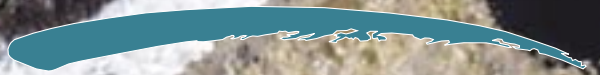




# COASTAL





*Tory Channel entrance*

## COASTAL ENVIRONMENT

Marlborough has over 1800 kilometres of coastline - some 18% of New Zealand's total coastline. We have an amazing diversity of environments along our coast from the sheltered waters of the Sounds to the more open and rugged coast of east Marlborough. We know the coast is important to the Marlborough community and beyond because many people live (either permanently or on holiday) alongside the coast in settlements such as Picton, Havelock, Momorangi Bay or Okiwi Bay, or in homes dotted around the Marlborough Sounds. For many others,

the coastal areas of Marlborough are a major economic resource for commercial fishing, aquaculture and port related activities, as well as a popular recreational and tourist area. These often conflicting activities place pressures on the resources of the marine environment with the long term effects of some of our activities not being well understood. The interplay of these competing activities, and the effects of activities themselves, form the basis of the Council's monitoring in the coastal environment.

*One of the many Marlborough Sounds jetties*



## RECREATIONAL BATHING WATER

During the summer of 2003/2004 the Council monitored water quality at 14 coastal sites. Most of these sites have been monitored over the past 5 years. The Council monitors the water for enterococci, which is the indicator bacteria for marine waters. These bacteria

occur naturally in the gut of humans and animals, including mammals, birds, fish and reptiles. The indicator bacteria themselves do not pose a significant risk to human health. Rather, they indicate the presence of faecal material, which contains disease-causing pathogens.



The Marlborough Sounds are a popular recreational swimming area

The Council uses the Ministry for the Environment guidelines to assess whether or not water is suitable for recreational bathing. These guidelines are shown in Table 4.

<b>Table 4: Ministry for the Environment Guidelines for Recreational Bathing</b>	
<b>Surveillance/Green Mode:</b>	
No single sample greater than 140 enterococci/100mL	
<ul style="list-style-type: none"> <li>● Continue routine (eg weekly) monitoring.</li> </ul>	
<b>Alert/Amber Mode:</b>	
Single sample greater than 140 enterococci/100mL	
<ul style="list-style-type: none"> <li>● Increase sampling to daily (initial samples will be used to confirm if a problem exists).</li> <li>● Consult the catchment assessment checklist to assist in identifying possible sources of faecal contamination.</li> <li>● Undertake a sanitary survey, and identify sources of contamination.</li> </ul>	
<b>Action/Red Mode:</b>	
Two consecutive single samples (resample within 24 hours of receiving the first sample results, or as soon as is practicable) greater than 280 enterococci/100mL.	
<ul style="list-style-type: none"> <li>● Increase sampling to daily (initial samples will be used to confirm if a problem exists).</li> <li>● Consult the catchment assessment checklist to assist in identifying possible sources of faecal contamination.</li> <li>● Undertake a sanitary survey, and identify sources of contamination.</li> <li>● Erect warning signs.</li> <li>● Inform public through the media that a public health problem exists.</li> </ul>	

Table 5 shows compliance with the guidelines for the 14 monitoring sites.

<b>Table 5: Recreational Bathing Water Monitoring Compliance</b>			
Marfells Beach	😊	Ngakuta Bay	😐 😊
Wairau Bar	😊 😐	Momorangi Bay	😐 😊
Wairau Diversion	😐	Anakiwa	😊 😐
Waikawa Bay	😊 😐	Tirimoana	😊 😐
Bobs Bay	😊	Te Mahia	😊
Shelly Beach	😊	Portage	😊 😐
Picton Foreshore	😐 😊	Moenui	😊

😊 means that at all times the water quality met the Ministry for the Environment guidelines.  
 😐 means that there were occasions that the water quality does not meet the guide-line and the catchment survey indicates that there are sources of pollution from animal or human sources (farm runoff, sewage systems such as septic tanks).  
 ☹️ means that there were times when non-compliance related to the discharge of untreated sewage, usually during rain events or when overflows from the sewage pipes to storm water pipes occurred. At such times the public are notified and signs erected at the beach.



