SWAN RIVER TRUST

RIVERVIEW

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Swan and Canning rivers stressed

An algal bloom in the upper Swan River, low oxygen levels and fish kills in the middle reaches, and a red tide in the lower Canning River have concerned the Swan River Trust throughout autumn.

Trust waterways officers collected more than 5000 dead fish between East Perth and Bassendean during March and April.

Trust general manager Rod Hughes said high densities of the dinoflagellate *Karlodinium micrum* were detected in the Swan River from Middle Swan Bridge to Bassendean on 16 March and densities remained high until mid-April.

"Autumn rains have washed more nutrients and leaf matter into the rivers, which help feed the algal blooms that take oxygen out of the water column as they grow," Mr Hughes said.

"The Department of Environment and the Swan River Trust undertakes weekly environmental monitoring of the Swan-Canning Estuary as part of the Swan-Canning Cleanup Program.

"To understand more about *Karlodinium*, additional weekly monitoring started in October 2004 at sites in the upper reaches of the Swan River to Middle Swan Bridge.

"Fish deaths may occur from low oxygen resulting in asphyxiation. When fish are stressed from low oxygen they are particularly vulnerable to these algal toxins produced by *Karlodinium*."

Mr Hughes was also concerned low oxygen levels in the Canning River could affect aquatic life.

"The oxygen tanks have been operating around the clock to help address the situation, and we are conducting river inspections as well as monitoring," he said.

Meanwhile, the dinoflagellate *Prorocentrum dentatum* was highly visible as a red/brown discolouration of the water in the lower reaches of the Canning River near the Shelley Sailing Club on 21 April.

Mr Hughes said the bloom sometimes resembled an oil slick, and gave off a strong fishy odour.

"This bloom is not known to be harmful to humans or fish, but people who come in contact with algae are advised to wash with fresh water," he said.

Anyone who sees dead or sluggish fish is urged to contact the Swan River Trust immediately on 9278 0900.

See also page 5: Expert lends a hand.

Swan River Trust environmental officer Dale Stanton collecting dead fish along the Maylands foreshore in April.

EXTRA EXTRA

The State Government election in February precluded the Swan River Trust publishing a summer edition of RiverView. This bumper edition includes information on Trust activities throughout summer and autumn, and has been extended to 12 pages.

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Caversham and South Perth sewage spills

Foreshore remediation works are continuing at Caversham, where a broken Water Corporation pipe spilled sewage into the Swan River on 16 October last year.

Swan River Trust environmental manager Dr Jane Latchford said debrief meetings had been held with key agencies and stakeholders since the incident.

The Water Corporation estimated 2.5 megalitres of sewage – the volume of almost two Olympic size swimming pools – was discharged into the Swan River from a hole in a pipe underneath the riverbed.

The Department of Health closed the river from Middle Swan Bridge to Fish Market Reserve for nine days.

"Bacteria, nutrient, and oxygen levels were tested daily and results were published on the Trust website," Dr Latchford said.

"Local residents were grateful for updates provided by the Trust, which included two letter drops to more than 700 households in the area closest to the spill.

"The community was involved since the start – the spill was initially reported by kayakers.

"The Trust maintained on-site supervision to ensure minimal disturbance to foreshore vegetation and the riverbank while the Water Corporation completed the emergency repair works.

Coir logs used to temporarily stop erosion at the Caversham sewage spill site.

"Some disturbance was inevitable so remediation of the site will be conducted by the Bennett Brook Catchment Group during winter when it is a suitable time to plant native vegetation.

"In the mean time, coir logs made of coconut fibre have been used to stop the erosion.

"The Trust will inspect the site once the remediation works are completed."

Dr Latchford said the Trust was also helping the Environmental Enforcement Unit from the Department of Environment investigate an incident at Coode Street, South Perth, where it is estimated seven backyard-sized swimming pools of sewage was pumped into the Swan River via a stormwater drain on 20 April.

The Department of Health closed the river 200m west and 500m east of the Coode Street Jetty until bacteria levels dropped to within safe levels on 27 April.

Algae Activity Report now in print

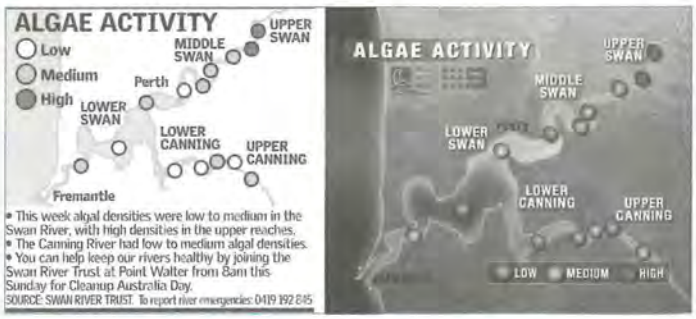
Algal densities in the Swan and Canning rivers are now printed on the weather page of *The West Australian* each Saturday.

