Kaitemako

Sub-Catchment Action Plan 2012

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

Published October 2012

Bay of Plenty
REGIONAL COUNCIL

Introduction

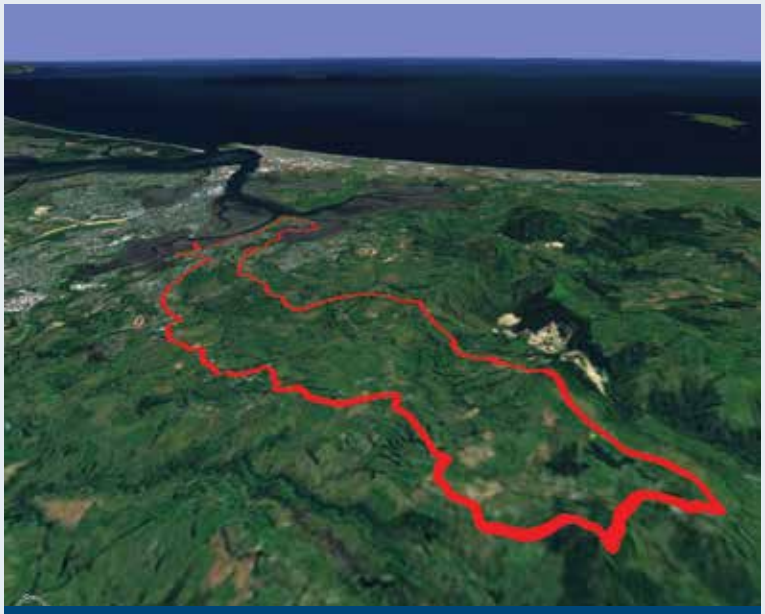
The Kaitemako sub-catchment is in the Welcome Bay, south of Tauranga City. The sub-catchment is 1135 hectares in area and flows from Ohauiti and drains to the harbour at the Welcome Bay estuary. The Kaitemako sub-catchment is part of the Tauranga and Otanewainuku north ecological districts.

The sub-catchment is eight km long and two km wide. It includes 40 km of riparian margins and six km of harbour margin. The primary waterway in the sub-catchment is the Kaitemako stream. There are several un-named tributary streams.

The most widely spread land cover in the sub-catchment is pasture at 45 percent. Native bush covers 33 percent, horticultural five percent and exotic forest eight percent. Large areas of estuarine wetlands surround the Welcome Bay estuary.

Sub-catchment soils are derived from air-fall ash and belong to the Katikati, Otanewainuku and Whakamarama soil series. These soils are classified Typic Orthic Allophanic, which have a high allophonic (clay) mineral 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 stream flats are recent and consist of fluvial sands, silts, gravels and boulders.

The geology of the sub-catchment is derived from thin rhyolitic tephra overlying loess and weathered rhyolitic tephra.



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 to cattle or deer grazing, or where earthworks are not carefully managed. Soil quality has not been monitored in the Kaitemako 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. 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.

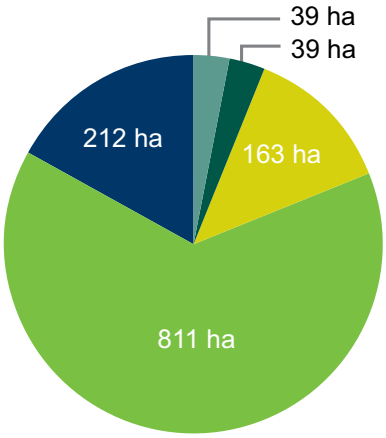
What will we (Bay of Plenty Regional Council) do about it?

- 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.

