

Waitekohe

Sub-Catchment Action Plan 2012



The Waitekohe Sub-Catchment Action Plan is one of a series about the sub-catchments surrounding Tauranga Harbour. This action plan provides an analysis of the current land management issues, a summary of the available physical resources in the Waitekohe sub-catchment, and planned action for land and resource use of the sub-catchment.

Published September 2012



Introduction

The Waitekohe sub-catchment is located four km south of Katikati. The catchment is 2178 hectares in area and flows from the Kaimai Range (750 metres above sea level) to Tauranga Harbour. The sub-catchment is part of the Tauranga Ecological District.

The sub-catchment is two km wide and 11 km long and is situated between Lund and Lockington Roads. It includes 100 km of stream margins and four km of harbour margin. The primary streams are the Waitekohe and the Tuapo which are 10 km and four km in length respectively. All streams and tributaries in this sub-catchment are classified as aquatic ecosystem streams and are recognised as migratory pathways for indigenous fish species.

A large proportion of the sub-catchment vegetation land cover is pastoral. The majority of this land cover is found in the middle and lower sub-catchment of the Waitekohe. A smaller but significant proportion of the sub-catchments' land cover is horticultural and found primarily in the lower catchment.

Sub-catchment soils are derived from air-fall ash and belong to the Katikati soil series. Soils on the stream flats are recent and consist of fluvial sands, silts, gravels and boulders. The geology of the sub-catchment is derived from the Matua subgroup consisting of pumiceous, rhyolitic and andesitic sand, gravel and mud. The soils are versatile but vulnerable to erosion under poor vegetation cover.



Source: BOPRC, ESRI, i-cubed, USGS, NASA, NOA



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Land management

What is the problem?

Soil has been and continues to be lost from the catchment at moderate to high rates, especially where steep land is subject grazing, or where earthworks are not carefully managed. Soil quality has not been monitored in the Waitekohe catchment, but results from other similar Bay of Plenty sites indicate generally healthy soils, with the exception of high levels of nitrogen on sheep, beef and deer farms, and excessively high levels on dairy farms (which have increased over 300 percent in the last ten years). While positive from a production perspective, high nitrogen levels represent a risk to water quality through leaching and eutrophication. Soils on kiwifruit orchards have healthy nitrogen levels but very high and increasing levels of phosphorus. While phosphates do not leach in the same way as nitrogen, they still represent a significant risk to water quality if washed into waterways by erosion.

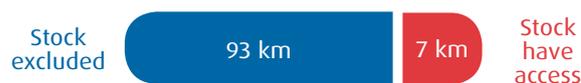
Livestock access to a stream or wetland, or the area immediately around them, degrades water quality by increasing nutrients, faecal matter and sediment in the waterway. Stock access can increase stream bank erosion by stock treading and damaging soil structure, and by eating and degrading vegetation on the stream bank.

Water quality may also be degraded by excess nutrients in streams from fertilisers, farm runoff and urine patch leaching. Sediment can enter waterways from major construction sites (such as subdivision and roading) and forestry at harvest time. These and other pollutants are generally unintentional by-products of activities such as farming and construction.

What will we (Bay of Plenty Regional Council) do about it?

- Promote riparian margin fencing to exclude stock and protect water quality
- Promote and help landowners plant riparian margins, to act as filters and reduce pollutants entering streams through surface runoff
- Encourage stock stream crossings, such as bridges, to protect the water quality of streams
- Support retirement of steep erodible land
- Protect existing areas of indigenous biodiversity
- Protect existing wetland areas
- Work with landowners, other agencies and other sections of Regional Council to ensure consistent land and water quality management.