Bobs Bay



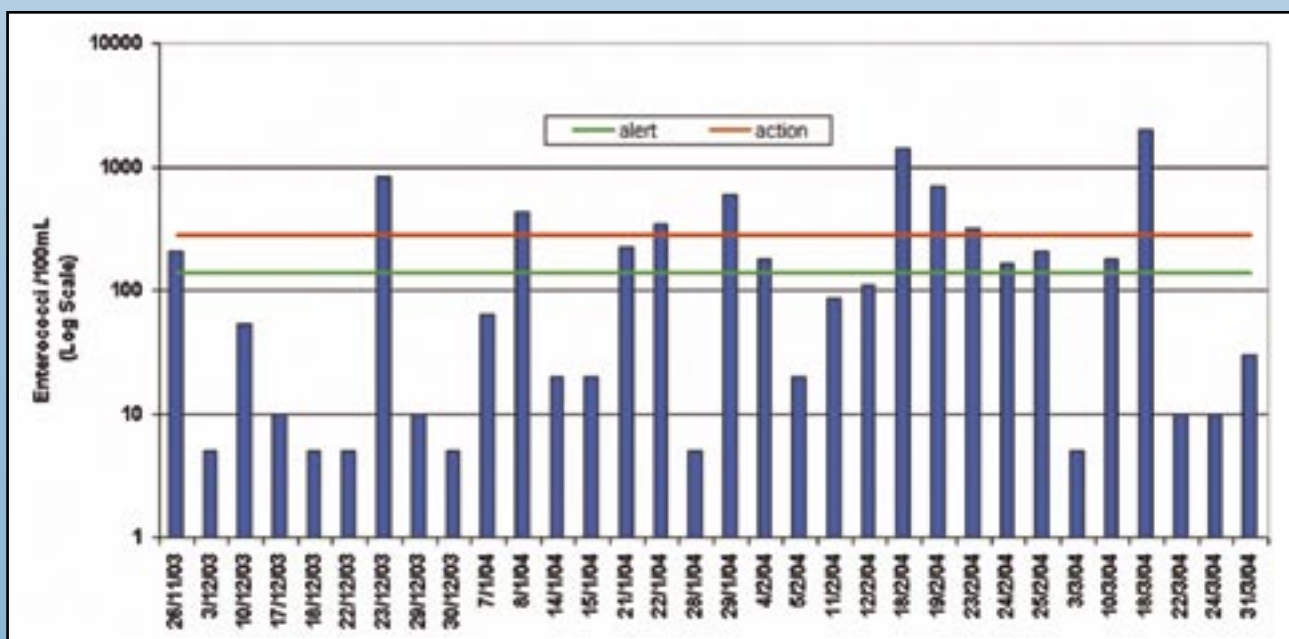
Picton Foreshore

## PICTON FORESHORE BATHING

Monitoring water quality at this site is very important, as there are frequent users of the beach for swimming, given its close proximity to the centre of Picton. Of the 32 monitoring occasions over the survey period, the alert guideline level was reached 14 times - see Figure 28. Of these, the survey results showed the action level being exceeded eight times. The non-compliance with the levels would most likely have related to the discharge of untreated sewage, usually during rain events or when overflows from the sewage pipes to storm water

pipes occurred. A number of these non-compliant results occurred in the days after the major flood event (reported in the Freshwater and Natural Hazard chapters). The pump station, which receives all of Picton's and Waikawa's sewage, failed when the floodwaters rose so quickly. Until repairs were made to the pumping station, sewage was temporarily pumped into Waitohi Stream, which then entered Picton Harbour. Bathing and shellfish gathering were banned for some time until bacteria levels dropped.