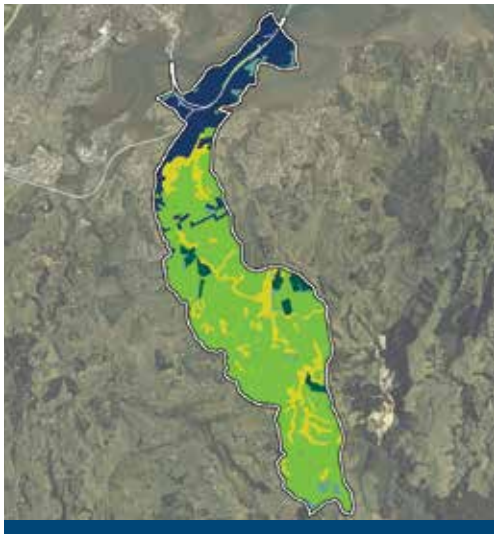
Current riparian margin fencing protection:

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 cover in the Kaitemako sub-catchment



Vegetation	Percent
Exotic	3
Horticulture	3
Indigenous	13
Pasture	64
Urban	17

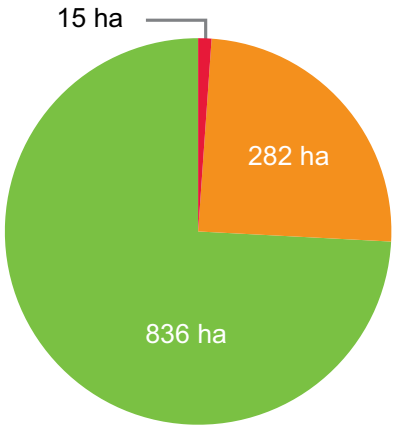


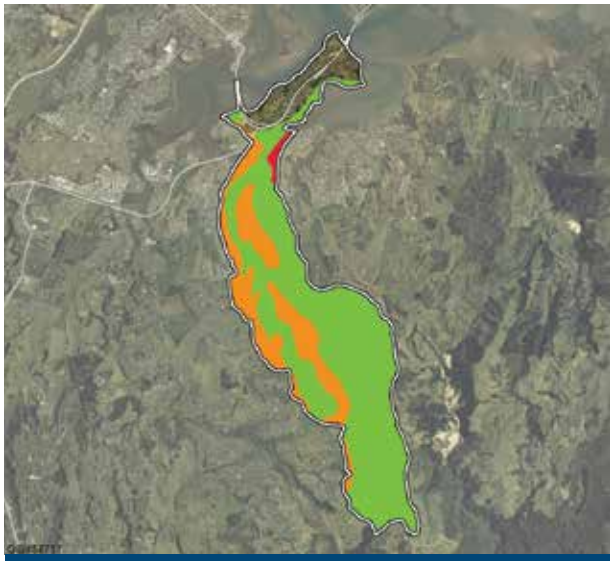
Land cover in the Kaitemako sub-catchment

Land use capability classification in the Kaitemako 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 - steep landscapes. Highly productive LUC Class 3 and 4 - gentle to rolling lands - are also well represented across the sub-catchment.





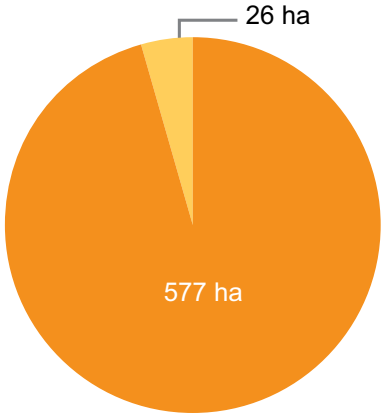
Land use capability classification in the Kaitemako sub-catchment

LUC Class	LUC Units	Percent
3	3e 2	1
4	4e 2	22
6	6e 3, 6e 4	66

Erosion risk in the Kaitemako sub-catchment

A large proportion of Land Use Capability Class 6 land in the Kaitemako sub-catchment has medium risk of erosion occurring due to pastoral land use. Forestry located on this class of land has a medium risk of erosion during the post-harvest phase.