Current riparian margin protection:

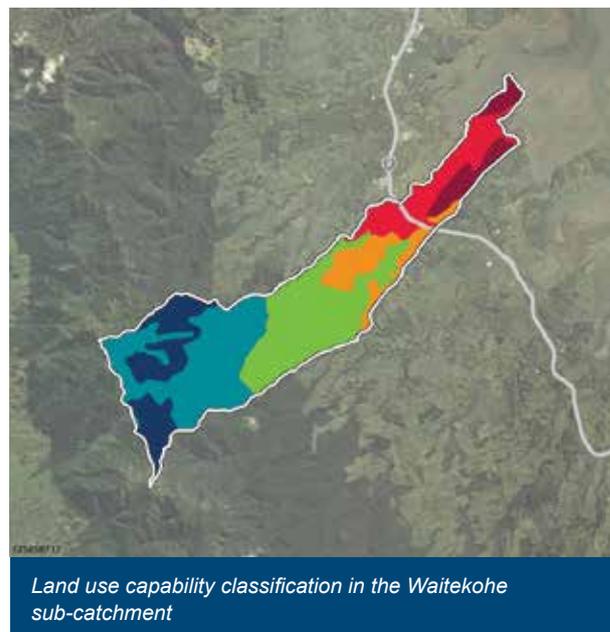
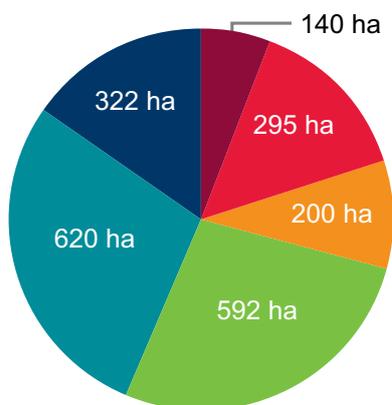


Stock exclusion indicates those stream margins that are fenced off or land that is currently not available for stock grazing, for example, horticulture, forestry, and native bush.

Land use capability classification in the Waitekohe sub-catchment

Sustainable land use and management is essential to ensure the Bay of Plenty region maintains clean waterways, productive soils, and indigenous biodiversity. How the land is used and managed can have a direct effect on its potential for long-term sustainability.

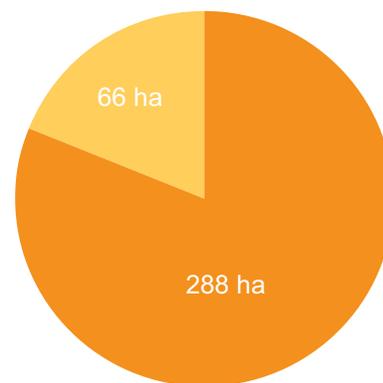
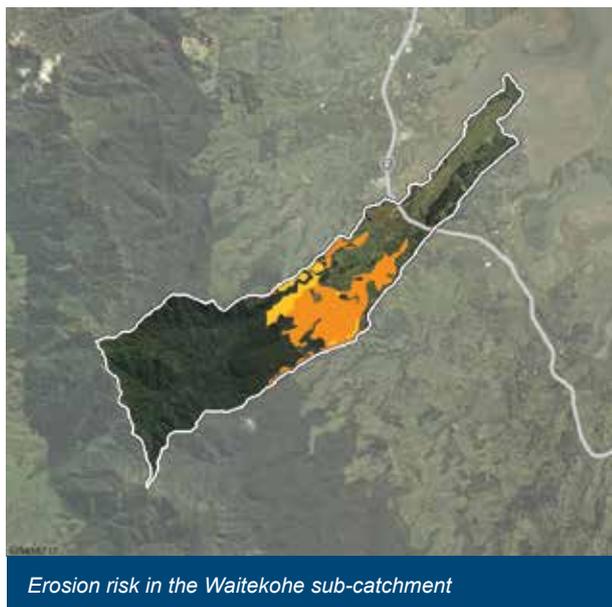
The majority of land in this sub-catchment is Land Use Capability (LUC) Class 6 and 7 - rolling, steep and very steep landscapes respectively. Both LUC Class 6 and 7 lands are located in the middle and upper catchment. Highly productive LUC Class 2, 3 and 4 land - gentle to rolling lands - are primarily restricted to the lower catchment.



| LUC Class | LUC Units | Percent |
|-----------|------------|---------|
| 2 | 2e 1 | 6 |
| 3 | 3e 1, 3w 1 | 14 |
| 4 | 4e 1 | 9 |
| 6 | 6e 1, 6e 2 | 27 |
| 7 | 7e 8 | 28 |
| 8 | 8e 4, 8e 5 | 15 |