The Swan River Trust and Department of Environment monitors the rivers each week and uses this information to compile the Algae Activity Report.

Trust communications manager Wendy Yorke said the report had been broadcast on the Channel 9 news and weather each Friday night since November 2003 and was also featured on the Trust website.

"People can build an understanding of the seasonal changes of algal densities in the rivers during the year," Mrs Yorke said.

"However, as the report is based on sampling conducted earlier in the week, it is important that people still pay close attention to river health and report any water discolouration, sluggish or dead fish by contacting the Trust immediately on 9278 0900."



The Algae Activity Report is now in print as well as on television and the Trust website.

Minister returns

Maylands MLA Dr Judy Edwards is continuing her role as the Minister for the Environment, which includes responsibility for the Swan River Trust.

Premier Dr Geoff Gallop announced the Cabinet portfolios on 3 March, following the Labor Party's return to Government for a second term on 26 February.

Dr Edwards was the Bayswater Integrated Catchment Management Group inaugural chair from 1991 to 1994 and she has closely followed the work of the Swan River Trust.

Minister for the Environment Dr Judy Edwards.

Burswood, North Fremantle, Huntingdale developments red light

Environmental, public safety and amenity concerns recently led the Swan River Trust to recommend refusal of three development applications.

Late last year the Trust considered an application to build a ferry jetty with restricted public use south of the Burswood Water Sport Clubhouse.

Chairman Charlie Welker said the Trust did not believe the location of the proposed jetty was compatible with existing water-based activities in the vicinity.

The proponent withdrew the application before the Minister made a determination.

The Trust also recommended refusal to build access steps to the Swan River at Rocky Bay in North Fremantle.

"The Trust believed public safety could be compromised as the slope on which the stairs were proposed and the adjacent cliffs were known to be unstable," Mr Welker said.

"The recreational benefits in Rocky Bay do not appear to be sufficient to justify inviting the public to access a potentially dangerous area. The site is next to the deep navigation channel used by large ferries and many other boats, and there are strong water currents so swimming at this site is unsafe."

Mr Welker said the proposed steps could also lead to degradation of the fragile river environment and were not compatible with the surrounding river landscape.

The application is currently awaiting the Minister's determination.

Meanwhile, environmental values were the main factor in the Trust's recommendation against a proposed 30-metre telecommunications tower at Huntingdale.

"The proposed development is at Cardington Way on land reserved for parks and recreation," Mr Welker said.

"It is contrary to the purpose and intent of the reserve and against Trust environment and development policies.

"It would prejudice future use of the reserve for recreation and conservation, and the development is not aesthetically compatible with the surrounding river landscape."

Swan River Trust chairman Charlie Welker.

Mr Welker said the proposed tower and associated buildings would stand 10 metres from the Southern River within a Bush Forever site and near mature eucalyptus trees.

The Trust also received a petition containing 680 signatures and a number of emails and telephone calls from community members objecting to the proposal.

This application is also currently awaiting the Minister's determination.

Great Gardens

The final Great Gardens workshop in the autumn series was on 7 June.

The Swan River Trust supports these free environmentally friendly workshops that provide easy and practical gardening advice.

Information about the upcoming spring series of workshop locations and dates will be available from the end of July at www.greatgardens.info

Guilty plea to diesel spill

A man pleaded guilty to causing pollution when he appeared in the Court of Petty Sessions on 9 February, 2005.

On 16 September, 2003, Justin James Rodgers, 31 years, formerly of Quinns Rock, allowed an estimated 300 to 600 litres of diesel fuel to spill into the Swan River from a vessel while it was being refuelled at the Barrack Street Jetty.

Rodgers' actions were contrary to section 49(3) of the *Environmental Protection Act 1986* and resulted in the Department of Environment's first prosecution and conviction mounted by its Enforcement Unit.

Rodgers was fined $2000 and ordered to pay costs.

Ascot Inn redevelopment

The Swan River Trust received more than 80 public comments on a revised development proposal for the Swan River foreshore at Ascot.

The proposed development would include demolishing the old Ascot Inn to make way for 138 residential units ranging from two to four storeys, an underground carpark for residential use and a public carpark and café next to the foreshore near Epsom Avenue.

Trust statutory assessments manager Peter Tapsell said officers were evaluating and analysing the submissions since the 13 March public comment deadline.