Erosion risk in the Kaitemako sub-catchment



Land Use	Risk	Percent
Pasture	Medium	45
Exotic forest	Medium	2

Existing protection status in the Kaitemako sub-catchment

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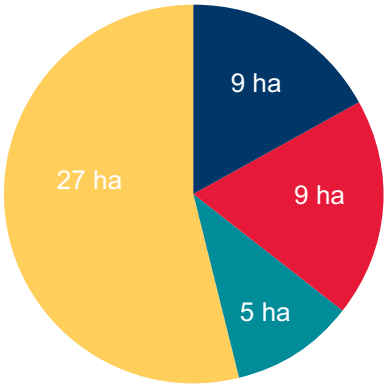

Class	Percent
BOPRC Covenant	1
Māori	1
QEII	0.4
District Reserve	2

Land management survey 2011

Field work

In developing the Kaitemako Sub-Catchment Action Plan, Bay of Plenty Regional Council undertook field surveys of 25 properties between February and March 2012. The properties surveyed covered 48 percent of the catchment. 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, steam margins, erosion features and biodiversity features:

Land use	▪ Type and rationale ▪ Land Use Capability classification based on physical resources present
Stream margins	▪ Protection measures (if any) in place ▪ General condition and upkeep ▪ Estimated length (both protected and unprotected) ▪ GPS track of any stream channels not evident in the GIS database maps
Erosion features	▪ Estimated size and trend direction ▪ Photographs and GPS points (either at feature or where the photo was taken)
Biodiversity features	▪ Estimated land cover 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 held a meeting with landowners on 11 October 2011. The meeting gathered their concerns, challenges and priorities.

Priority 1 – Lack of information / education

- Lack of native biodiversity. (Monoculture systems of orchards, pasture and forestry. Some landowners want a rural lifestyle without land guardianship attitude. Urban mind set in a rural community. Laziness, ignorance)
- Rainfall. (Specific monitoring per hour over the course of the year. Erosion is not constant throughout the day or year. Rainfall is quoted as annual not sufficient. Rainfall intensity can be huge and episodic. Rainfall on hillsides which run cattle can produce waterfalls/huge volumes of water in some rainfall events, with consequences of erosion.)
- Ignorance/knowledge. (Do people know the impacts of their land practices? People are uniformed about good rural practices and are sometimes uncaring about their actions.)

Priority 2 – Planning

- Water Quality. (Minimising runoff from urban development being too close to waterways.)
- Rubbish. (Stricter control of litter dumped on roadsides and/or over river banks. Lack of collection points available to local rural community. Associate fees for refuse.)
- Road drainage. (Drains are being planted with aesthetic plants which causes blockage.)
- Road drainage management. (Road drainage being forced into paddocks. Drains not being cleaned on a regular basis on private and public land.)
- Impacts and management of subdivisions. (Visual/ rules may need reassessing as often delays between the setting up of a subdivision/sale/construction/ landscaping – also the gouging of culverts – poor drainage, no kerbing required.)

Priority 3 – Weeds

- Weed control. (Lack of weed management on the water's edge, leading to spraying and run-off into streams.)

Priority 4 – Pollution

- Pollution from:
  1) Road runoff (e.g. oil, rubber, motor chemicals, petrol from vehicles)
  2) Farming
  3) Horticulture
  4) Visual (subdivisions)
  5) Septic tanks (seepage)

Priority 5 – Land management

- Biodiversity. A limited approach to diversity protection has ecological impacts.
- Erosion from:
  1) Forestry (cyclical, episodic impact)
  2) Farming (riparian strips, good water flows)
  3) Subdivision (visual impacts and impacts on soil)
  4) Horticulture (spraying weeds results in soils becoming exposed)
  5) Urban (road runoff)
  6) Intensity of rainfall (e.g. 100 mm/hr). (Annual rainfall is not an accurate indicator of damage.)

