

MOMORANGI FIELD TRIP

Introduction

The Momorangi Bay area is an ideal location for conservation teaching and learning outside the classroom. It is easily accessible, encompasses different habitats and provides quality camping facilities. This site is ideal for groups who want to study the marine and freshwater environments and learn about a regenerating forest ecosystem and conservation techniques. Katmandu has sponsored educational resource kits and camping gear for school to use on site.

The following foldout activity booklets are also available on site:



Please contact picton@doc.govt.nz prior to your visit if your school would like to use the activity booklets, resource kits and/or camping gear.

How to get there

Momorangi Bay is located on the Queen Charlotte Drive, 15 km (a 25-minute drive) from Picton and 20 km (a 35-minute drive) from Havelock.

Site facilities

- Resource kits for school groups to undertake activities in the forest, stream and marine environments – please contact picton@doc.govt.nz.
- Ample parking for buses and cars.
- An interactive interpretation walking track.
- Picnic and camping areas.
- Two cabins for sleeping three people.
- Modern toilets (and coin-operated hot showers).
- A large kitchen with audio-visual facilities (TV and DVD player) and a large deck for outdoor teaching.
- Open spaces for games.
- Safe swimming beaches.
- Jetty – if using boat operators.
- 8x Katmandu 3-person tents and 25 sleeping mats available for school groups to use – please contact picton@doc.govt.nz to request these.

Site safety

If undertaking suggested activities refer to the ‘Ensuring Safe and Fun Exploration’ sections in each on-site resource kit. Hazards specific to Momorangi Bay include:

- Tides – be aware of incoming tides.
- Rocky shore – can be slippery and sharp. Always wear solid footwear.
- Stream – while shallow, there are large boulders in the upper reaches and may be slippery. It can flood following high rainfall.
- Wasps – numbers can be high from January to April. There may be a poison control programme using bait stations over this time.
- The main road is heavily used over summer. Take extreme care crossing the road. There is also a public road running through the campground.
- There are predator traps along the bush tracks. These are in boxes or set up trees and should not be touched.
- This is a high-use public area. Have adequate supervision available.
- There is one main short walk managed by DOC “Momorangi Forest Experience”. There are other tracks in the area, e.g., up to a lookout, but they are not managed by DOC. Please note that these tracks are not maintained, and caution is necessary if using these tracks.

Pre-trip planning

- Always undertake foreshore activities at low tide and be aware of incoming tides.



- The rocky shore can be slippery and sharp. Always wear solid footwear.
- Keep in mind that the stream can flood following high rainfall.

Activities and associated resources at Momorangi

The following suggested activities and corresponding resources are relevant to the different environments (marine, stream and forest) at Momorangi. They can be used in conjunction with [DOC's Explore your Local Nature resources](#).

Please remember it is not the responsibility of our busy camp managers to tidy up equipment you have used. Leave all equipment in a clean and dry state and in the correct bins in the shed before you leave. This way the next group can have a quality experience with the equipment. Please notify DOC at picton@doc.govt.nz if any equipment is missing or damaged.

★ **Note:** Instructions for the below activities are in the resource kits on site.

Explore your local marine environment (3 activities)

Activity 1: Foreshore treasure hunt

The Momorangi foreshore has both sandy and rocky substrates. The different habitats provide homes for many species. Use the [Rocky Shore Guide](#) and [Sandy & Muddy Shore Guide](#) (hard copies are in the resource kit on site) to help you identify species and capture the extent of biodiversity on the foreshore in Momorangi Bay.

Equipment provided in the kit	Equipment you need to bring
Laminated cards	Pens/pencils
Waterproof sandy & muddy shore guides	Paper for recording observations
Waterproof rocky shore guides	



Momorangi foreshore



Activity 2: Marine metre²

For a more scientific look at the foreshore, use the [Rocky Shore Guide](#) to carry out marine metre squared surveys. More resources, including [interactive videos](#) can be found on the Mm² website: [MM2 : MM2](#)

Equipment provided in the kit	Equipment you need to bring
Waterproof sandy & muddy shore guides	Pens/pencils
Waterproof rocky shore guides	Instructions*
Quadrants	Datasheets*
Cores + Sieves	
Trowels + Trays	

* These can be downloaded from www.mm2.net.nz/resources.