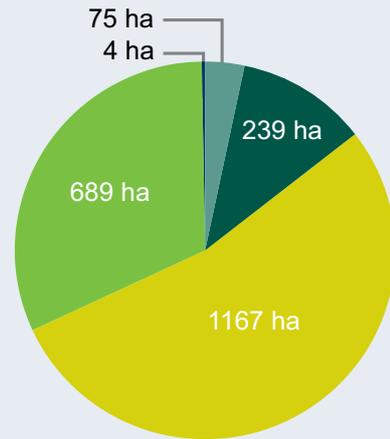
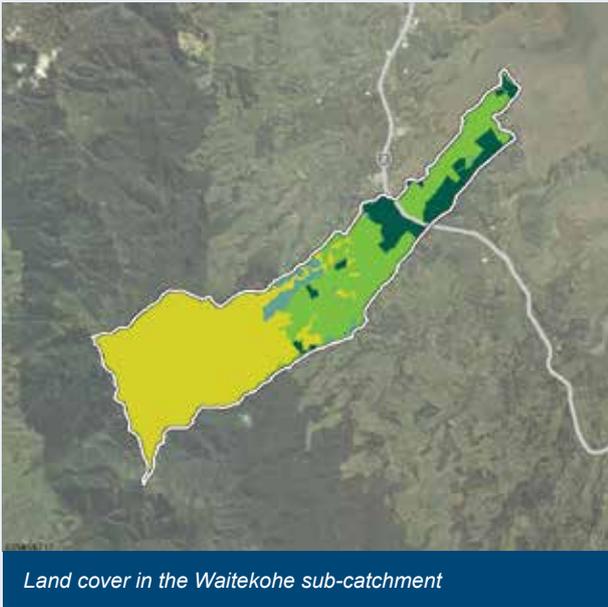
Erosion risk in the Waitekohe sub-catchment

A high proportion of Land Use Capability Classes 6 & 7 land in the Waitekohe sub-catchment is medium to high risk erosion-prone land due to pastoral land use. Forestry located on this class of land has a medium risk of erosion during the post-harvest phase.



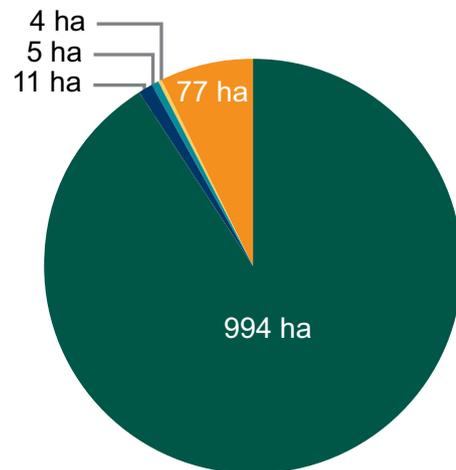
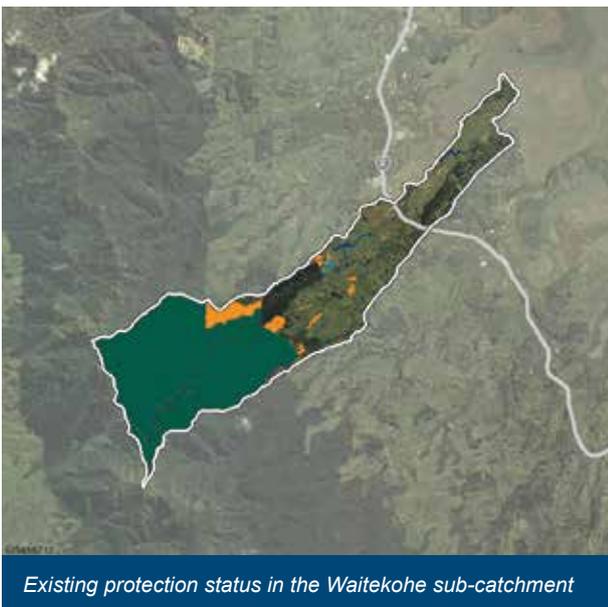
| Land Use | Risk | Percent |
|---------------|--------|---------|
| Pasture | Medium | 13 |
| Exotic forest | Medium | 3 |

