

Wairoa

Sub-Catchment Action Plan 2012



The Wairoa 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 Wairoa sub-catchment, and planned action for land and resource use in the sub-catchment.

Published October 2012



Introduction

The Wairoa River is the largest sub-catchment in the Tauranga Harbour catchment. It is located to the south west of Tauranga City between Whakamarama and Tauranga Direct Roads. The Wairoa River sub-catchment is 46267 hectares in area and is part of the Tauranga and Otanewainuku ecological districts.

The sub-catchment is about 36 km long and 15 km wide. It includes 1570 km of stream margins and 0.3 km of harbour margin. The primary waterway in the sub-catchment is the Wairoa River. There are 35 named tributary streams and numerous unnamed tributaries. Trust Power operates the Kaimai Hydro Electricity scheme with four power generators located throughout the sub-catchment – Lloyd Mandeno, Lower Mangapapa, Ruahihi and Kaimai 5.

The most common vegetation cover in the sub-catchment is pastoral vegetation at 47 percent of total area. It is found mostly in the middle and lower sections of the sub-catchment. Native bush is mainly in the upper sub-catchment (41 percent), and horticultural land (nine percent) is only in the lower sub-catchment.

Sub-catchment soils are derived from air-fall ash and belong to the Katikati soil series. The geology of the sub-catchment is derived from thin rhyolitic tephra overlying loess and weathered rhyolitic tephra. The soils are classified Typic Orthic Allophanic, which have a high clay content. These soils are versatile with no rooting barriers; however the physical structure is poor. This means these soils are vulnerable to erosion under poor vegetation cover or intensive land-use. Soils on the floodplains and lower flats are formed from a mixture of peat and alluvial rhyolitic ash with wetness limitations to production.



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



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

Land management

What is the problem?

Soil has been and continues to be lost from the Tauranga Harbour catchment at moderate to high rates, especially where steep land is subject to cattle or deer grazing, or where earthworks are not carefully managed. Recent sediment studies indicate the Wairoa River sub-catchment contributes the highest total sediment yield to the harbour of 49630 tonnes/year, which equates to 1.1 tonnes/hectare/year from 46267 hectares.

Soil quality has not been monitored in the Wairoa 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.

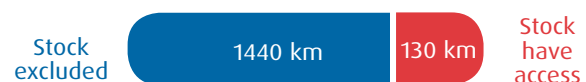
Water quality may also be degraded by excess nutrients in streams from fertilisers, farm runoff and urine patch leaching. Sediment can enter waterways from major construction sites (such as subdivision and roading) and forestry at harvest time. These and other pollutants are generally unintentional by-products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

Water quality monitoring by the Regional Council in 2011 shows that the Wairoa River met the requirements of the Ministry of Health guidelines for swimming, exceeded the median faecal coliform standard of 100 cfu/100ml for stock water supply and exceeded nutrient levels that might promote undesirable biological growth.

What will we 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 help 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 indigenous biodiversity
- Protect existing wetlands
- Work with landowners, other agencies and other sections of Regional Council to ensure consistent land and water quality management.

Current riparian margin fencing protection:

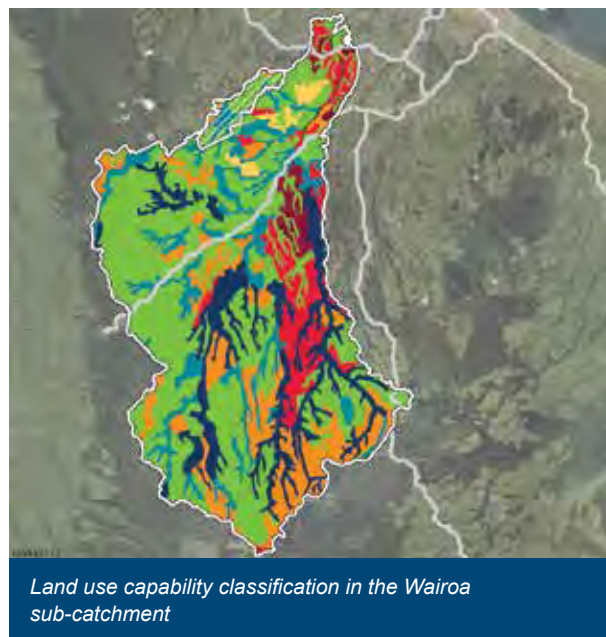
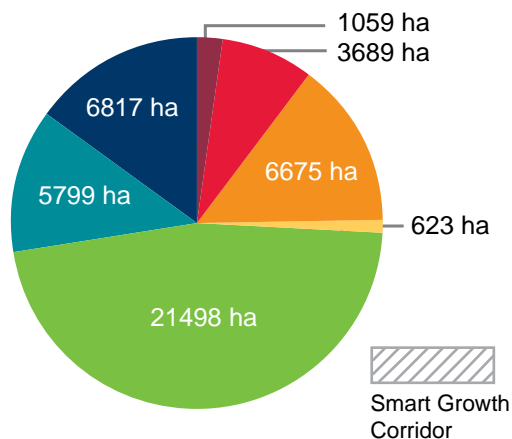


The stock excluded figure indicates those stream margins that are fenced off or are currently not available for stock grazing, for example, horticulture, forestry, and native bush.

Land use capability classification in the Wairoa sub-catchment

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

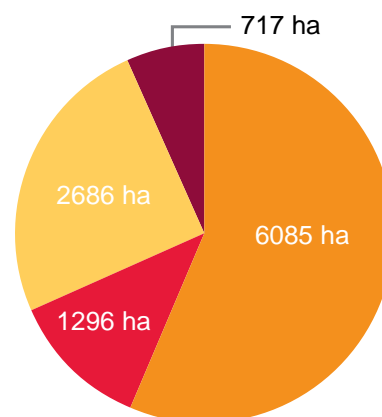
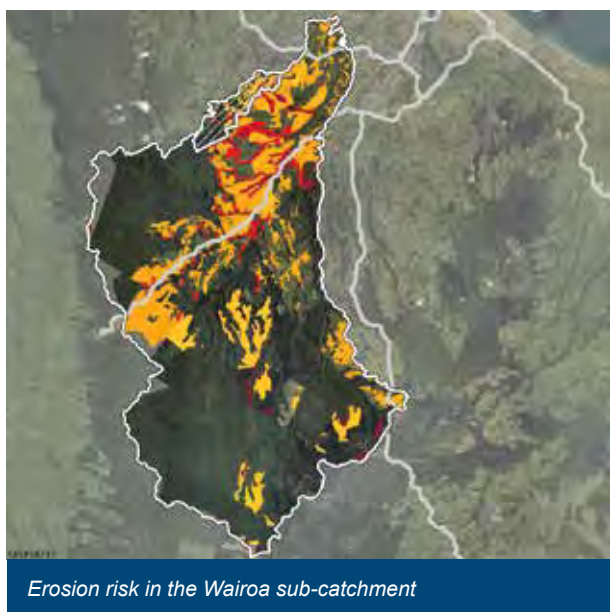
The majority of land in this sub-catchment is Land Use Capability (LUC) Class 6 - rolling and steep landscapes. There are significant areas of LUC Class 7 and 8 lands – steep to very steep land - in the middle and upper catchment. Highly productive LUC Class 2, 3 and 4 - gentle to rolling lands - are primarily in the lower catchment.