Check the tides – ideally you will be undertaking these surveys on an outgoing-low tide (the foreshore is completely covered with a 1.5 m high tide).

Activity 3: Litter audit

Carry out a litter audit to uncover human impacts in the Momorangi Bay area.

Equipment provided in the kit	Equipment you need to bring
Rubbish bags	Pens/pencils
Gloves	Printed datasheets (page 12)

Extra learning related to the marine environment:

[Protecting our marine world](#) - use this DOC resource to learn how to protect our unique marine environment.

Explore your local stream environment (4 activities)

Activity 1: Water clarity

Undertake some simple observations and sample water clarity to gain information about stream health.



Equipment provided in the kit	Equipment you need to bring
Bucket	Pens/pencils
Clear jars	Printed datasheets (page 13)

Activity 2: Flow

Measure water flow and understand how water flow impacts stream life.

Equipment provided in the kit	Equipment you need to bring
Tape measure	Pens/pencils
Tennis balls	Printed datasheets (page 13)
Stop watches	

Activity 3: Temperature

Take water temperature measurements and reflect on the effect that temperature has on oxygen levels and stream invertebrates.

Equipment provided in the kit	Equipment you need to bring
Bucket	Pens/pencils
Thermometers	Printed datasheets (page 14)
Stopwatches	

Activity 4: Who's home?

Search for and identify aquatic animals to determine who lives in this habitat.

Equipment provided in the kit	Equipment you need to bring
Trays	Pens/pencils
Water bottles	Printed datasheets (page 14)
Laminated ID cards	
Magnifying glasses	



Extra learning related to the stream environment:

[Wet feet-investigating freshwater](#) - this DOC resource is about involving schools and communities in the care and restoration of freshwater systems.

Explore your local forest environment (4 activities)

Activity 1: Five-minute bird count

The bird interpretation sign and audio station on the 'Forest Experience Walk' will help you to identify the most common birds seen at Momorangi.

Equipment provided in the kit	Equipment you need to bring
Stopwatches	Pens/pencils
Binoculars	Printed datasheets (page 15)
Bird ID books	Blank paper
Bird ID sign and audio station - on the 'Momorangi Forest Experience walk'.	




Bird interpretation sign, audio station and common birds of the Marlborough Sounds brochure

The "[Common Birds of the Marlborough Sounds](#)" brochure includes coastal species. Learn more about birds with our [Experience birds in your green space](#) resource:



2. EXPERIENCE BIRDS IN YOUR GREEN SPACE

Explore and investigate birds living in your green space using the  [Experiencing birds in your green space resource](#)

Activity 2: Mini beast hunt

Search for and identify invertebrates to determine who lives in the forest. Is anyone home in the wētā motel on the ‘Momorangi Forest Experience Walk’?



Equipment provided in the kit	Equipment you need to bring
White sheets	Pens/pencils
Trays + Magnifying glasses	Printed datasheets (page 16)
Invertebrate ID books	Blank paper



To learn more about invertebrates, download our “[Experience invertebrates in your green space](#)” resource:



3. EXPERIENCE INVERTEBRATES IN YOUR GREEN SPACE

Explore and investigate invertebrates in your green space using the  [Experiencing invertebrates in your green space resource](#)

Activity 3: Plant identification

Use the tree ID signs and books on site to help you identify plant species.

Equipment provided in the kit	Equipment you need to bring
Plant ID books	Pens/pencils
Tree ID signs (found around the track)	Printed datasheets (page 16)

To learn more about identifying native plants, download our “[Experiencing native plants in your green space](#)” resource:



4. EXPERIENCING NATIVE PLANTS IN YOUR GREEN SPACE

Explore and investigate native plants in your green space using the  [Experiencing native plants in your green space resource](#)

Activity 4: Tracking pests

An activity for if you are staying overnight, as it requires leaving tracking card tunnels overnight and checking them the next day for pest activity.