Land cover in the Waitekohe sub-catchment



| Vegetation | Percent |
|--------------|---------|
| Exotic | 3 |
| Horticulture | 11 |
| Indigenous | 54 |
| Pasture | 32 |
| Urban | 0.2 |

Existing protection status in the Waitekohe sub-catchment



| Class | Percent |
|------------------|---------|
| DOC Reserve | 46 |
| BOPRC Covenant | 0.5 |
| QEII | 0.2 |
| District Reserve | 0.2 |
| WBOPDC Covenant | 4 |

Land management survey 2011

Field work

In developing the Waitekohe Sub-Catchment Action Plan, Bay of Plenty Regional Council undertook field surveys of 15 properties between January 2011 and February 2011. The properties surveyed account for 53 percent of the catchment area. Priority was given to large properties that had waterways flowing through them or along their boundary.

Areas with formal protection were not surveyed as they already have action plans in place.

Field work included an assessment of land use, stream margins, erosion features and biodiversity features:

| | |
|------------------------------|---|
| Land use | <ul style="list-style-type: none"> Type and rationale Land Use Capability classification based on physical resources present |
| Stream margins | <ul style="list-style-type: none"> Protection measures (if any) in place General condition and upkeep Estimation of length (both protected and unprotected) GPS track of any stream channels not evident in the GIS database maps |
| Erosion features | <ul style="list-style-type: none"> Estimation of size and trend direction Photographs and GPS points (either at feature or where the photo was taken) |
| Biodiversity features | <ul style="list-style-type: none"> Estimation of extent of land area covered and the type of vegetation (e.g. native, introduced species) |

Landowner feedback

Bay of Plenty Regional Council held a meeting with land owners on 9 August 2011. The purpose of the meeting was to gather the concerns, challenges and priorities of land owners in the Welcome Bay sub-catchment area. The following list provides a summary of the land management issues raised by land owners:

- Sea lettuce
- Mangroves – growth and control of regrowth
- Stream bank erosion and the management of streambank erosion: rubbish, trees, weeds etc deposited onto downstream properties
- Erosion of stop banks – public and private
- Support (information and money) needed for management of stream edges on private land
- Thompson's Track contribution to sediment
- Pine plantation harvesting damage and erosion
- Road verges: blackberry, lophantha, montbrecia, black wattle, gorse and pine seedlings
- Pine forest seeding in native bush
- Pampas and weeds on stopbanks

- Weeds not managed – blocks, absentee owners, council, railways, e.g. woolly nightshade, ginger, bamboo, gorse etc
- Ownership of issues by multi-government departments
- Management of esplanade strips and other public land
- Cattle in streams and stock access across streams
- Rats and stoats
- Allow swamps to form between land and sea. Natural filters between fresh and salt water

Iwi/hapū feedback

Ngāi Tamawhariua hapū tautoko the efforts of Regional Council to improve the mauri and water quality of rivers within our rohe, and Tauranga Moana in general. In particular, Ngāi Tamawhariua support actions that will restore the health and abundance of traditional kai such as tuna and watercress. We would love to see people heading down to swim in the river as we used to. Clean water to swim and healthy kai stocks are indicators of good stream health from our perspective.

Actions

The three main land management issues common to the surveyed properties in the Waitekohe Sub-Catchment areas are set out in the table below. Proposed actions to maintain and improve riparian protection, erosion, unsuitable land use and biodiversity loss within the catchment area are listed along with who is involved to implement the action.