The revised proposal follows a recommendation by the Trust last year to refuse an earlier plan to develop the site on the basis that the development was too high and would have too great an impact on the environment.

Pontoon jetties in Matilda Bay

Derelict timber jetties at Matilda Bay were recently replaced with floating pontoons, following approval from the Minister for the Environment. Dr Judy Edwards' decision was based on a recommendation from the Swan River Trust.

Chairman Charlie Welker said the Department of Conservation and Land Management wanted to replace the old jetties used by swimmers and walkers.

"There have been jetties used by swimmers at Matilda Bay for at least 65 years, but CALM closed them in January 2003 because they were unsafe," Mr Welker said.

"The Trust recommended approval of CALM's proposal to build floating pontoon style jetties built of recycled wood and plastic materials.

"The 50 metre long and two metre wide pontoons look similar to the former jetties and are in the gazetted swimming area.

"The new pontoons are an appropriate way to encourage passive recreation and continue a tradition at Matilda Bay."

One of Matilda Bay's new floating pontoons.

Algae for dummies

Scumbook! is a new resource now available for community environmental groups, scientists and anyone interested in algae and the health of our rivers.

The Swan River Trust, Department of Environment, Murdoch University and Water Corporation produced the new guide to common algae and aquatic plants in wetlands and estuaries across South-Western Australia.

Trust chairman Charlie Welker launched the book on behalf of Environment Minister Dr Judy Edwards at the Trust's Ellam Street Depot on 8 April.

Mr Welker joked the book could have been titled 'Algae for dummies' because of its easy-to-understand approach.

"It is a user-friendly resource that will benefit practitioners in the aquatic environment, while enabling people in environmental groups and the general community to gain a better understanding of the role algae plays in the natural ecology of our waterways," he said.

The book covers a range of topics including aquatic plants, macroalgae, scums and how to identify them by conducting a simple 'stick test' and working through a step-by-step process.

Colour coding guides the reader from the initial identity of plants, filaments and algae through to more detailed sections with photos and written descriptions and simple methods of clear identification.

Each description carries symbols that indicate if the plant is an important or normal component of wetlands, if it is undesirable, and if it may pose a health risk.

Copies of *Scumbook!* retail for $30 and can be purchased through the Murdoch University bookshop, with proceeds going towards a second print run.

Environment House volunteer Amy Edington, Murdoch University lecturer and co-author Dr Jane Chambers and South East Regional Centre for Urban Landcare water management officer Jason MacKay conduct a stick test to check the scum in the Department of Environment Swan-Goldfields Victoria Park site wetland.

A user-friendly resource is now available to identify scum, algae and aquatic plants.

Expert lends a hand

Visiting algae expert Dr Jason Adolf spent the first week of April investigating the *Karlodinium micrum* algal bloom in the upper Swan River with the Department of Environment and Swan River Trust.

The University of Maryland post-doctoral research associate's goal was to measure toxin levels in the Swan and Canning rivers, establish cultures for future research, and set in place a sampling protocol with the department's Phytoplankton Ecology Unit for toxin measurements.

Dr Adolf said strains of *Karlodinium* had been identified in New Zealand, the United States, Africa and even the English Channel.

"It is a cosmopolitan dinoflagellate that varies in toxicity around the world," he said.

"In the laboratory, I have found that toxicity increases when nutrients are in short supply. It is my job to find out if the same happens in the uncontrolled river environment, and how different factors impact on toxicity.

"I have been measuring the amount of *Karlodinium* cells and toxins in the water and the cellular nutrient ratios.

"It will be a few months before I have any results or start to see any pattern forming."

Dr Adolf said the *Karlodinium* strain found in the Swan River was a particularly powerful alga.

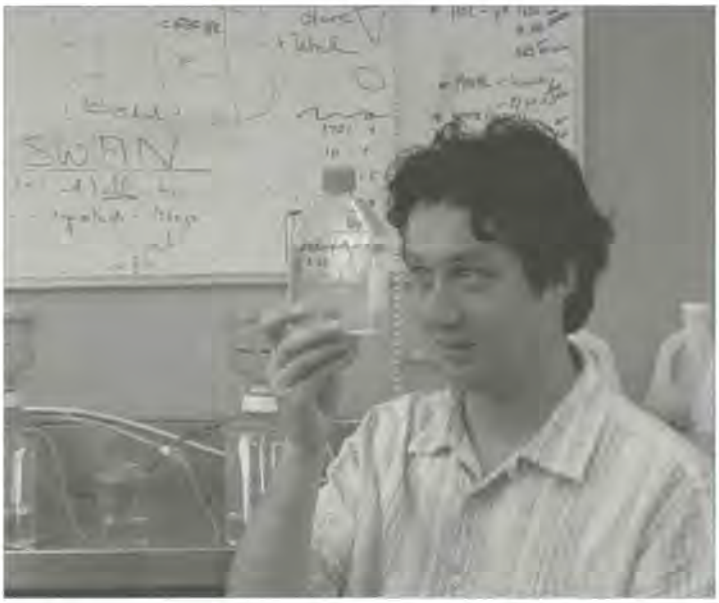
"The Australian strain of *Karlodinium* eats cryptophytes – other types of algae. It also absorbs nutrients, and it photosynthesises.