Figure 28: Monitoring Results for Picton Foreshore





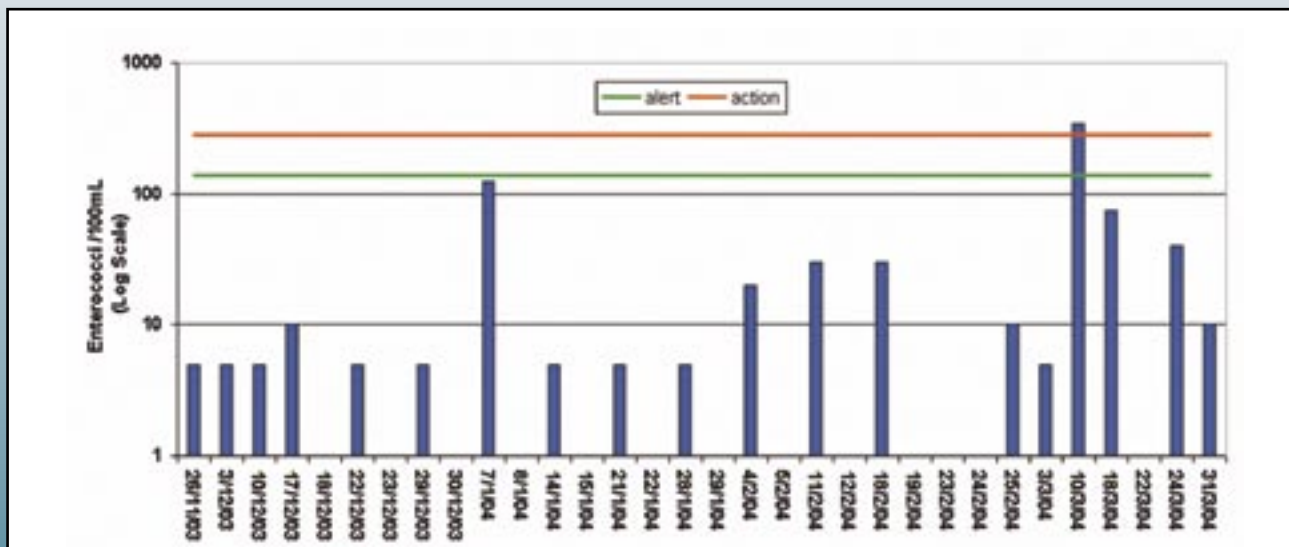
Ngakuta Bay

## NGAKUTA BAY BATHING

Ngakuta Bay is located on Queen Charlotte Drive approximately 11 kilometres from Picton. The bay has a community of around 50 houses. Most of these are holiday homes although there are a number of permanent residents. A

number of boats are also moored on swing moorings in the bay. The monitoring results for this site generally met the Ministry for the Environment guideline levels with the alert and action levels being exceeded only on one occasion - see Figure 29.

Figure 29: Monitoring Results for Ngakuta Bay



## ON-SITE DISCHARGES OF DOMESTIC WASTEWATER

A review of the provisions of the Marlborough Sounds Resource Management Plan for managing on-site discharges of domestic wastewater was completed in February 2004. The review looked at the Council's experience in using the Plan's provisions, together with the results of coastal water quality monitoring and complaints made to the Council. The

review found that discharges from on-site wastewater management systems create the potential to adversely affect coastal water quality and may already be doing so in certain areas of the Marlborough Sounds.

This potential exists for several reasons:



*Modern residential development in the Marlborough Sounds, with a large land treatment area in the foreground*

- current rules in the Plan are allowing on-site systems to be installed that do not necessarily suit site conditions;
  - the maintenance of existing on-site systems is seriously lacking and this contributes to poor performance; and
  - past subdivisions of land have created allotment sizes too small to allow the effective use of on-site wastewater management systems.
- there is enough land set aside for wastewater to be discharged into (land application areas); and
  - an assessment of the alternatives for servicing new lots is carried out, including an assessment of the best practicable option.

It is hoped to notify the changes to the Plan in late September/early October of 2004, with public submissions being called for.

After the initial review work, the Council prepared a discussion document, which identified the issues and suggested options for dealing with them. This was released for public comment in July 2004, with all rural ratepayers in the Sounds, being those most likely to use an on-site wastewater management system, informed of the discussion document and encouraged to provide feedback.

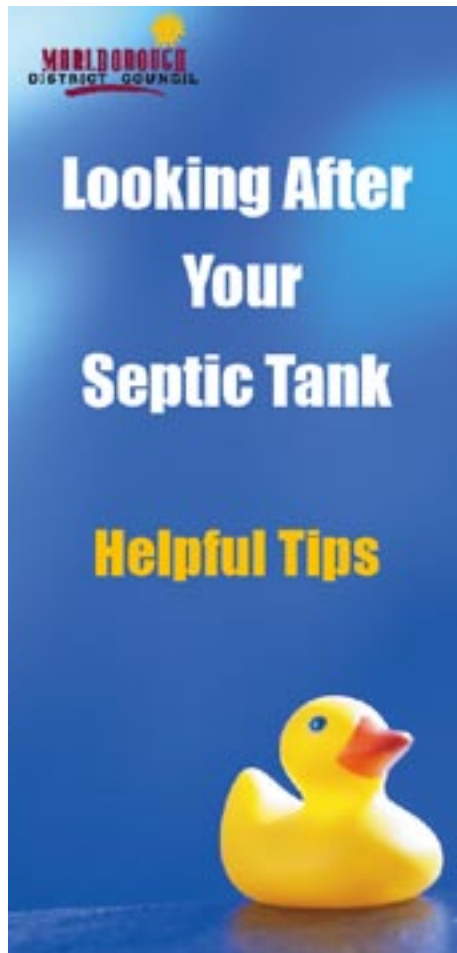
As part of the overall aim to improve the standard of on-site system design, the Council has also begun preparing a set of design guidelines that can be used by local practitioners. These will set out the nature of, and procedures for, site investigations that need to be carried out as part of designing new on-site wastewater management systems.