Land management issues and solutions

| Actions | Milestones | Who is involved? |
|---|--|---|
| <p>Improving riparian protection</p> <ul style="list-style-type: none"> ▪ Work with landowners to apply sustainable land use methods and practices to maintain and/or repair streambanks and to improve water quality. ▪ Completely remove stock access to streams, fence remaining 7 km and instigate planting of riparian margins to eliminate the effects of livestock, polluted water runoff and erosion. ▪ Instigate necessary remedial works to stream margins such as bank re-contouring, riparian planting and engineering works using relevant legislation relating to riparian management. ▪ Tailor site specific solutions. | <p>0.7 km of new riparian fencing per year</p> | <ul style="list-style-type: none"> ▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council ▪ NZ Landcare Trust working with community care groups |
| <p>Improve erosion control and appropriate land use practices</p> <ul style="list-style-type: none"> ▪ Apply property level management plans to LUC class 6 & 7 pastoral and forestry land that has been identified as eroding or at risk of eroding. ▪ Promote the need for land use change on LUC class 7 land pastoral land – advocate land retirement, forestry and suitable stock regimes. ▪ Work with landowners to apply soil and water conservation methods and good land management practice to maintain and/or repair landscapes. ▪ Increase the awareness of cattle and deer at high stocking rates on steeper slopes. ▪ Ensure that landowners apply appropriate land management practices. | <p>10 properties with 'at risk' land have management plans by 2022</p> | <ul style="list-style-type: none"> ▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council ▪ Department of Conservation ▪ NZ Landcare Trust working with community care groups |
| <p>Improve biodiversity protection and enhancement</p> <ul style="list-style-type: none"> ▪ Advocate further covenanted areas within the sub-catchment ▪ Continue tree planting on private land in native or non-invasive exotic species ▪ Liaise with Waikato Regional Council and Department of Conservation on coordinating management of the Kaimai Mamaku Range and its catchments as part of the Kaimai Catchments Project ▪ Work with landowners and community groups to protect identified biodiversity areas in the sub-catchment by establishing native plant populations and controlling nuisance populations of pest plants and animals. | <p>By 2022 an additional 10 sites are managed for biodiversity protection and enhancement.</p> | <ul style="list-style-type: none"> ▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council ▪ Department of Conservation ▪ Community Care Groups ▪ NZ Landcare Trust working with community care groups |

Monitoring

Waitekohe catchment action plan key performance indicators (KPI's)

| | Key performance indicator | Waitekohe sub-catchment targets | | | | | | | Total |
|----------------|---|----------------------------------|---|---------|---------|---------|---------|-------------|-------|
| | | Current Year ending 30 June 2012 | Year 1* | Year 2* | Year 3* | Year 4* | Year 5* | Years 6*-10 | |
| Soil and water | Km of riparian margins excluded from stock. | 93% - 93 km | 0.7 km | 0.7 km | 0.7 km | 0.7 km | 0.7 km | 0.7 km | 7 km |
| | Number of properties 'at risk' for erosion which are managed by a property management plan. | New measure | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Biodiversity | Identified High Value Ecological Sites (HVES) on private land that are under active management. | New measure | No identified high value ecological sites | n/a | n/a | n/a | n/a | n/a | n/a |
| | Number of areas of indigenous forest or wetland being actively managed by the community to protect their biodiversity values. | New measure | 4 | 4 | 4 | 4 | 4 | 4 | 40 |

Note: The progress to achieve the targets will be reported on annually.

*Year 1 ends at 30 June 2013, Year 2 ends at 30 June 2014 etc.

Case study

Grant Donald and Patricia Stelzer own a kiwifruit orchard on the floodplain of the Waitekohe Stream. When they first purchased the property it was obvious to them the stream needed a management plan to control rampant weed infestations and to keep streambank erosion in check.

They contacted Bay of Plenty Regional Council for advice that eventually led to an agreed management plan for the Waitekohe stream margin within their property. Streambank management options were establishing native plants, gravel management and open pole planting with willow hybrid species.

Willow species have been established throughout the riparian margin on Grants property and continue



Grant Donald (left) discusses the challenges of planting willow trees in gravel soils with Regional Council staff.

downstream into their neighbours' property. Stabilising the stream with this fast growing tree species allows for gradual under-planting with native grasses such as flax.

For more information call a Land Resources Administration Officer on 0800 884 880.

