

# Tuapiro

## Sub-Catchment Action Plan 2012



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

Published October 2012



# Introduction

The Tuapiro sub-catchment is located two km north of Katikati Township. It is 7,675 hectares in area and flows from the northern Kaimai Ranges to the Tauranga Harbour at the Tuapiro estuary. The Tuapiro sub-catchment is located within the Tauranga Ecological District, and mostly covers the area west and east from Lindeman Road to Wolsely Road.

The sub-catchment is about 15 km long and six km wide. It includes 125 km of streams, or 250 km of riparian margins (both banks) and 15 km of harbour margin. The primary waterway in the sub-catchment is the Tuapiro Stream. There are seven named tributary streams (Ananui Stream, Hikurangi Stream, Tahawai Stream, Tamaki Stream, Tuapiro Creek, Wairoa Stream, Waitengaue Stream) and numerous unnamed tributaries.

The most widely spread class of vegetation cover in the sub-catchment is indigenous vegetation at 48 percent and is largely confined to the upper sub-catchment. Pastoral land covers 32 percent and horticultural land covers 15 percent. Exotic forest covers five percent of the sub-catchment. Large areas of estuarine wetlands surround the Tuapiro estuary.

Sub-catchment soils are predominantly derived from air-fall ash, with the most recent being from the Kaharoa eruption some 700 years ago. The most common soils are Katikati Sandy Loam and Katikati Hill soils, with Waitekauri and Whakamarama series soils, and Pahoia silts and sands on estuary margins. These volcanic soils are versatile and naturally well-drained but are vulnerable to erosion under poor vegetation cover or intensive land-use.



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 Tuapiro 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.

Water quality monitoring at Surtees Road by the Regional Council shows that the Tuapiro Stream

meets the Ministry of Health guidelines for swimming and has a nutrient load that will not promote undesirable biological growth. It does not meet the guidelines for stock water supply.

## What will we do about it?

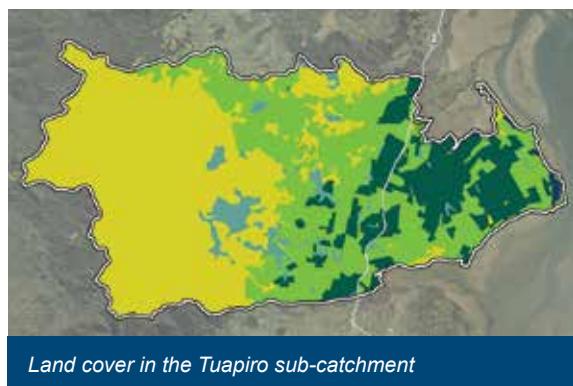
- Promote riparian margin fencing to exclude stock and protect water quality
- Promote and help landowners plant riparian margins, to act as filters and reduce pollutants entering streams through surface runoff
- Encourage stock stream crossings, such as bridges, to protect the water quality of streams
- 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:

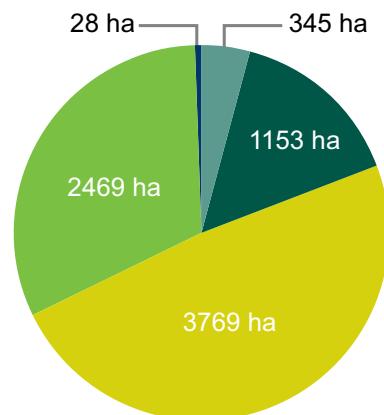


*Stock exclusion indicates those stream margins that are fenced off or land that is currently not available for stock grazing, for example, horticulture, forestry, and native bush.*

## Land cover in the Tuapiro sub-catchment



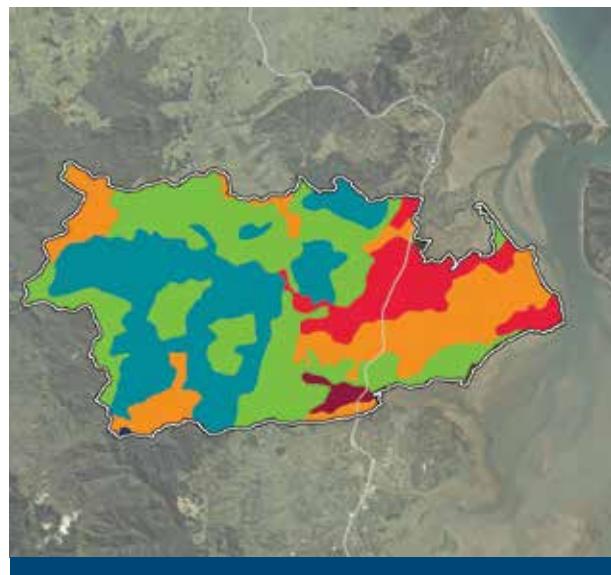
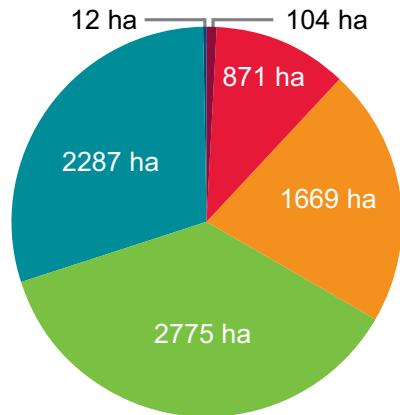
Vegetation	Percent
Exotic	4
Horticulture	15
Indigenous	48
Pasture	32
Urban	0.4



