

# Gippsland Lakes and **Mosquito Management**



# Why worry about mosquitoes?

Apart from being annoying, mosquitoes can also carry diseases. In the Gippsland Lakes Area they can be responsible for spreading Ross River Virus and Barmah Forest Virus - both can be debilitating and can cause in some cases long term illnesses with symptoms such as arthritis, rash and lethargy.

There are more than 275 species of mosquitoes in Australia, with less than half of these found in South East Victoria. The problem is, many of these are fast breeders and take only ten days from egg to maturity. All they need is water.

The Wellington and East Gippsland Shires operate mosquito control programs, but we will never be able

to completely eradicate mosquitoes. However they can be more effectively controlled with your help.

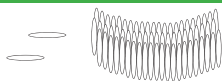
You can actively help us to break the breeding cycle of these irritating pests.

We have prepared this guide to help you understand more about mosquitoes and the Council's management programs. We have also included some handy tips to help you reduce the number of mosquitoes breeding around your home and work place.



# THE MOSQUITO LIFE CYCLE

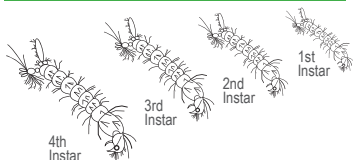
## Egg Raft/Single Egg



Mosquito lays her eggs either on flood prone soil or directly on water. When there is enough water for survival...



## Larva



...the eggs hatch into tiny wrigglers known as larvae. During the last underwater stage instar, the larvae...



## Pupa



...develop into pupa. Unless the cycle is stopped, the pupa will emerge as adult mosquitoes in about a week...



## Adult



...an adult mosquito

# Profile: An Australian Mosquito

Mosquitoes breed in water ranging from saltmarshes, freshwater swamps, drains and natural tree and plant water holding cavities. They can also breed in water tanks and any container that holds water.

Mosquitoes are rapid and prolific breeders. It takes only 7-10 days for a mosquito to reach maturity after the egg has hatched. Up to 400 mosquitoes can breed in a small container of water left lying around in the backyard in a fortnight! A single mosquito can lay between 200-400 eggs within a 2-4 week life cycle.

That's why we need your help to reduce these unwanted **"backyard breeders."**

# About the Council's mosquito control program

Every year the East Gippsland and Wellington Shires put into action a mosquito control program which targets two types of mosquitoes - those which breed in saltmarshes and those which breed in containers.

The mosquito control program is run by Council's control officers. The control officers use larvicide products to treat mosquito breeding areas. The two products used by Council are BTI which is a biological mosquito larvicide and Methoprene, an insect growth regulator.

BTI is a protein produced through a fermenting process by the bacteria *Bacillus thuringiensis israelensis*. It is highly specific for the control of mosquito breeding and stops the breeding cycle by killing the mosquitoes larvae when they are still "wriggling" in breeding pools.

Methoprene whilst also highly specific for mosquitoes, inhibits larval

development. Targeting the larvae means mosquitoes do not mature to adult stage, which reduces the risk of mosquito borne disease.

Both BTI and Methoprene are suitable for use in environmentally sensitive areas. They are applied in very low concentrations, affect very few other insects and present no risk to wildlife, pets and humans.

Mosquito control officers treat mosquitoes from land and water using a variety of methods and equipment including, an Argo all terrain vehicle and a boom spray, a boat and pump unit with hand spraying equipment.



# “Is every mosquito a health risk?”

No. Not all mosquitoes carry disease and not all mosquitoes bite people. Some species feed only on birds, reptiles or plants. Different types of mosquitoes are capable of carrying different types of diseases. Understanding the threat from each species of mosquito for different diseases requires extensive research.

## **Ross River Virus and Barmah Forest Virus**

The mosquitoes commonly found around the Gippsland Lakes do not carry diseases which are fatal to humans. However, salt marsh and container breeding mosquito

species in Gippsland are capable of carrying Ross River Virus (RRV) and Barmah Forest Virus (BFV). Symptoms of Ross River Virus include arthritis, rash and lethargy. Usually, fewer than one quarter of people infected will actually become ill. The incidence of Ross River Virus will vary greatly from year to year and will usually increase in wetter summers. The virus is not confined to any one part of the Gippsland Lakes.

Barmah Forest Virus is not as common as RRV. It can cause symptoms similar to RRV but is usually not as severe.



- Ross River Virus is **not contagious** and can only be spread by mosquitoes.