Equipment provided in the kit	Equipment to bring
Tracking tunnels, tracking cards and peanut butter	Pens/pencils
Laminated pest ID cards	



To learn more about animal pests in the environment, use our [“Investigate animal pests in your green space”](#) resource.



5. INVESTIGATE ANIMAL PESTS IN YOUR GREEN SPACE

Explore and investigate animal pests in your green space using the  **Investigating animal pests in your green space resource**

Values of Momorangi Bay

History

Māori tribes inhabited the area for several hundred years before Europeans arrived. Kainga (villages) were situated nearby in Ngakuta Bay and Anakiwa, and Momorangi Bay was probably used for food-gathering and possibly temporary settlement. “Momorangi” means ‘myriad of descendants from the heavens’. Due to earthworks in the mid to late 20th Century, no evidence of occupation remains.

In 1861 a timber mill was built nearby at The Grove amongst a stand of kahikatea, and all the mature trees promptly were harvested. In 1864 gold was discovered, bringing thousands of Europeans to The Grove and Mahakipawa Arm. The gold and timber didn’t last long, and small-scale farming took over in the 1870s and 1880s.

Momorangi Bay has a long history of farming and most of the slopes were converted to grassland. Repeated burning kept the persistent scrub (mānuka and kānuka) at bay. Farming ceased in 1954 when the hillslopes (247 ha) were gazetted to be designated a Scenic Reserve. The flat ground (6.5 ha) became a Recreation Reserve at a similar time, and this is now the popular “Momorangi Bay campground”.

Flora and Fauna

Since farming ceased, the forest is regenerating with predominantly mānuka on the higher slopes and kānuka on the lower slopes. Species such as five-finger, māhoe, kāmahī, kōhūhū, rangiora and ponga are present under the manuka/kānuka canopy.

In the damper gullies, the mānuka has been replaced by broadleaf species including tītoki and pukatea. A small patch of hard beech on the eastern side of the bay are likely to be from one remaining mature beech tree. This beech tree shows evidence of being burned, so it may have been part of the original forest.

In the wider Grove Arm area there are pockets of remnant forest which provide clues that Momorangi Bay would have been covered by mixed podocarp and beech forest. Hard beech would have been predominant on most slopes and ridges, black beech on coastal spurs and headlands, pukatea and tawa in gullies, and kahikatea, pukatea and tawa on swampy alluvial flats.

There are two swamp maire just outside the reserve at The Grove, constituting one of only two known sites of this species in the South Island. It is likely that this species was formerly common on the swampy flats.

Succession of a regenerating forest

The likely successional trends are for mānuka, kānuka and low forest to be replaced and eventually outcompeted by broadleaf subcanopy species. Later to establish are the taller emergent species like rewarewa, rimu, tōtara, mataī and kahikatea.

Understanding the natural processes of succession is helpful when restoring a forest. Natural regeneration relies on a full suite of species available nearby as a source for seed. Unfortunately many of the canopy and emergent species are very rare or missing in Momorangi Bay, so regeneration has stalled. To restore the ecosystem fully, these species are being introduced back into the system.

Birdlife

The forest in Momorangi Bay is inhabited by populations of native species such as:

- New Zealand wood pigeon (kererū)
- Tūī
- Bellbird (korimako)
- Fantail (pīwakawaka)
- Grey warbler (riroriro)
- Silvereye (tauhou)
- New Zealand falcon (kārearea)
- Western weka
- Morepork (ruru)
- Kingfisher (kōtare)
- Harrier (kāhu)



Around the Momorangi coast the following species can also be found:

- Little blue penguin (Kororā)
- Variable oystercatcher (tōrea)
- Spotted shag (parekareka)
- White-faced heron
- Pied shag (kāruhiruhi)
- Little shag (kawau paka)
- Black backed gull (karoro)
- Red-billed gull (tarāpunga)



Threats

Additional forest regeneration in Momorangi bay has stalled due to:

- Lack of seed of canopy tree species such as beech, swamp maire/maire tawake, rimu, kahikatea and tree fuchsia/kōtukutuku.
- Introduced pests such as rats, possums, goats and pigs impeding the regeneration of the native vegetation, and predators such as stoats and rats preying on native fauna.
- Weed infestations by species such as old man’s beard and banana passionfruit which outcompete or smother native vegetation.