## Land use capability classification in the Tuapiro 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 and steep landscapes. Both LUC Class 6 and 7 lands are mainly in the upper sub-catchment. Highly productive LUC Class 2, 3 and 4 - gentle to rolling lands - are located across the sub-catchment.

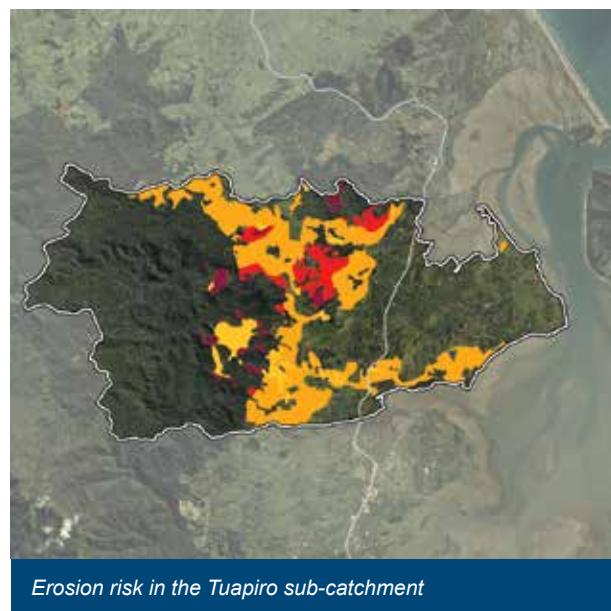


Land use capability classification in the Tuapiro sub-catchment

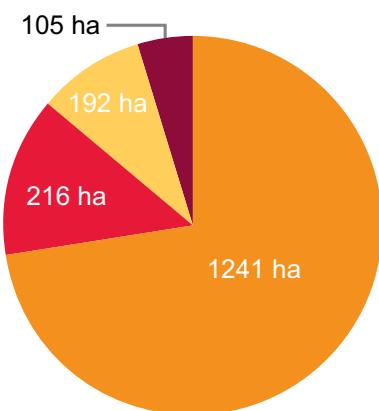
LUC Class	LUC Units	Percent
2	2e 1	1
3	3e 1	11
4	4e 1, 4e 9	21
6	6e 1, 6e 2, 6e 11, 6e 16, 6e 17, 6w 1	36
7	7e 8	29
8	8e 4, 8w 1	0.2

## Erosion risk in the Tuapiro sub-catchment

A high proportion of Land Use Capability Class 6 and 7 lands in the Tuapiro sub-catchment are medium to high risk for erosion due to pastoral land use. Forestry located on this class of land has a medium to high risk of erosion during the post-harvest phase.

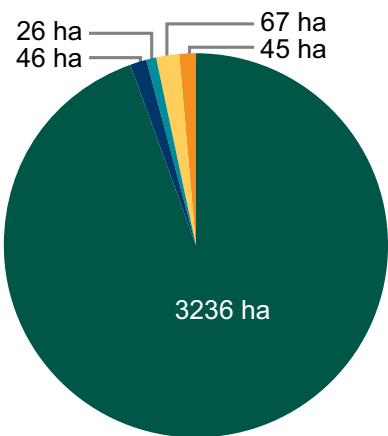


Erosion risk in the Tuapiro sub-catchment



Land Use	Risk	Percent
Pasture	Medium	16
Pasture	High	3
Exotic forest	Medium	2
Exotic forest	High	1

## Existing protection status in the Tuapiro sub-catchment



Class	Percent
DOC	42
BOPRC Covenant	1
QEII	0.3
District Reserve	1
WBOPDC Covenant	1

## Land management survey 2011

### Field work

In developing the Tuapiro Sub-Catchment Action Plan, Bay of Plenty Regional Council undertook field surveys of 32 properties that have waterways flowing through them or along their boundary between March and April 2012. 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:

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

## Land owner feedback

Bay of Plenty Regional Council, NZ Landcare Trust and Department of Conservation held a meeting with landowners on 4 August 2011. The meeting gathered their concerns, challenges and priorities.

