

What You Can Do To Manage Midges

Midge season is well and truly upon us. There are a number of measures you can take to help reduce midge fly numbers on your property. Here's a reminder:

- Reduce the number of outside lights and move them away from doorways
- Use sensor security lights rather than keep outdoor lights on all the time
- Replace large (100watt) incandescent bulbs with smaller (25 or 40watt) bulbs, preferably yellow
- At night, keep curtains and blinds closed to screen indoor lights
- Use hedges, shrubs and light shades to screen outdoor lights
- Seal all gaps around doors, windows and skylights and install a fine fly-mesh (at least 16 mesh) on windows and doors



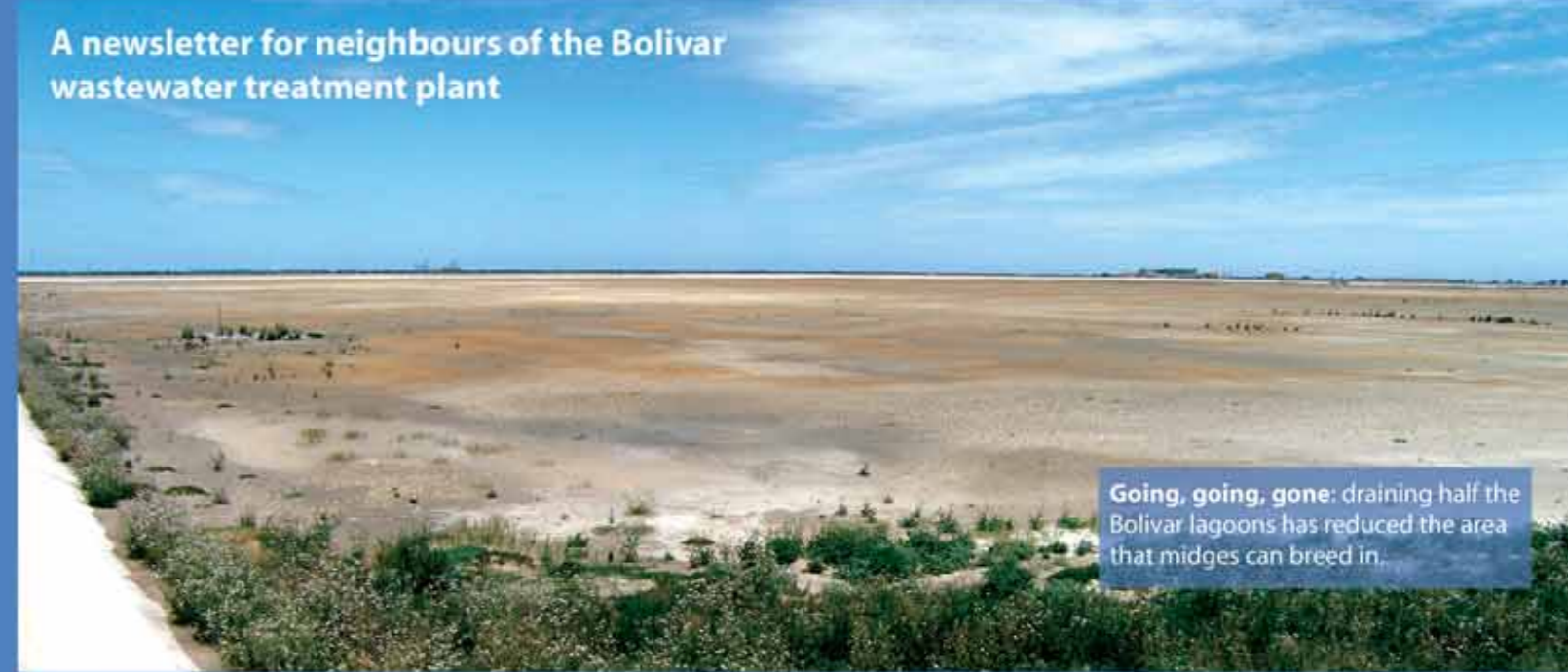
Some of the wildlife seen at Bolivar

Don't forget - to register a midge fly problem in your area, please call **8381 0300**

Bolivar Bulletin

February 2006 Issue

A newsletter for neighbours of the Bolivar wastewater treatment plant



Going, going, gone: draining half the Bolivar lagoons has reduced the area that midges can breed in.