# TOP TWO TARGET MOSQUITOES

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## Saltmarsh Mosquitoes

The southern saltmarsh mosquito is the major mosquito targeted by the Shire's control program. From Spring to Autumn, the Shire's mosquito control officers use a variety of equipment to treat numerous saltmarshes which vary in size from 10m<sup>2</sup> up to 20Ha. These areas are located near MacLennan Straits, Seaspray, the Honeysuckles, Golden

Beach, Paradise Beach, Loch Sport, Point Fullarton, Matheson's Swamp, Kangaroo Enclosure Swamp, Jones Bay, Upper Newlands Arm, Tambo Boulevard, Tambo Bluff, Raymond Island and Metung. To control saltmarsh mosquitoes these areas may need to be treated up to 20 times during the season after wind induced high tides, floods or heavy rain.

■ East Loch Sport breeding site





## 2 Container Breeding Mosquitoes

The second group and one of the more difficult mosquitoes to combat are those which breed in containers. They are found in backyards across Gippsland. Popular breeding sites include water tanks with unsealed inlets and outlets, containers collecting overflow from water tanks, unsealed septic tank air vents and lids, roof gutters, tyres, fish ponds and unused boats. Container

breeding mosquitoes are difficult to control as they are most likely to remain active throughout winter. Mosquito control officers use mosquito traps to investigate the species and number of mosquitoes prevalent throughout Spring to Autumn. Trapped mosquitoes can also be examined for the presence of arbovirus such as Ross River and Barmah Forest Virus.



# Protect yourself against mosquitoes

## Five tips to protect yourself against mosquitoes:

**1.** Avoid going outside when mosquitoes are most active - the saltmarsh species will bite throughout the day and are more active on days of low wind and high humidity. Hot, dry weather and strong wind tend to reduce the saltmarsh mosquito's activity.

**2.** Wear long, loose fitting clothing, preferably light in color. Mosquitoes are more attracted to dark colors. Perfumes, colognes and aftershave lotions are also said to attract mosquitoes.

**3.** Use an effective mosquito repellent on exposed skin and on clothing containing DEET or PICARDIN.

**4.** Inside the house use "knockdown sprays" and plugin vaporising devices to kill mosquitoes. Sprays containing pyrethrums or synthetic alternatives (eg. bioresmethrin, tetramethrin and allethrin) are recommended as these have low mammalian toxicity.

**5.** Ensure window and door screens are kept in good repair to prevent entry of mosquitoes. If camping outdoors, ensure tents or other forms of accommodation are suitably screened to stop mosquitoes entering. Where necessary, use mosquito nets. For greater protection the nets can be treated with a repellent / insecticide.





# Tips to stamp out mosquitoes

To safeguard your household against the risk of mosquito-borne disease and reduce the annoying nuisance of mosquitoes:

<b>1</b>	Repair or replace corroded / rusty / damaged water tanks and lids. Ensure the tank is effectively sealed.
<b>2</b>	Screen all water inlets and the outlet end of overflow pipes connected to your water tanks. Also ensure any overflow containers are effectively screened.
<b>3</b>	As an interim measure, treat rainwater tanks with a small quantity of equal parts of domestic kerosene and paraffin oil to cover the surface area of the water contained within the rainwater tank. Remember to repeat the treatment if the water tank overflows.
<b>4</b>	Screen all sewage vents. Repair and/or seal any damaged septic tank lids.
<b>5</b>	Regularly clear roof gutters of leaves and other debris so that water does not pool. Cut back and trim trees to prevent leaves blocking roof guttering.
<b>6</b>	Ensure boats, dinghies, canoes and tyre swings are regularly drained or turned over.
<b>7</b>	Remove from the yard all tins, buckets, tyres and containers that may hold water.
<b>8</b>	Replace water in bird baths and pet water bowls every week.
<b>9</b>	Keep fish and ornamental ponds stocked with fish. (Native Australian Fish are recommended).
<b>10</b>	Keep grass and shrubs trimmed to prevent the adult mosquito from harbouring/sheltering in your backyard.



# Remember...

Mosquitoes travel long distances and like to rest in sheltered shady areas. Even if you don't have mosquitoes breeding in your backyard, tell your friends and neighbours what they can do to reduce mosquitoes breeding. If you see neglected

backyard water holding tanks / containers or other mosquito breeding sites that may not be targeted by a mosquito control officer's regular inspections, call the Wellington Shire Council or East Gippsland Shire Council.

# Need further information?



[www.betterhealth.vic.gov.au/beat-the-bite](http://www.betterhealth.vic.gov.au/beat-the-bite)

**Wellington Shire Council**

Phone 1300 366 244

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