"My hypothesis is that as the algae is starved of nutrients, it cannot continue to multiply at its regular rate, and as a result, toxin builds up and becomes more potent.

"*Karlodinium* has been described and associated with fish kills since the 1950s.

"The toxin makes holes in the cell membranes of fish, attacking their gills. It is usually also combined with low oxygen in the estuary, so the fish already have difficulty breathing. The combination of the two often results in fish deaths."

Dr Adolf was in Australia as a result of a partnership established between Dr Allen Place's Laboratory at the University of Maryland Centre of Marine Biotechnology and the Department of Environment, during an algae conference in South Africa in 2004.



Karlodinium expert Dr Jason Adolf checks out a Swan River sample in the Department of Environment's Phytoplankton Ecology Unit laboratory.

Dr Jason Adolf, visiting from the University of Maryland, and Department of Environment officer Tracy Calvert conducting Swan River water sampling at Meadow Street Bridge sampling site.

New kayak facilities go ahead at Garvey Park

A new clubroom and facilities are a step closer to reality next to the Swan River at Redcliffe after the Minister for the Environment approved the proposed development.

The City of Belmont proposes to build a new kayak clubroom, public kiosk, toilets and carpark at Garvey Park, opposite Ron Courtney Island.

Swan River Trust statutory assessments manager Peter Tapsell said the City proposed to demolish the existing clubrooms to make way for the new carpark, and the new facilities would be built on the existing carpark site.

"The proposal includes an additional 10 car parking spaces and public toilets as part of the kayak clubrooms, as well as 400 square metres of boat shed storage area," Mr Tapsell said.

He said no public comments were received by the Trust during a three-week public consultation period.

Kent Street Weir leak

Public access to the Kent Street Weir footbridge across the Canning River at Wilson and Ferndale has been closed for safety reasons since late January.

Independent advice sought by the Department of Environment identified that a leak at the weir abutment was undermining the structure.

Swan River Trust environmental manager Dr Jane Latchford said investigations revealed that a tree root created a hole, which was the cause of the leak of about 18 cubic metres an hour, depending on tidal movements.

"The engineering advice was that there would be a risk to public safety until the weir was permanently repaired," Dr Latchford said.

"This advice prompted the department and the City of Canning to act quickly in the interest of public safety and stop public access to the weir until the repairs are completed."

A temporary wooden retaining wall liner and sandbags were put in place by the department and Trust to help reduce water loss through the leak before contractors started permanent repairs.

SWAN-CANNING CLEANUP PROGRAM UPDATE

Record SALP funding

On-ground work to help the health of the Swan and Canning ivers was osted by the announcement of the 2005 Swan Alcoa Landcare Program funding recipients.

Forty-four community groups across the Swan-Canning Catchment will implement 100 projects with the help of $550,000 in landcare funding.

The Swan River Trust contributed $350,000 to the program, with Alcoa World Alumina adding $200,000. The Swan Catchment Council administers the program, with support from the Trust.

Trust chairman Charlie Welker helped present the funding cheques to recipients at Royal Freshwater Bay Yacht Club on 2 February.

Mr Welker said projects undertaken focused on foreshore, wetland and bushland restoration, turning drains into living streams and creating bushland corridors. Other projects provided habitat for endangered wildlife, weed removal, and revegetation projects involving school groups.

"The Trust works continuously to address pressures on the rivers, and these key relationships play a pivotal role in restoring and protecting them," Mr Welker said.

Swan Catchment Council chairperson Sue Metcalf also announced the earlier start of the funding round for 2006 to enable groups to order plants for rehabilitation projects for the next planting season. Applications closed on 2 May.

Swan Alcoa Landcare Program recipients and project partners at the February announcement.

A SPECIAL POSTER CELEBRATING 10 YEARS OF THE SWAN-CANNING CLEANUP PROGRAM IS INSIDE THIS EDITION OF RIVERVIEW.