Midge Trivia

Did you know ...

- The word "midge" comes from the old English word "mycg"
- By studying midge fossils, scientists can determine what the temperature was in prehistoric times, which allows them to track global climate changes over tens of thousands of years
- A single tiny bat can catch and eat more than 5000 adult midges in a night!
- Midges have been found in the Himalayas at 5600 metres above sea level. People can start to experience altitude sickness at 2500 metres

Midge Control Project

Our action plan to tackle Bolivar's midge problem is now in full swing, with a range of strategies under way to reduce the immediate midge nuisance and to look for more effective and environmentally friendly long-term solutions.

While the stabilisation lagoons are an important part of water treatment and are of ecological importance, during summer some can be taken off-line without adversely affecting the water treatment process.

Therefore, the first action was to drain three of the six Bolivar lagoons to reduce the area in which the midges can breed by nearly 140 hectares, instantly cutting midge numbers by almost half.

A key focus for this summer has been to conduct trials of a range of alternative control measures that will help determine how we can target all stages of the midge life cycle, from eggs, larvae and pupae, through to adults.

These trials include:

Light barrier trap: The trap consists of large white screens which are sprayed with the insecticide Bistar. At night, powerful lights shine on the screens to attract and kill the midges, preventing them from reaching the homes of nearby residents or returning to the lagoons to lay their eggs.



Light barrier trap

Preliminary results have been encouraging, with each 10-metre length of the trap killing up to half a million midges per night. Further testing is now being done to see how effective the trap is with different light sources and under different weather conditions.

Water spray ovitrap: This trap involves the timed spraying of a fine mist of water on the concrete bunds of the lagoons. Midges are tricked into laying eggs there; when the water stops, the eggs dry out and die.

Temporary water body trap: The trap involves diverting water from the lagoons to create large shallow ponds that midges lay eggs in. The eggs hatch but before the larvae can complete their development the ponds dry up and the midges are killed.

Overseas experiences have shown different locations need different control programs. By monitoring exactly how midge numbers are affected by the control measures we are able to decide which program will work best for Bolivar.

This summer's program has also involved investigating the suitability of two new insecticides to control the midge larvae in the lagoons.

In late November we trialled a new chemical made from pine tree oil in lagoon two. The results of the trial indicated the chemical was not appropriate for use in the large, wind-exposed lagoons at Bolivar (see separate story, page 3).

In January we are trialling the insecticide Altosid, which prevents the midge larvae from changing into adults. Between trials, we are continuing to use the biopesticide Bti.

All chemical trials are conducted in consultation with the Department of Health and the Environmental Protection Agency.

Know Your Neighbours

If you think Bolivar is just the site of a wastewater treatment plant - think again! Some of the State's community and scientific success stories call Bolivar home. Here's a glimpse of the work going on behind the Bolivar gates:

Australian Water Quality Centre: a business unit of SA Water, the Australian Water Quality Centre (AWQC) is world renowned for its research and analytical expertise.



Established as a small analytical laboratory for the Engineering and Water Supply Department in 1933, the AWQC has developed into a large facility providing customers with an integrated range of services for sampling, analysis, advice and research associated with the chemistry, microbiology, biology and ecology of waters, wastewaters, sediments and sludges.

Cooperative Research Centre (CRC) for Water Quality and Treatment: The CRC is an unincorporated joint venture between 29 participants representing government, industry and research organisations, including SA Water. It was established in July 2001 under the Australian Government Cooperative Research Centres Program and provides a national strategic research capacity for the Australian water industry. The CRC focuses on issues relating to water quality management from catchment and reservoir management and water treatment, to the distribution of drinking water to consumers' taps.

Adelaide Zoo: treated wastewater from the Bolivar plant is used to irrigate a 19 hectare hardwood forest managed by the Adelaide Zoological Gardens to produce fodder for the zoo's animals.

South Australian Museum: a scientific treasure resides at Bolivar - the museum's skeletal preparation facility where experts carefully dissect dead whales and other animals for the museum's collection, zoos, universities or taxidermists. The world-class facility opened in 1983 and is credited with giving the SA Museum the finest whale and dolphin skeletal collection in Australia.