The Council also included within the discussion document a draft set of changes to the Plan for the community to comment on. The most significant change proposed is a general requirement for a discharge permit for any new on-site discharge. This will allow the Council to weigh up the suitability of an on-site wastewater management system, given particular site conditions and constraints. New provisions also ensure that when subdivisions are proposed:

To deal with the issue of poor management and maintenance, the Council has prepared an information brochure for landowners, which provides useful tips for

*The volume of domestic wastewater that needs to be treated is growing as more housing is developed*





The do's and don'ts of looking after your septic tank (below)

using septic tanks. This is included with all building consent and land information memoranda issued by the Council in rural areas. The brochure describes how to have a healthy septic tank, and how to reduce the liquid load and solid load into the tank. It also describes how an on-site wastewater system works and what happens when a septic tank fails. The do's and don'ts from the brochure are set out below. (A copy of the full brochure is available from the Council's offices and is also able to be download from the website at [www.marlborough.govt.nz/documents/summarylist.cfm](http://www.marlborough.govt.nz/documents/summarylist.cfm))

The projects outlined above represent an ongoing commitment to improve the performance of on-site wastewater management systems in the Marlborough Sounds and to maintain and enhance coastal water quality. Progress with the various initiatives will be reported through future state of the environment reporting.

Keep this in a handy place like a notice board or on the toilet door

## 1. Have a healthy tank

The septic tank removes solids present in domestic wastewater, allowing the remaining liquid to pass through into the land application area. There are bacteria present in the wastewater that breakdown this solid material, turning it into a liquid sludge. Household cleaners, strong detergents and other chemicals can kill these "good" bacteria.

### To keep the "good" bacteria alive:

- Do**
- ✓ Check all household cleaners to see if they are suitable for use with septic tanks
  - ✓ Use bio-degradable soaps
  - ✓ Use low phosphorus detergents
  - ✓ Use detergents in the recommended quantities

- Don't**
- ✗ Use bleaches, whiteners, nappy soakers, stain removers or disinfectants
  - ✗ Put chemicals, pesticides, oil or paint down the drain

A common problem in the Marlborough Sounds is the number of people using the system for a short time over holiday periods such as Christmas or Easter. The number of people staying at holiday homes can exceed the capacity of the septic tank, causing solids to be carried over into the land application area. If you have a holiday home, you need to avoid this situation or find temporary alternatives.

## 2. Reduce the liquid load into the tank

Most water used in your house or holiday home ends up in the septic tank as wastewater. If less water is used, the wastewater is retained in the tank for longer, providing more time for the solids to settle.

### To reduce the liquid load on the tank:

- Do**
- ✓ Install water reduction fixtures, such as dual flush toilets, low flow shower heads and spray nozzle taps
  - ✓ Have showers instead of baths
  - ✓ Place a brick or water-filled plastic bottle in your toilet cistern
  - ✓ Fix leaking taps

- Don't**
- ✗ Wash your clothes or use the dishwasher until you have a full load
  - ✗ Do multiple loads in succession
  - ✗ Run the washing machine and dishwasher at the same time
  - ✗ Let surface water enter the septic tank

A reduction in water use will also improve the performance of the land application area by reducing the amount of wastewater that needs to be discharged into the soil. This is particularly important if the land application area is prone to being wet.

## 3. Reduce the solid load into the tank

Solid material in wastewater settles on the bottom of the septic tank, where it forms a liquid sludge, while fats float to the top to form a crust. The more solids that enter the tank, the quicker the sludge and crust build up.

Sludge and scum need to be removed from the septic tank periodically (see the reverse of this brochure). If this does not occur, the wastewater will not be retained in the tank for sufficient time to allow the solids to settle out. The solids will then flow over into the land application area where they can cause blockages. Such blockages impair the performance of the land application area.

Inorganic material (such as plastics) will not be broken down within the septic tank.