IF YOU WOULD LIKE ADDITIONAL COPIES OF THIS POSTER, PLEASE CONTACT THE TRUST ON 9278 0900 OR EMAIL info@swanrivertrust.wa.gov.au.

Healthy floatwell

Swan Region Ribbons of Blue recently ran a Help Keep Our Rivers Healthy competition for primary school students to design artwork to be painted on a cylindrical floatwell.

Floatwells are concrete structures located along major waterways that house river monitoring equipment.

Ribbons of Blue coordinator Kelli O'Neill said Cloverdale Primary School students Shinai Welti and Joanne Cairns painted their winning design on the Garratt Road Bridge floatwell with help from a professional artist.

"By having a design painted on the floatwell we hope that the river environment will be beautified, vandalism will be deterred, and the Swan-Canning Cleanup Program message will be spread," she said.

Shinai Welti (front) and Joanne Cairns painting their design on the Garratt Road Bridge floatwell.

International visitors

Water quality and monitoring programs were on the agenda for a group of senior high school students visiting from Singapore in December.

The Jurong Junior College students visited the Swan River Trust and Department of Environment as part of a week-long environmental chemistry course research experience, led by Murdoch University Science and Engineering Division chemistry professor John Webb.

Swan-Canning Cleanup Program manager Adrian Tomlinson and department environmental officer Petra Ringeltaube explained the monitoring programs for the Swan and Canning rivers and tributaries.

"We discussed how this information was used to build our understanding of the Swan-Canning River System, develop environmental protection and management programs such as the Cleanup Program and also provide warnings of any health risks," Mr Tomlinson said.

"The students were keen to learn about the life cycle of algae and how science was used to gauge the health of the rivers."

Swan-Canning Cleanup Program manager Adrian Tomlinson, left, spoke to international students about the Swan River Trust's flagship environmental management program.

Catchments, Corridors and Coasts

The Swan River Trust sponsored the Rivercare Day of the annual Catchments, Corridors and Coasts environmental education workshops in January.

Held at Royal Perth Yacht Club and the University of WA, the day provided environmental educators an opportunity to gain greater insight into issues that affect the health of the Swan and Canning rivers.

Swan River Trust staff provided an overview of the Trust and the Swan-Canning Cleanup Program, discussed how to encourage people to become involved in programs to restore the rivers, and outlined some of the ways people impacted on the environment.

Swan Catchment Centre Cleanup Program staff and Ribbons of Blue officers helped participants monitor macroinvertebrates, learn about the hazards of phosphorus leaching into the groundwater and rivers, and were involved in a learning circle where they discussed their environmental concerns.

The workshop included a demonstration of the UWA model of the lower reaches of the Swan River Catchment, which enabled participants to further understand the effect that tides had on water quality in the river and why algal blooms occurred.

The Great Gardens team concluded the seminar, providing advice on practical skills for people to help protect the river by taking action in their own backyard.

Catchments, Corridors and Coasts participants check out the macroinvertebrates during the Rivercare Day.

50,000 trees help keep Canning River healthy

Premier Geoff Gallop marked the opening of the first stage of the Liege Street constructed wetlands in the Canning River Regional Park by planting the 50,000th tree last year.

Dr Gallop and Minister for the Environment Dr Judy Edwards inspected the site and congratulated the community, State and local government for their combined effort to increase the health of the Canning River.

Swan River Trust drainage improvement program manager Rachel Spencer said the wetlands were a joint project involving the Two Rivers Catchment Group, Canning River Regional Park volunteers, and the community working with the Trust, the City of Canning, the South East Regional Centre for Urban Landcare, Department of Conservation and Land Management, and the Water Corporation.

Ms Spencer congratulated the project partners and volunteers for completing stage one.

"More than 100 volunteers have spent at least 1000 hours planting 50,000 trees," she said.

"The wetland is designed to use native vegetation to strip nutrients from the water in drains before they reach the Canning River by creating a natural filtration system of vegetated sumplands, open water areas and a floodplain for high flows.

"It is predicted to more than halve the nutrient concentrations entering the river from the drain over the problem summer and autumn period, and was effective in holding organic matter and run-off during the recent autumn rains.

"The wetlands will help bring drain water to within the Cleanup Program nutrient targets and improve river health by reducing the likelihood of algal blooms in the Canning River."

Ms Spencer said the site would take at least three more years to be fully established. However, there had already been a marked improvement in habitat at the site, with tortoises and many native birds returning to the area.

City of Canning Mayor Michael Lekias, Premier Geoff Gallop and Minister for the Environment Dr Judy Edwards with Liege Street wetlands volunteers.

