

A newsletter for neighbours of the Bolivar wastewater treatment plant



2006/07 Season Midge Control Project

Midges have been present at Bolivar ever since the plant was commissioned in 1966, causing a nuisance from time to time.

Numbers remained relatively low through the 1990s but, following upgrades in the operation of the plant, midge numbers started to rise again in early 2001.

A larval monitoring program began in July 2001 and in an effort to minimise the nuisance to residents, every summer since then SA Water and United Water have implemented a control program.

The 2006/07 season will see a number of control measures implemented including the following:

- Draining three of the six Bolivar lagoons to reduce the area in which the midges can breed by 140 hectares, instantly cutting midge numbers in half
- Spraying pesticide on adjacent vegetation to kill midges before females are able to lay their eggs and/or before they migrate to residential areas
- Raising and lowering the water levels in the lagoons. Midge eggs are laid into the water in the evening and then attached themselves on the lagoon walls. If the water level is changed, the attached eggs die.

A number of new measures, recently trialled, will also be employed this coming season:

- Installation 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.
- Temporary water body traps which divert 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.
- Encourage the naturally occurring biological control of larvae provided by macroinvertebrates and fish.

In addition to the above, investigations of alternative control measures will continue to occur. These include trialling new chemicals, disturbing the sediment where midges live, using trees as a physical barrier and further reducing the lagoon area.

All chemical trials are conducted in consultation with the Department of Health and the Environment Protection Authority.

We recognise that numbers are still too high. Progress has been made in previous years to reduce midge numbers and we are confident that by continuing to monitor midge activity, implementing existing and new control measures and trialling different strategies, further reductions can be achieved this season.

The Midges of Bolivar

Differences in food, water quality and temperature favour different species of midges. Here at Bolivar, the conditions suit three species in particular.

The larvae of *Polypedium nubifer* and *Chironomus cloacalis* are the classic bright red 'bloodworms', and feed on algae and bacteria films in the silt. The third, *Procladius paludicola*, are a sandy brown colour and look and move just like tiny snakes. Unusually, *Procladius paludicola* is predatory, but sadly it prefers to eat tiny worms and only dines on other midges as a last resort!

Midge Fact File

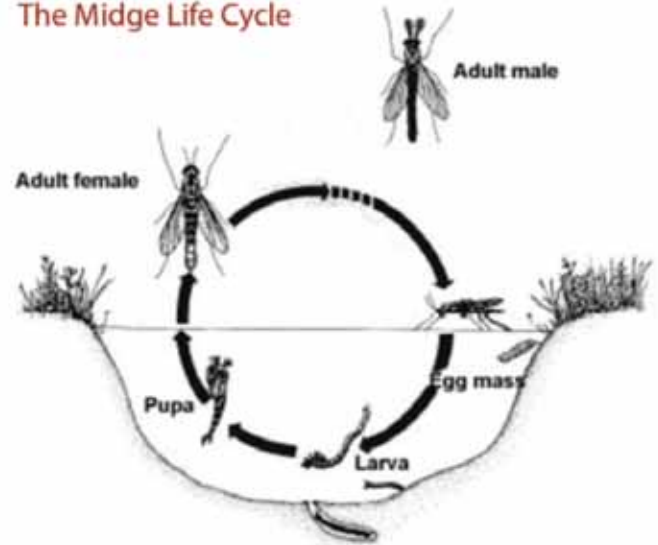
While midges have a nuisance factor, they're also an important part of the ecosystem. That's why we work to control the midge numbers and not totally eradicate them.

There are four stages in the aquatic midge life cycle:

- The eggs are laid on water in clutches of over 500
- The larvae typically live in small tubes in the mud. The most common are the "bloodworms"; their blood contains the red pigment of haemoglobin which allows them to live in very low oxygen conditions

- The pupae stay in their tubes until the transformation to the adult form is almost complete. Then they swim to the surface and the adults emerge a few hours later.
- The adults can drink nectar but usually don't, as they only live long enough to swarm, mate and lay their eggs

The Midge Life Cycle



Graphic courtesy of The University of Florida

Midge Survey Results

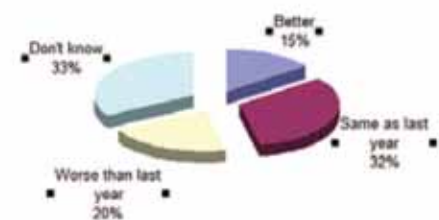
We would like to thank those of you who took part in our recent survey to find out more about how midges are affecting the local community.

In total 323 people took the time to fill out the survey, with the majority of responses being received from residents of Paralowie.

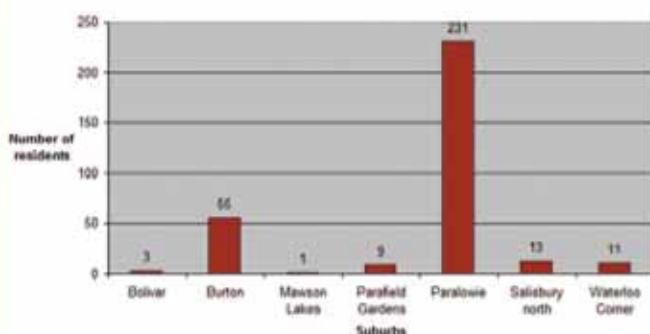
Out of the total number of responses, 83% of you identified that you have experienced a midge problem. Midge numbers experienced varied greatly from high to very low.

The results were mixed in relation to how the midges compared to the last season. 15% responded that the midges had improved from last years levels. This is positive, however identifies that we still have some work to do in lowering midge numbers.