### To reduce the amount of solids entering the system:

- Do**
- ✓ Scrape all dishes to remove fats and grease etc prior to washing
  - ✓ Shake all sand and dirt from clothes before you wash them

- Don't**
- ✗ Install or use a waste disposal unit in your kitchen sink
  - ✗ Put sanitary pads, tampons, disposable nappies, condoms or coffee grounds into the system

## ANTIFOULING AGENTS IN THE MARINE ENVIRONMENT

The Council has followed up on monitoring work carried out on antifouling compounds in shellfish and sediments done throughout 2002 and 2003. The results of that monitoring was reported in the last State of the Environment Report Update.

In March 2004 sediment samples were collected from Picton Harbour to establish levels of antifouling contaminants. Sediment samples were also collected from Whatamango Bay (April 2004) to establish background levels of antifouling contaminants outside of the harbour.

Results for sample analyses showed that trace metals were elevated in Picton Harbour sediments relative to the background levels in the Whatamango Bay sample. Levels of mercury, copper, lead and zinc were found to exceed the Australia New Zealand Environment and Conservation Council (ANZECC) guidelines with mercury being the trace metal of greatest concern.

Tributyltin (TBT) contamination was found at all sites in Picton Harbour, with a small area of high contamination around Carey's Boatyard.

Following the sediment chemistry survey, further sampling was carried out to look at the sediment dwelling animals, and to see how these are affected by the contaminants present in the sediments. Three sampling zones were determined based on the results for the presence of copper in the previous sediment samples, and further samples were taken from sites within these zones. A control site was sampled at Shelly Beach.

There was shown to be an increase in pollution tolerant species (polychaete worms) at the sites closest to the shoreline and boatyard slipways. Sediment chemistry results showed that copper concentrations were highest at this site. However, it is noted that with major changes in the sediment chemistry, only minor changes to the sediment biology occurred.

Shellfish (mussels) samples were collected from wharf and slipway sites and analysed for metals and TBT. The survey found that all mussels sampled at this time were in poor condition with very little body fat. This was thought to be related to the season and spawning conditions. There was a small increase in TBT in shellfish

*Sampling sediments  
in Picton Harbour  
March 2004*





taken near the boatyard slipway. The results for metals (copper and mercury) in the shellfish showed that the amount of contamination related to the sediment concentrations. The results suggest that these metals are bioavailable to (are taken up by) shellfish. Overall, only small amounts of copper, mercury and TBT were found, and not at levels that would pose a risk to humans or to the mussels.

It has been established that there is a small area of contaminated sediment within a radius of 40 metres centred on

Carey's Boatyard. The contaminants have been present for a long period of time but to date have resulted in a low level of adverse effects to the benthic animals and shellfish. These contaminants will continue to be released from the sediments at the present rate unless the sediments are physically removed from the site.

The Council will be considering whether the contaminated sediments should be removed, or left in place with monitoring to see whether the level of contaminants reduces over time.

## FISHERIES MANAGEMENT

For a number of years there has been ongoing community concern over the sustainability of fisheries within the Marlborough Sounds. While managing fisheries is not a direct responsibility of the Council, it does have responsibility for ensuring that the natural species diversity and integrity of marine habitats is maintained or enhanced. Within the MRPS the Council has an advocacy method for managing fisheries. This includes advocating to the Minister of Fisheries on the following:

- that both commercial and recreational fishing be further regulated within the enclosed waters of the Marlborough Sounds to enhance the size and number of natural species;

- that the enclosed waters of the Marlborough Sounds be treated as a separate area for fisheries management; and
- the reservation of significant or representative communities and habitats.

In response to the ongoing concerns on the declining fisheries within the Sounds, a hui was convened by the Nelson Marlborough Conservation Board and the Council at Omaka Marae in October 2002. The outcome from this hui was that a fisheries management working group should be formed with a view to preparing and implementing a fisheries management plan for the Marlborough Sounds.

A fisheries management working group was set up by the Council at the request of those attending the hui. This group has representation from a number of different interest groups. A vision statement has been developed and this is: "Marlborough Sounds fishery that is strong, diverse and accessible, and sustains the community's needs into the future." The objectives set by the group to meet this vision are based upon the following:

### Objective 1 - Sustainability

A sustainable fishery in the Marlborough Sounds that will meet the cultural, economic and social needs of present and future generations.

*Blue cod are the backbone of the recreational fisheries in the Marlborough Sounds*





*Gurnard*

### **Objective 2 - Management**

Management based on sound knowledge and research.

### **Objective 3 - Community Ownership**

Community knowledge and ownership of the Marlborough Sounds fishery applying the principles of Kaitiaki and stewardship.

