring is good science," according to Department of Environment Aquatic Science Branch manager Malcolm Robb.

SWAN RIVER TRUST

Mr Robb has been providing science support for the Cleanup Program since its inception in 1994 when the catchment and estuary monitoring programs that are still a weekly feature were developed.

Weekly data are collected for a variety of measurements that help paint a picture of river health, including oxygen levels, phosphorus and nitrogen, species of phytoplankton (algae) and their densities in the water column.

The first few years focused on developing thorough understanding of the Swan-Canning Estuary to support the development of the Cleanup Program. Over time additional measurements were included, and much of the Department of Environment and Swan River Trust's current science understanding has come from this data

Mr Robb said this valuable set of data had been used nationally and was important in understanding the state of the rivers.

"Climate changes are impacting on the Cleanup Program's work. It is difficult to say whether the Swan Estuary is better or worse since the program started, just different," he said. "Drier winters mean less flow and higher salinities. We are meeting some of the targets and we have reduced some of the nutrient loads from the catchments but it has been drier.

"However, holding the line is in itself a success. Ten years ago you thought that if you took agriculture out and replaced it with housing, the environment would improve. This has turned out not to be the case and we are addressing it now."

Mr Robb said the general pattern of algal species succession had not changed much over 10 years, but the climatic impact was

evident through the timing and endurance of phytoplankton activity through the winter months.

He said research now showed there did not have to be a build up of sediment over several years to fuel algae because nutrient loading from the first spring bloom could provide enough nutrients to continue the phytoplankton cycle throughout the year.

"We are looking at the catchment and developing methods to stop phosphorus getting into the river," he said

Mr Robb said it would take an extended period to implement and analyse many of the scientific initiatives before their level of success could be determined, especially when other factors such as climate were uncontrollable. But it was important that science continued to play an integral role in the Cleanup Program.

4 – Monitor river health, fill critical gaps in knowledge and report progress to the community

### Understanding the state of the rivers

**RIVER** health is central to the Trust and Cleanup Program, and measuring progress and improving our understanding of the system is a major focus.

The Swan River Trust and its project partners have a greater understanding of the Swan-Canning River System, its ecological processes and contributing factors to algal blooms since the establishment of the Cleanup Program in 1994.

A routine water monitoring program was established in the Swan-Canning Estuary and its tributaries during the development of the Action Plan, and is one of the key projects within the Cleanup Program today.

During the past five years water quality data has been collected within the Swan-Canning River System including total and dissolved nutrients such as nitrogen and phosphorus, organic carbon, suspended solids, phytoplankton, and physical parameters such as dissolved oxygen, salinity, pH and temperature.

This data has provided Cleanup Program staff with the basis to detect water quality trends, set water quality targets for the catchment and estuary, and use the data in large scale modelling programs. Priority areas based on this information have also been targeted for specific remediation and rehabilitation work.

Nutrient levels in the middle and upper Swan River and upper Canning River have remained high despite the targeted work of the Cleanup Program. There have been fish kills in the Swan River associated with the domination of the *Karlodinium micrum* algal species, and summer blue-green algal blooms in the Canning River during the past five years.

Communicating environmental monitoring and scientific developments is another major component of the Action Plan. During the past five years the annual Cleanup Program Community Forum, technical reports and RiverScience brochures, displays, publications, Swan River Trust website www.swanrivertrust.wa.gov.au and Algae Activity Report have been used to provide the community with up-to-date and practical information.