Weeds


Wilding pines are considered one of the biggest threats to the regeneration of the forest. Wilding pines are self-seeded pine seedlings from several different species; the most common in the Marlborough Sounds is *Pinus radiata*. They are of particular concern in young, regenerating forests where light allows them to germinate. Control includes the ‘drill and fill’ method – drilling a series of holes around the trunk and filling it with herbicide. The tree disintegrates gradually over time which avoids any land disturbance or damage to surrounding vegetation during control.

Climbing vines such as old man’s beard and banana passionfruit inhibit growth of native trees through smothering and outcompeting the natives. Gorse, broom and Spanish heath are common but not likely to persist as native plant regeneration advances (except on the forest edges and natural light gaps where they may prevent native regeneration of shrubby species).

To learn more about weeds and their impacts, download the “[Investigate weeds in your green space](#)” resource:



6. INVESTIGATE WEEDS IN YOUR GREEN SPACE

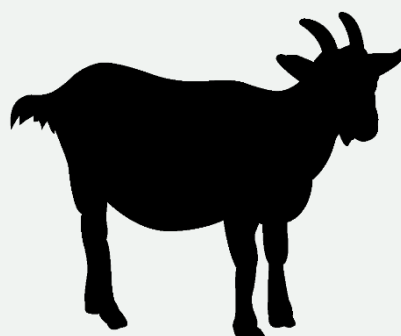
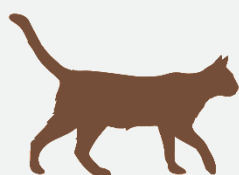
using the  [Investigating weeds in your green space resource](#)

Animal pests

Predatory species such as feral cats, hedgehogs, possums, rats and stoats eat the eggs and young, and attack adults, of New Zealand native species.

Predatory species may also outcompete native species by eating their food source (e.g., berries, insects and lizards).

Grazers and browsers include goats, deer and possums. Goats in particular are having a large impact on regeneration of native plants in the Marlborough Sounds. Goats will eat the foliage of most trees and plants as well as seedlings and saplings, thereby quickly destroying all vegetation within their reach.



Marine Litter audit datasheet



EVENT INFORMATION

RESULTS OVERVIEW

Date:

Location:

Group or Organisation:

Coordinator:

Type of clean-up: Land Water Underwater

Event participants (#): Adults: Children: (under 13)

Time spent (hrs):

Distance covered (m):

Rubbish collected (# of sacs):

Most unusual item collected:

Example:

Plastic bottle		= 12
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Food + Beverage (Plastic and Foam)	Total #
Plastic bottle	=
Plastic bottle caps & lids	=
Plastic pull tabs & bottle rings	=
Drink carton	=
Plastic bags & zip-lock bags	=
Plastic food wrapper	=
6-pack drink holder	=
Plastic plates, cups & cutlery	=
Foam plates & cups	=
Plastic takeaway container	=
Foam takeaway container	=
Plastic straws & stirrers	=
Lollipop stick	=
Household items	Total #
Containers/bottles (e.g., bleach)	=
Latex/rubber gloves	=
Light bulbs & tubes	=
Household batteries (e.g., AA)	=
Gardening items	=
Stationary items (e.g., pens)	=
Toys	=
Balloons	=
Clothing pegs	=
Clothing & fabric pieces	=
Shoes/footwear	=
Other	Total #
Foam & Styrofoam	=
Tarp	=
Paper/cardboard item	=
Treated/painted wood	=
Tyre	=
Other (please specify)	=