### **Objective 4 - Ecosystem Protection**

To support initiatives that promote a healthy marine ecosystem.

The working group has continued to meet with Marlborough Sounds' fishers and other users to find out their needs and concerns. It is anticipated that the group will formalise itself into an incorporated society or trust and that a draft management plan will be available for public comment before the end of 2004.

*Marlborough Sounds are a popular recreational fishing area*





*Spartina*

## SPARTINA ERADICATION

Spartina grass (*Spartina anglica*) is a sward-forming grass that originates from the United Kingdom. It grows from underground rhizomes, which will break off and establish elsewhere and will also spread by seed. Spartina grows in estuaries and displaces native plants and animals of salt marshes and mud flats. It can also cause accelerated sedimentation in estuaries and impede river water flows. It was deliberately introduced into New Zealand in the early 1900s and introduced to the Havelock Estuary in 1952. The belief was that tidal areas would be converted into 'productive land' and navigational channels would be protected.

In 1991, a survey showed that spartina had spread into the Pelorus Sound and the inner Queen Charlotte Sound. In 1991, the Department of Conservation obtained resource consent to carry out the control of spartina in the Marlborough Sounds outside of the Havelock Estuary. Control work has been carried out by Department of Conservation staff annually since 1994 and has proved to be very successful.

The Marlborough District Council and the Department of Conservation recognised the need to control spartina inside the Havelock Estuary, following the review of Council's Regional Pest Management Strategy in 2000/2001. A control programme was considered necessary to try and stop its spread further into the Sounds. This was because during flood

events the grass was breaking off and being carried further down the Pelorus Sound and then re-establishing with ease.

The Department of Conservation was granted resource consent to carry out the control of spartina inside the Havelock Estuary in November 2003. (The Marlborough District Council and the Department of Conservation are funding the control programme on a 50/50 basis.) Initial control work took place in December 2003 and January 2004. Both hand spraying (by knapsack, raft and Argo) and aerial application by helicopter were undertaken.

Early indications suggest that hand spraying was very successful, with only a few small areas being missed. In terms of the aerial spraying, one concern is that its effectiveness within the denser stands of the spartina may not be so great. Some of the spartina within these denser areas appears less affected when compared to the uniform die-off in the infestations further out in the estuary. To confirm the success of the initial control work, monitoring after spring re-growth will be necessary.

*A variety of methods were used to spray the spartina*





*Southern Saltmarsh  
Mosquito*



*Actual size*

## SALTMARSH MOSQUITO INCURSION

In early May 2004 the Southern Saltmarsh Mosquito was found in the Wairau Lagoon area. Saline marshy areas are its preferred habitat. This mosquito is an aggressive daytime biter and in Australia it is known to spread disease, notably the Ross River virus. However, there is no evidence to date of this happening in New Zealand.

The mosquito was found after duck shooters in the Wairau Lagoon area reported being bitten by aggressive mosquitoes on the opening day of the duck-shooting season. In response, the Ministry of Health which was responsible for dealing with the incursion, undertook an investigation see how far the infestation had spread.

The Ministry's survey extended from the confluence of the Flaxbourne River to Port Underwood, and included areas of the Queen Charlotte Sound and Havelock Estuary. Positive larval and adult stages of the mosquito were identified in the Wairau

Lagoons vicinity, with isolated infestations occurring on the coastal strip between the Wairau Bar and the Wairau Diversion and an outlying site at Lake Grassmere.

Once the areas of infestation were established, the Ministry reacted quickly to suppress and contain the infestation of the mosquito. About 800 hectares in the Wairau Lagoons area was aerially sprayed in early June, with about 2.8 hectares being ground treated. The infested area at Lake Grassmere has also been treated. The larval stage in the mosquito's life cycle is when it is easiest to detect, and is vulnerable to eradication measures. Samples of larvae were taken soon after spraying and this showed that the treatment had been effective with most of the larvae being dead.

Ongoing monitoring will be undertaken to ensure that the mosquito has been eradicated.

## REFERENCES

Marlborough District Council.  
September 2001. **Regional  
Pest Management Strategy for  
Marlborough.**

Ministry for the Environment. June  
2003. **Microbiological Water Quality  
Guidelines for Marine and Freshwater  
Recreational Areas.**

Stewart, Carol. June 2004. **Sediment  
Quality Assessment, Careys Boatyard,  
Picton Harbour.** Report prepared for  
the Marlborough District Council.