Priority 6 – Bureaucracy

- Bureaucratic interference:
  1) Lack of support from local council
  2) Lack of ability to think outside the square
  3) Too many experts – lack of knowledge transfer with landowners
  4) Inconsistency
  5) Bullying attitude

Iwi/hapū feedback

Kaitemako lies within the rohe of several iwi/hapū. The main concerns, priorities and challenges regarding the natural environment identified by tangata whenua include:

- The iwi and hapū support any initiatives which result in the improvement of water quality particularly with regard to importance of using the streams and harbour for kaimoana gathering including Patiki and Titiko and swimming/playing;
- Most ancestral lands have been lost, it is important to tangata whenua that regional council support the owners of Māori land to improve water quality and biodiversity;
- It is important that remaining remnant native bush is protected and restored;
- It is a high priority to the iwi/hapū to protect culturally significant sites in the catchment and traditional walking routes should be open for public use;
- Building capacity for young Māori to learn about/ work in the resource management field within their rohe;
- Protection of the Mauri of the streams and lands within the catchment by way of kaitiaki
- Monitor restoration activities such as riparian fencing and planting to reduce sedimentation and increase water quality and mangrove removal; and
- On-going communication between regional council and iwi/hapū. Share monitoring results and proposed restoration initiatives with iwi/hapū and work with iwi/hapū to restore their lands where possible.

Actions

Three main land management issues, common to the surveyed properties, were identified in the Kaitemako sub-catchment. We have identified solutions that will help maintain and improve riparian protection, reduce erosion and unsuitable land use and reduce biodiversity loss within the catchment area, and who can help implement the actions.

Land management issues and solutions

Actions	Milestones	Who is involved?
Improve riparian protection ▪ Work with landowners to apply sustainable land use methods and practices to maintain and/or repair wetlands and stream banks to improve water quality. ▪ Completely remove stock access to streams, fence remaining 20km 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.	1 km of new riparian fencing per year	▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council ▪ Tauranga City Council for projects which benefit the city ▪ NZ Landcare Trust working with community care groups
Improve soil health, help control erosion and encourage sustainable land use ▪ 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. ▪ Work to ensure that earthworks, track construction and roading complies with best practice to minimise run-off. ▪ Increase the awareness of the impact of cattle and deer on steeper slopes. ▪ Ensure that landowners apply appropriate land management practices.	39 properties with 'at risk' land have management plans by 2022	▪ Bay of Plenty Regional Council ▪ Landowners ▪ Western Bay of Plenty District Council ▪ Department of Conservation ▪ NZ Landcare Trust working with community care groups
Improve biodiversity protection and enhancement ▪ Advocate protection and restoration of valuable 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.	By 2022 an additional 10 sites are managed for biodiversity protection and enhancement.	▪ Bay of Plenty Regional Council ▪ Land owners ▪ Western Bay of Plenty District Council ▪ Department of Conservation ▪ Community Care Groups ▪ NZ Landcare Trust working with community care groups

Monitoring

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

	Key performance indicator	Kaitemako sub-catchment targets							
		Current Year ending 30 June 2012	**Year 1***	**Year 2***	**Year 3***	**Year 4***	**Year 5***	**Years 6*-10**	**Total**
Soil and water	Km of riparian margins excluded from stock.	50% - 20 km	1 km	1 km	1 km	1 km	1 km	1 km	10 km (75% 30 km)
	Number of properties 'at risk' for erosion which are managed by a property management plan.	New measure	3	4	4	4	4	4	39
Biodiversity	High value ecological sites on private land that are under active management.	There are no identified high value ecological sites in this catchment	n/a	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	1	1	1	1	1	1	10

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

Woolly Nightshade Lace Bug release.

The Welcome Bay area including the Kaitemako sub-catchment has widespread, dense infestations of the pest plant, woolly nightshade. In these areas where the infestations are so dense and widespread, physical labour including spraying is not a sustainable option for controlling the pest plant over the long term. There are hundreds of hectares of woolly nightshade in this area and getting on top of them has proven difficult.

The woolly nightshade lace bug is a "biological control" which has been released in the Kaitemako sub-catchment, as well as other areas nearby, in an attempt to control these large infestations. The lace bugs feed on the leaves of woolly nightshade which then dry out, stunting the growth of the plant.

Woolly Nightshade Lace Bug

"I'm absolutely thrilled that we now have a tool that allows us to naturally repress woolly nightshade. This is a significant step that will help us to take control of the plants", says Courtney Bell, Bay of Plenty Regional Council Land Management Officer.

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

Bay of Plenty REGIONAL COUNCIL

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