LUC Class	LUC Units	Percent
2	2e 1, 2s 1	2
3	3e 1, 3e 2, 3e 8, 3e 8 + 6e 11, 3w 1	8
4	4e 1, 4e 2, 4e 9, 4e 12	14
5	5c 1	1
6	6e 1, 6e 2, 6e 3, 6e 4, 6e 4 + 3e 2, 6e 11, 6w 1	47
7	7e 1, 7e 7, 7e 8	13
8	8e 4	15

Erosion risk in the Wairoa sub-catchment

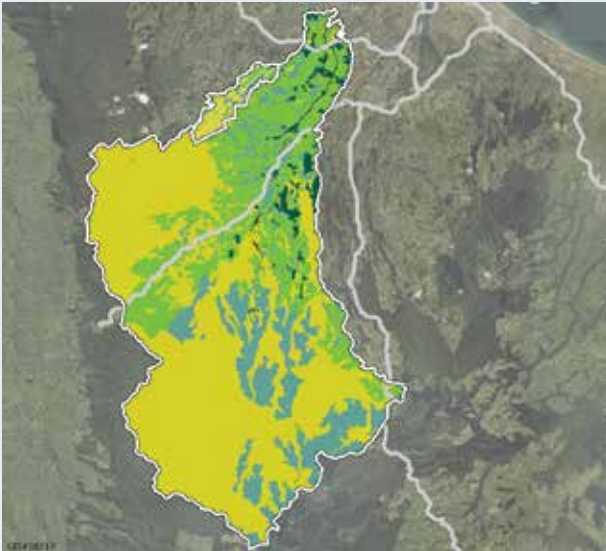
A high proportion of Land Use Capability Class 6 land in the Wairoa sub-catchment has a medium-high risk of erosion due to pastoral land use and forested lands post harvesting.



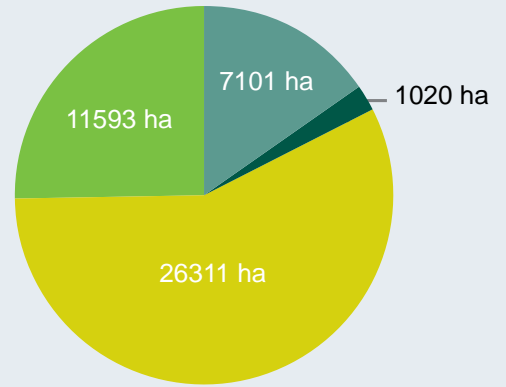
Land Use	Risk	Percent
Pasture	Medium	13
Pasture	High	3
Exotic forest	Medium	6
Exotic forest	High	2

Smart Growth Corridor

Land cover in the Wairoa sub-catchment



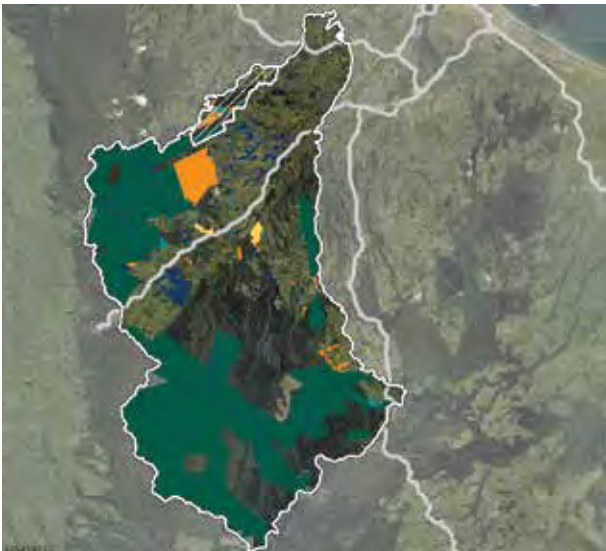
Land cover in the Wairoa sub-catchment



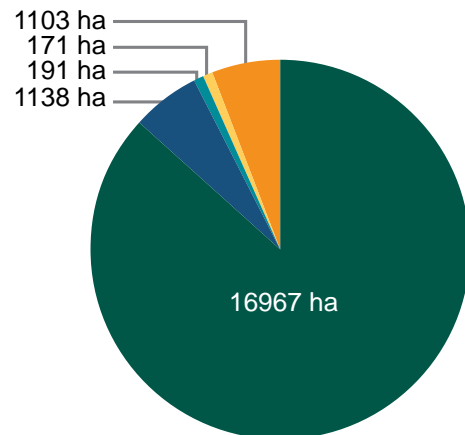
Vegetation	Percent
Exotic	15
Horticulture	2
Indigenous	57
Pasture	25