River*bank* restoration and rehabilitation

Minister for the Environment Dr Judy Edwards and Swan River Trust environmental manager Dr Jane Latchford inspecting riverbank erosion at Ashfield Flats.

Two fishing platforms have been completed on the Canning River foreshore in Shelley as part of the River*bank* Program.

The platforms were built by the Swan River Trust in partnership with the City of Canning and local community groups as a trial for protecting foreshore vegetation in areas of high recreational fishing.

Trust environmental manager Dr Jane Latchford said the fishing platform provided anglers access to the river without damaging the foreshore.

"It is an excellent example of State and local government and the community working together to protect the environment," Dr Latchford said.

Twenty-two projects around the Swan and Canning rivers have now been funded through the first installment of $1 million in River*bank* funding, boosted eight-fold by the State Government in January 2004 to help protect and improve the health of the rivers.

State and local governments and community groups match the funding, and many projects include in-kind support from project partners. More projects are being developed and will be supported this year, with applications for the next round of $1 million funding closing on 13 May.

Minister for the Environment Dr Judy Edwards made the call for funding during an inspection of riverbank erosion at Ashfield Flats.

"Funding is available for a wide range of foreshore restoration and protection activities that protect and enhance fringing native vegetation and habitat, and stop erosion," Dr Edwards said.

"Projects that provide solutions to threatening processes or degraded areas or that test innovative approaches to sustainable foreshore management also will be considered."

Information about applying for future River*bank* funding is available by contacting the Swan River Trust on 9278 0900.

Swan River Trust environmental officer Roweena Hart, The Fishing School director Peter Goulding, Recfishwest executive director Frank Prokop, Canning River Residents Environmental Protection Association president Di Matthews and City of Canning officer Phil Boglio with the new fishing platform.

Foreshore development green light

Minister for the Environment Dr Judy Edwards has approved the second stage of the Point Fraser development near the Causeway in East Perth.

The proposed development includes:

- a new car park;
- two small beaches;
- canoe launching area;
- jetty for river cruise vessels;
- recreation hire building;
- picnic and barbecue amenities;
- a playground with disabled facilities;
- semi-enclosed and paved performance area; and
- an information booth.

Swan River Trust chairman Charlie Welker said the development would enhance public access to and enjoyment of the Swan River.

He said stage two followed the completion last year of an environmentally designed wetland.

"The City of Perth is also proposing to change a section of the A Class Reserve into a commercial precinct, subject to Parliamentary approval," Mr Welker said.

"However, stage two of the development is limited to earthworks and stabilisation of the area that is proposed in a later stage to be used for commercial purposes."

Fairy terns protected

Temporary barricades were erected in a new initiative to protect 54 pairs of fairy terns as they nested on Point Walter Spit in the Swan River during summer.

The Swan River Trust, Department for Conservation and Land Management and City of Melville worked together to successfully protect the vulnerable estuarine birds.

Trust waterways manager Denis Doak said development along the Swan River over the past 175 years had encroached on many wildlife habitats.

"However, the river remains the life-blood for many animals, and temporary barriers are a way of protecting the fairy terns," Mr Doak said.

Fairy terns can abandon their nests if they are disturbed. They breed colonially, mostly on sand spits, islands or sea beaches, sandy shores and lakes. They have not been seen at Point Walter for several years.

"Signs were installed to remind people to take care and boat owners, canoe and board paddlers were reminded to refrain from landing on the end of the spit where the birds were nesting," Mr Doak said.

"By the time the barricades were removed in early February, the fairy tern chicks had hatched and were flying.

"The success of the exercise is a credit to the local community and it is hoped the birds will continue to use the site in the future."

A fairy tern nesting on Point Walter Spit. Photo courtesy CALM.

Updated directory

The Swan-Canning Cleanup Program's online Cleaner Production directory has been updated.

The directory is a useful resource for industry organisations and business owners who want to implement environmental best practice methods and save time and money.

The directory is available by following the 'information for industry' link at the Department of Environment's website www.environment.wa.gov.au.

Rossmoyne Jetty rebuilt

The recent completion of the Bull Creek Jetty will ensure the Rossmoyne foreshore continues to be a popular spot for anglers and the local community.

The re-building of the $51,000 jetty, on Riverton Drive near Wilber Street, was a joint project between the Swan River Trust and the City of Canning, in collaboration with the Indigenous community and local stakeholders.

Trust waterways manager Denis Doak said pedestrians and anglers could use the new L-shaped jetty.

"Ensuring access to the river in a safe and environmentally friendly manner is an important issue for the Swan River Trust," Mr Doak said.

"This jetty will enable anglers to fish Bull Creek without damaging the riverbank and without putting themselves in danger."