Investigator Science & Technology Centre science@work classroom: established in early 2005, the classroom hosts school students from across the metropolitan area, giving them a glimpse of how a wastewater treatment plant works and teaching them about our precious water resources.

New Community Relations Officer Appointed



Community Relations Officer John Callaghan investigates the new solar powered custom built adult monitoring stations with Midge Biologist Dr Harry Roberts.

SA Water has appointed John Callaghan to the newly-created position of Community Relations Officer, Midge Control.

John comes to SA Water with a background in plant pests and diseases and community liaison at Primary Industries & Resources SA (PIRSA). He will work with the local community to provide information about the progress of the Midge Control Project and will manage a Midge Watch Program in the Bolivar area.

John will be out and about in the local community in the coming months.

Incident Involving Birds at Bolivar

In November, after consulting with government agencies, we trialled a new chemical made from pine tree oil in the small lagoon number two. This creates a film that reduces the surface tension of the water, so that the adult midges can't emerge. The next day it was observed that a number of birds were in distress and some had died.

While the cause is uncertain, to be safe SA Water stopped using the chemical immediately and sought advice and assistance from a number of bird rescue and government agencies to save other birds.

Over 80 birds were taken into care. Happily, most of them made a full recovery and have since been returned back into the wild at Bolivar.

We would like to express our sincere thanks to the dedicated volunteers from Seabird Rescue SA, Fauna SA and especially the RSPCA who responded to our call for assistance immediately. We would also like to thank staff from Department of Environment & Heritage for their assistance.

SA Water is continuing investigations into the incident and is assisting the Australian Pesticides and Veterinary Medicines Authority with its inquiries.



Midge Monitoring Program

Midge technical officer Michelle Rowe (below left) takes a sample of lagoon sediment from one of the nine new jetties constructed to help us monitor midges this summer. Samples are taken to our laboratory to find out the species, number and age of all midge larvae present. Other elements of the monitoring program include the floating cylindrical emergence trap (below right) that measures how many adults come out each night, and ovetraps that measure how many eggs are laid.



Floating cylindrical emergence trap

Midge technical officer Michelle Rowe

Community Involvement in Midge Control

In our last edition of Bolivar Bulletin we told you about our survey to find out more information on how midges are affecting the local community.

The next stage of community involvement is to establish a Midge Watch Program in Bolivar and surrounding districts to gauge midge activity throughout the area.

A group of 50 people representing homes and businesses have agreed to provide information to us showing the occurrence and nuisance levels of midges around their properties.

We would like to thank those taking part in the program for their support. We'll keep you updated on the results.



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Important Link in Biodiversity Corridor

While the northern plains of Adelaide have been largely cleared of native vegetation, some precious areas of samphire, sedgeland, shrubland, grassland and woodland remain along the northern coastline.

SA Water and United Water have joined the local community and other participants in the Mangroves to Mallee project to help protect, enhance, buffer and connect these areas of the landscape.

The Mangroves to Mallee project will actively manage, re-establish and link the pre-European vegetation and habitat within the coastal plains region. The project aims to restore native wildlife corridors and landscapes including mangrove forests, chenopod shrublands, thatching grass sedgelands, coastal dune communities and red gum, mallee box and native pine woodlands.

With the support of the community, projects are currently underway throughout this extensive coastal ecosystem, stretching from North Haven in the south to Thompson Beach in the north. The protection and creation of local vegetation will increase available habitat for wildlife, including the vulnerable slender-billed thornbill.

Other project partners include the Urban Forests Biodiversity Program, Greening Australia, Department of Defence, the City of Playford and the City of Salisbury.

Bolivar is an important link in the biodiversity chain, containing remnants of the regionally rare *Gahnia filum* (thatching grass), grassy woodlands and red gum covered waterways.

There are dozens of other remnant vegetation species on the Bolivar site including golden wattle, coast saltbush, marsh saltbush, berry saltbush, windmill grass, grassy bindweed, small flower wallaby grass, round-leaf pigface, woolly new Holland daisy and barren cane-grass.



The regionally rare plant *Gahnia filum* (thatching grass), found at Bolivar