 Smart Growth Corridor

Existing protection status in the Wairoa sub-catchment



Existing protection status in the Wairoa sub-catchment



Class	Percent
DOC Reserve	37
BOPRC Covenant	2
QBII	0.4
District Reserve	0.4
WBOPDC Covenant	2

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Land management survey 2011

Field work

In developing the Wairoa Sub-Catchment Action Plan, Bay of Plenty Regional Council undertook field surveys of 72 properties in the catchment area in January and February 2012. The properties surveyed covered 16 percent of the catchment. Priority was given to large properties that had waterways flowing through them or along their boundary. Areas with formal protection status were not surveyed as they already have management plans in place. Field work included an assessment of land use, stream margins, erosion features and biodiversity features.

The table summarises the field work:

Land use	<ul style="list-style-type: none"> Type and rationale Land Use Capability classification based on physical resources
Stream margins	<ul style="list-style-type: none"> Protection measures (if any) General condition and upkeep Estimated length (both protected and unprotected) GPS track of any stream channels not evident in GIS database maps
Erosion features	<ul style="list-style-type: none"> Estimated 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"> Estimated extent of land area covered and the type of vegetation (e.g. native, introduced species)

Land owner feedback

Bay of Plenty Regional Council, NZ Landcare Trust and Department of Conservation met with land owners on 10 September 2012 to gather their concerns, challenges and priorities. The land management issues raised included:

Priority 1 – Riparian Fencing

- Need more meaningful contributions to environmental costs.
- Fund the fencing off of substantial streams and plantings. Not at farmers' expense.
- Who looks after excluded areas, i.e. fenced off areas? Where does responsibility lie?
- The financial outlay to do the fencing.
- Investigate greater rate remission? (for 'retired' land.)
- Cost of fencing – implementation and ongoing maintenance.

Priority 2 – Messages to agencies

- Control of wildlife in the DOC estate, especially as it was promised some years ago, up from Ngamuwahine.
- Noxious weeds including gorse. Council should lead by example.

- Storm water management (including roads).
- Pest control. What is happening in the bush area of Omanama Gorge.
- A tendency for good ideas becoming mandated rules.
- Confusion from government departments, lack of cooperation (different government departments saying different things).
- Cost of riparian plants (too high).
- Sediment – funding from BOP regional council etc to tarseal / maintain unsealed roads to reduce this and improve water quality.
- Improve water flow paths, including road run-offs.

Priority 3 – Plant pest control

- Management of invasive plants (e.g. honeysuckle).
- Spread of noxious weeds.
- Subsidies for pest control rat and possum bait.

Priority 4 – Water quality

- Water quality – farmed stock are not the only animals reducing quality – ducks, geese etc.
- Sediment - more credit to be given to pasture as a filter for sediment retention.
- Life in water “a measure” of improvement and quality.

Priority 5 – Money

- Not enough flat land to farm to compensate for fencing steep land and maintain income.
- Money / funding.
- Insufficient subsidisation of public good works on private land.
- Funding – ongoing once a project begins.
- Full subsidy for “personal” circumstances (i.e. ill health).

Priority 6 – Land management

- Erosion – sediment from new subdivisions.
- Need to go back to basics, reducing stocking rate and reducing fertiliser.
- Erosion leading to sediment.
- Proposed industrial dense residential sites causing pollution.
- Control of runoff from development.

Priority 7 – Research

- Sediment – more objective assessment.