Fishing-related	Total #
Fishing net	=
Fishing line	=
Fishing hooks & lures	=
Ropes, ties & lashings	=
Buoys and floats	=
Bait containers & packaging	=
Buckets & crates	=
Cray pot	=
Personal items	Total #
Condom	=
Tampons, applicators & pads	=
Cigarette butts & tobacco packaging	=
Cigarette lighter	=
Nappies	=
Syringe	=
Medical (pill packets inhalers etc.)	=
Cosmetics, brushes etc.	=
Toothbrushes	=
Toothpicks & floss	=
Metal	Total #
Metal bottle cap	=
Aluminium can (drink)	=
Tin can (food)	=
Metal pull tab	=
Other can/tin (non-food)	=
Metal fragment	=
Glass	Total #
Glass bottle/jar	=
Glass fragment	=
Plastic (unidentified origin & small pieces)	Total #
Soft plastic	=
Hard plastic	=

Water clarity datasheet

Water sample	Can you see through it?	What does it look like? e.g., clear, dirty, muddy, murky...
Stream water	<input type="checkbox"/> Yes, clearly <input type="checkbox"/> Yes, but not clearly <input type="checkbox"/> No	
Tap water	<input type="checkbox"/> Yes, clearly <input type="checkbox"/> Yes, but not clearly <input type="checkbox"/> No	
Sediment-filled water	<input type="checkbox"/> Yes, clearly <input type="checkbox"/> Yes, but not clearly <input type="checkbox"/> No	

Water flow datasheet


$$\text{Flow (metres per second)} = \frac{\text{Distance (10 metres)}}{\text{Time taken (in seconds)}}$$

	Time taken (seconds) for the object to travel 10 metres	Flow rate (metres per second)
Example	40 seconds	0.5 (10 ÷ 40 = 0.5)
Sample #1		
Sample #2		
Sample #3		
Average		

Water temperature datasheet

Water collection site	Water temperature (°C)
Sunny area	
Shady area	

Who's home in the stream datasheet

Stream habitat observations:	
Species identified in your water sample	Number counted (hint - use a tally )

Five-minute bird count datasheet

Observer	Date	General location	Specific location
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Line number					
Station number					
Grid ref (Easting, 7 digits)					
Grid ref (Northing, 7 digits)					
Start time (24 hour)					
Temperature (1-6)					
Wind (0-3)					
Other noise (0-2)					
Sun (minutes)					
Precipitation type (N,M,R,H,S)					
Precipitation value (0-5)					

Species	Seen	Heard	Seen	Heard	Seen	Heard	Seen	Heard	Seen	Heard

Sun (0-5) Record approximate duration, in minutes, of bright sun on the canopy immediately overhead

Time 24 hour clock, at the beginning of each count

Temperature

- 1 freezing < 0°C
- 2 cold 0-5 °C
- 3 cool 6-10 °C
- 4 mild 11-15 °C
- 5 warm 16-22 °C
- 6 hot > 22 °C

Wind The average for each five-minute count on a modified Beaufort scale:

- 0 Leaves still or move without noise (Beaufort 0 and 1)
- 1 Leaves rustle (Beaufort 2)
- 2 Leaves and branches in constant motion (Beaufort 3 and 4)
- 3 Branches or trees sway (Beaufort 5, 6 and 7)

Seen and Heard
 Birds that are first heard should be entered under **H** (even if they are later seen), birds that are first seen should be entered under **S**. Adding H and S should give the total number of birds observed

Unbounded Counts are unbounded

Other Noise i.e. Other than wind the average for the five minutes

- 0 not important
- 1 moderate
- 2 loud


Precipitation type
 Average for each count

- N None
- M Mist
- R Rain
- H Hail
- S Snow


Precipitation value

- 0 None
- 1 Dripping foliage
- 2 Drizzle
- 3 Light
- 4 Moderate
- 5 Heavy

Mini beast hunt datasheet

Species identified in your sample	Number counted (hint - use a tally )

Plant identification datasheet

Plant species identified on the walk	Number counted (hint - use a tally )