A local resident checks out the finished jetty.

Swan River Trust waterways officer David Dean oversees the barge driving a pile into the river.

Festival celebrates Swan River

The Swan River Trust sponsored the annual Autumn River Festival for the sixth consecutive year on 3 April.

The festival is an opportunity for the local community to celebrate the river's heritage and natural beauty from Maylands to Bayswater and Belmont, while learning about some of the programs undertaken by the Swan River Trust to care for the rivers.

Trust communications manager Wendy Yorke said the Trust featured its flagship environmental management Swan-Canning Cleanup Program, which works to reduce the levels of nitrogen and phosphorus entering the rivers.

"Information was also available about the Trust's Great Gardens, Heavenly Hectares and Corporate Care Day programs," Mrs Yorke said.

"The Ribbons of Blue macroinvertebrate sampling was a popular attraction and children also enjoyed learning about the land's connection to the rivers with the Phosphorus Action Group's catchment relief model."

Minister for the Environment Dr Judy Edwards and her son Andrew check out the macroinvertebrates with Ribbons of Blue coordinator Kelli O'Neill at the Autumn River Festival in April.

Annual Report available

The Trust is encouraging people to use the electronic version of our Annual Report, located in the publications section of our website www.swanrivertrust.wa.gov.au. CD-ROM and limited hard copies are available by contacting the Trust during office hours on 9278 0900. Feedback on the report is welcome.

Spectator events scrutinised

Riverside events are now required to comply with the Swan River Trust's Spectator and Entertainment Events Policy.

Trust statutory assessments manager Peter Tapsell said public events that took place on or next to the Swan and Canning rivers must be approved by the Trust.

"The Trust is concerned with impacts that events have on the river and foreshore, especially through litter and damage to foreshore vegetation," Mr Tapsell said.

"The community has a strong connection to and love of the Swan and Canning rivers. This new policy will help us take care of this wonderful natural asset so we can all continue to enjoy the river in the future."

The new policy is in the planning and development section of the Trust website www.swanrivertrust.wa.gov.au.

Riverplan update

The implementation of *Riverplan* is progressing, according to Swan River Trust strategic programs manager Darryl Miller.

The Trust is nearing completion of a pilot program to assess how organisations are currently contributing to the achievement of the Swan and Canning Rivers Environmental Protection Policy and *Riverplan*.

Mr Miller said a draft report about how the City of South Perth's activities were helping to manage and care for the Swan River had been completed and was currently being reviewed by management and staff at the City.

"This is the first local government the Trust has worked with through the *Riverplan* assessment process," Mr Miller said.

"Consultations are already underway with the City of Armadale, and we hope to begin work with the City of Swan by June. The plan is to roll out the assessment process to further local governments and State agencies later this year."

The *Riverplan* team recently began design work on a database to capture information about activities and organisations as it is gathered through the assessment process.

"Once completed, it is anticipated that the database will become a useful decision support tool for the Trust and other government and community organisations," Mr Miller said.

The team is also working with experts in geographical information systems to identify sources of data and develop visual maps showing environmental values for various stretches of the Swan and Canning rivers.

The maps will provide a tool to present information and encourage local communities to have their say about what values they consider important, and where these are located.

Trust and community clean up Point Walter

A handbag, half a clothes rack, various non-matching shoes, a knife and assorted clothing were among the items picked up by 31 community volunteers at Point Walter on Clean Up Australia Day.

Food packaging, bottles, cans, serviettes and broken glass made up a majority of the 28 bags filled in four hours by the volunteers who cleaned up the Swan River foreshore and Point Walter Reserve on 6 March.

Trust communications manager Wendy Yorke said the agency had adopted the 15 hectare Bicton site for several years.

"It is a great way to work with the local community to help keep our rivers healthy, and put rubbish away for good during Australia's biggest environmental community event," Mrs Yorke said.

Many participants also took the opportunity to stay at the site for the Festival of Melville free kids carnival and sunset concert after the clean up, where information about the Trust was on display and children enjoyed using the Phosphorus Action Group's catchment relief model.

Santa Maria College students helping to keep Point Walter healthy on Clean Up Australia Day.

Did you know...

The Swan River is 67 kilometres long. It starts at Walyunga National Park at the mouth of Wooroloo Brook and the Avon River. The Swan and Avon rivers are actually the same river and are sometimes called the Swan-Avon.

Swan River tributaries include the Helena River and Wooroloo, Susannah, Ellen, Bennett, Henley and Jane brooks, plus the Blackadder Creek and Bayswater and South Belmont main drains.