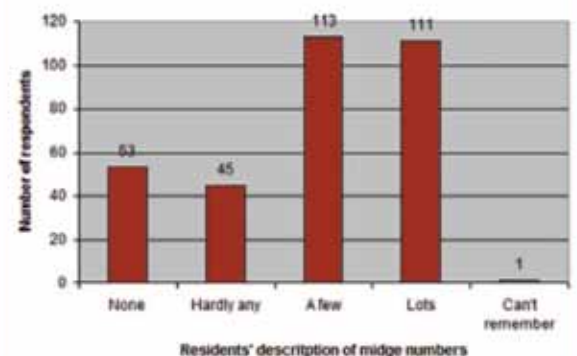
How are the midges compared to last year?



Area that responded to the survey



Midge fly numbers



What you can do to Manage Midges

While we are continuing to work on long-term solutions to Bolivar's midge problem, we expect that some residents may still experience a midge problem during summer's peak (January / February). There are a number of measures householders can take to reduce midge fly numbers on their properties:

- Reduce the number of outside lights and move them away from doorways
- Use sensor security lights instead of having outside lights on all the time
- Replace large (100 watt) incandescent bulbs with smaller (25 or 40 watt) 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 screen doors
- Install light traps (or bug zappers) with high UV light which attracts insects to an electrified grid and kills them. Locate these away from the house
- Use citronella candles or flares when entertaining outdoors

- Pyrethroid insecticide has been found to be useful. It is purchased in sachets which are mixed with water and then sprayed on the walls and under the eaves. Test this product on a small area first to it leaves a white residue. Contact your local council or pesticide supplier for information about other insecticides.

Midge Watch

Almost a third of people and businesses surveyed said they would be interested in taking part in our Midge Watch Program.

Shortly, 50 residents will be selected at random to take part in the research which involves recording information about midge activity. We appreciate feedback from the local community and look forward to working with you during the coming months as we continue to explore the long term ways of battling Bolivar's midges.

Research Update

In September 2006, a research project was undertaken to understand the wildlife that inhabits the Bolivar Wastewater Treatment Plant. The study was focused on vertebrates, but did not include bird species. The study identified a range of mammals, reptiles and amphibians.

A total of five ground-dwelling mammal species were identified during the fauna survey. Four species were introduced species including the Black Rat, House Mouse, Red Fox and Brown Hare. The only native mammal observed was the Eastern Grey Kangaroo. The Eastern Grey Kangaroo was released from private property into Bolivar and does not represent a naturally occurring population of kangaroos.

All reptile species recorded were expected to be found in the Bolivar region as they are common species found in Adelaide's northern suburbs. Seven reptile species were identified during the fauna survey. All of the species were native species comprising of 5 lizard species including: Four-toed Earless Skink, Dwarf Skink, Adelaide Snake-eye, Eastern Bearded Dragon, and Sleepy Lizard. One snake species was also observed; the Eastern Brown Snake.

Two frog species, the Spotted Grass Frog and Common Eastern Froglet, were captured during the survey.

Images: Top - Spotted Grass Frog, Middle - Eastern Bearded Dragon, Bottom - Eastern Brown Snake.



SA Gardens Can be Beautiful and Water Wise

Most gardens do not need a lot of water to survive and thrive. We do over-water a lot in South Australia and in our climate we have to find ways to put an end to this practice. With water restrictions continuing in the State through 2007, people need to learn the best ways to be water wise in the garden.

Easy water wise gardening tips

1. Group together plants with similar water requirements - you then only apply water specific to their requirements, providing the appropriate conditions to keep the plants happy, while helping you be more efficient in your water usage.
2. Ensure that watering systems are turned off over the winter months.
3. Check the efficiency of your existing watering system. Make sure you check for leaks. Alternatively install a new one that is more water wise.
4. Mulching prior to the warmer weather makes a huge difference to your garden. Apply a generous layer of organic mulch to all garden beds. Mulches not only suppress weeds and prevent weed seed germination, but they keep the roots of the plant cool and can reduce the need to water by over 50%.
5. Limit lawn to areas where needed and choose varieties that are hardy, drought tolerant and have low to moderate water requirements. Couch, buffalo and kikuya lawns require a deep soaking watering no more than once every one to two weeks, and will always recover, even if allowed to dry out completely.
6. Roses thrive in our State but many gardeners over-water them, which results in increased fungal diseases and sick plants. Roses grow best with a deep soaking, less frequently, preferably once a week on normal to heavy soils and perhaps twice a week on lighter sandy soils.
7. Water early in the morning or at night rather than during the heat of the day. This will reduce evaporation and watering is more effective when the soil and plants have cooled down.
8. If your garden has sandy or non-wetting soils, treat with liquid or granulated soil wetters to ensure that the water is getting into the soil effectively.

9. Use water storage crystals in pots to help increase the water storage capacity of the potting soil.

10. Giving plants a good deep soaking watering less frequently is far more effective than applying a little bit of water more frequently.

11. Tap into a rainwater tank for your garden watering needs. Rainwater is a great source of nutrients – and it's free!



Midge Trivia

Did you know ...

- Some tiny midges beat their wings 1000 times a second
- Midges make up the family Chironomidae of the order Diptera. Other common insects in the Diptera order are houseflies, mosquitoes and gnats
- When they are ready to turn into adults, the pupae of some species of midge fill their pupal sheath with gas to help them float to the surface

Contacts

If you wish to register a midge fly problem in your area, please call (08) 8381 0300.

For further information about SA Water or United Water, visit the websites below:

www.uwl.com.au

www.sawater.com.au