Priority 8 – Responsibility for management

- Willows clogging up rivers / causing erosion.

Priority 9 – Riparian management

- Incorrect species planted on stream edges.
- Flooding of Wairoa River: damage to banks; types of plants which will withstand floods.
- Stock in water (cattle).

Iwi/hapū feedback

Iwi and hapū with an interest in the area:

- Iwi:** Ngāti Ranginui

- **Hapū:** Pirirakau, Ngāti Hangarau, Ngāti Kahu, Ngāti Pango, Ngāti Rangī

A summary of concerns, challenges and priorities are:

- Protection and Restoration of Pukewhanake Pa site
- Protection of Tahataharoa
- Restoration of harakeke species
- Providing or increasing Kawau colony areas for the continued presence of a cultural indicator
- The enhancement of all tributaries of the Wairoa River to promote increased water quality health
- Cultural health index investigations achieved in partnership with BOPRC and Tangatawhenua as a baseline
- Research and investigate the environmental impacts of agrichemical run-off

- Protect the Wairoa River and its environs as part of the heritage landscape.
- Recognise the critical decline of biodiversity and risk to indigenous flora and fauna within Ngāti Kahu rohe.
- Promote information sharing about the decline of biodiversity.
- Protect and enhance the Tuna (eel) population and/or habitat within the Wairoa River.
- Protect riparian and buffer zones around waterways to ensure their ecological function is maintained.
- Encourage the protection of existing indigenous forest remnants, bush stands or regenerating indigenous vegetation through use of buffer zones.
- Prevent direct stock access to waterways to avoid discharge or damage by stock.

Actions

Three main land management issues were identified, common to the surveyed properties, in the Wairoa sub-catchment. These are set out in the table below.

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. ▪ Remove all stock access to streams, fence remaining 130km and promote planting of riparian margins to eliminate the effects of livestock, polluted water runoff and erosion. ▪ Begin stream margin remedial works such as bank re-contouring, riparian planting and engineering works - using relevant legislation relating to riparian management. ▪ Identify site-specific solutions. 	<p>5km of new riparian fencing per year</p> <p>1 km of riparian planting per year</p>	<ul style="list-style-type: none"> ▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council
<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>50 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
<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 23 sites, including 2 High Value Ecological Value 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

Monitoring

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

	Key performance indicator	Wairoa 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.	91% - 1440 km	5 km	5 km	5 km	5 km	5 km	5 km	50 km
	Number of properties 'at risk' for erosion which are managed by a property management plan.	New measure	5	5	5	5	5	5	50
Biodiversity	High value ecological sites on private land that are under active management.	New measure	0	0	0	1	0	1	2
	Number of areas of indigenous forest or wetland being actively managed by the community to protect their biodiversity values.	New measure	3	3	3	3	3	3	30

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

Cedric and Bev Stone own a 140 ha rolling hill country farm on the lower Kaimai area, which they have farmed Deer on for the past 25 years. Weak volcanic soils of the area make farming a challenge, as steeper slopes are prone to erosion, and meandering streams difficult to manage. The Stones have recognised their farm's strengths and weaknesses and focussed their efforts on improving soil structure and fertility on the more productive flats, while retiring steeper un-productive areas and native bush areas. "We believe it is important to protect the remnants of native flora and fauna from further deterioration and retire them to enhance the stability of the surrounding hillsides" said Cedric. Fencing to exclude stock from native bush or riparian areas is important for stabilising soil, allowing native regrowth and trapping runoff nutrients.

The Stones have developed a Ten Year Plan for the farm to prioritise their efforts to match land use to land type. To date they have retired 10 blocks ranging from 4 ha to 10 ha including another 3 ha of



An eroded hill side is retired from grazing by fencing out deer and laying hay over the exposed ground.

Wetland from stock. The Stones have used financial assistance from Bay of Plenty Regional Council under a Riparian Management Plan agreement recently to fence off stock from another wet gully on their property.

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