The Canning River is about 100 kilometres long. It starts about 10 kilometres north-east of North Bannister in State Forest 22 at the scarp and joins the Swan River in Melville Water at South Perth Yacht Club.

Canning River tributaries include the Southern River, Churchman, Munday, Bickley, Yule and Wungong brooks, Mills Street Main Drain and Bannister Creek. There are also other small tributaries to the Swan and Canning rivers.

The deepest point of the Swan River is about 21 metres at Blackwall Reach, Bicton, which is a popular scuba diving spot.

Estuarine effects in terms of tidal forces and marine salinity can be detected as far up the Swan River as the base of Walyunga National Park and to the Kent Street Weir in the Canning River when the weir boards are in place. Estuarine influences can be detected further up the Canning River in late autumn when the weir boards are out.

There is about 55 gigalitres of water in the Swan Estuary. This volume varies seasonally and varies between about 50 gigalitres and 70 gigalitres depending on flood levels, drought and high pressure systems.

Have you changed your address?

You can help the Swan River Trust save resources.

Please inform us if you have changed your address or would like to receive RiverView by email.

Contact the Trust communications section during office hours on 9278 0918,

email info@swanrivertrust.wa.gov.au or send your request to PO Box 6740, Hay Street East, East Perth, 6892.

What's on

June

7 Great Gardens workshop
Banksia Room, City of Wanneroo Civic Centre, 23 Dundebar Road, Wanneroo 11am - 2pm.
Call 1300 369 833 or visit www.greatgardens.info to register - places are limited.

18 Find out how to create habitat for different fauna in your wetland or waterway and visit successful restoration project sites.
Piney Lakes Environmental Education Centre, Winthrop, 10am - 4pm.

26 Ascot Community planting day
Garvey Park, 9am - 12.30pm.

July

Swan-Canning Cleanup Program Behaviour Change community workshop.

August

29 - Sept 2
Keep Australia Beautiful month

September

Biodiversity month

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Caring for the Swan and Canning rivers

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10TH BIRTHDAY CELEBRATION

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-year 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 cut 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.

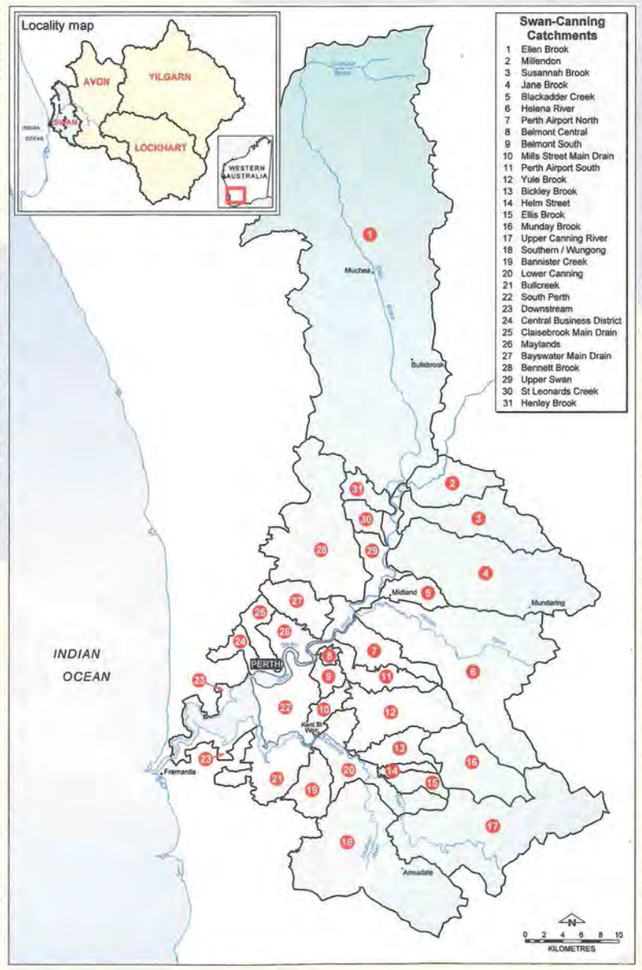
"And throughout the region, businesses are also encouraged to participate in the Corporate Care Day Program, which provides team building opportunities in the catchment planting trees, weeding, and learning about the impact of land-based activities including industrial pollution on the health of the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

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 a 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.

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 thought.

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

Evaluating the Swan-Canning Cleanup Program

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 Edwards.

"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 Program
TOO MANY NUTRIENTS
Celebrating 10 years of action in the catchment
HELP KEEP OUR RIVERS HEALTHY
GOVERNMENT OF WESTERN AUSTRALIA
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