In order of priority, the challenges and solutions suggested were:

### Priority 1 – Water quality

- Need a suitable landowner incentive to keep stock and stock effluent out of waterways (50% subsidy for fencing at present).
- Water quality needs to be kept to an acceptable standard.
- Need to consider whole water cycle for water quality: from streams to harbour. Includes consideration of siltation and any pollutants as these affect the stream and harbour.

### Priority 2 – Sediment

- Streambank care: stopping erosion by planting.
- Removal of mangroves. No merit in mangroves. Public participation in removal.
- Erosion of riverbanks and the consequent run-off of sediment.
- Need more sediment and nutrient monitoring and control.
- Siltation sediment into the pristine harbour environment.
- Polluted stormwater run-off from all roads, but particularly from SH2.

### Priority 3 – Flooding

- Removal of restrictions to the water flow (e.g. trees such as willows, small culvert crossings on farms).
- River peak flow volumes: can these be managed in some way? They cause an increase in streambank erosion.
- Coping with the 50 year flood that occurs every 5 years!
- Responsibility for the downstream effects – tidal/flooding.

### Priority 4 – Native habitat

- Loss of whitebait habitat and connections up streams.
- Wetlands: do we know enough about them to know how many we need and where they should be?

### Priority 5 – Education/communication

- Need a clear line of communication for enquiries. Currently, agencies are ‘passing the buck’ and forwarding public enquiries on to other agencies. Community needs a “job description” for each agency so they know who to contact.
- Public education needed on right of access (crossing private land to esplanade reserves).
- Cross-boundary issues with Western Bay of Plenty District Council: forestry: pine / native tree balance / control; land-use: planning.

- Sprayers need lessons in plant recognition. Native plants should not be sprayed, nor should mown verges (creates erosion issue).
- Over-spraying around marker pegs on road sides (creating weed issues).

### Priority 6 – Water consents

- Water rights / consents. Re-allocation by lease to reserve ownership.

### Priority 7 – Rubbish

- Debris reduction: cut vegetation needs to be removed / not left by streambanks.
- No rubbish disposal on stream or river banks.

### Priority 8 – Pests

- Black swans: ecological disaster for other birds etc; marine nursery; nutrient overload. Open season (i.e. like rabbits)

### Priority 9 – Recreation

- Allowing appropriate access to the harbour. Significant for people. Includes cross-boundary planning with Western Bay of Plenty District Council.

## Iwi/hapū feedback

### Ngāti te Wai

Ngāti te Wai maintain very strong connections with our awa. We are currently undertaking a restoration project to protect part of the Tuapiro River that flows past our Marae. The Tuapiro River and estuary are heavily used for kaimoana gathering. We absolutely support any activities that encourage other landowners to remove stock access from rivers and improve water quality and kaimoana stocks.

### Ngā Tamawharua

Ngā Tamawharua 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, Ngā Tamawharua 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.

### Ngā Tauwhao ki Ōtāwhiwhi – statement of support for catchment planning

Ngā Tauwhao ki Otāwhiwhi has recently completed the creation of our Hapū Management Plan which outlines our aspirations and goals for the future health of the whānau and whenua. Many of the goals and desired outcomes align closely with those of Council. We whole heartedly support Council’s efforts to improve water quality in the Waiau catchment and Tauranga Moana and look forward to working more collaboratively in the future.

# Actions

Three main land management issues, common to the surveyed properties, were identified in the Tuapiro 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?
<b>Improving riparian protection</b> <ul style="list-style-type: none"> <li>▪ Work with landowners to apply sustainable land use methods and practices to maintain and/or repair wetlands and streambanks to improve water quality.</li> <li>▪ Completely remove stock access to stream banks, fence remaining 22km and instigate planting of riparian margins to eliminate the effects of livestock, polluted water runoff and erosion.</li> <li>▪ Instigate necessary remedial works to stream margins such as bank re-contouring, riparian planting and engineering works using relevant legislation relating to riparian management.</li> <li>▪ Tailor site specific solutions.</li> </ul>	Average 2.2 km of new riparian fencing per year.	<ul style="list-style-type: none"> <li>▪ Bay of Plenty Regional Council</li> <li>▪ Landowners</li> <li>▪ Western Bay of Plenty District Council</li> <li>▪ Tauranga City Council for projects which benefit the city</li> <li>▪ NZ Landcare Trust working with community care groups</li> </ul>
<b>Improve erosion control and appropriate land use practices</b> <ul style="list-style-type: none"> <li>▪ Apply property level management plans to LUC class 6 and 7 pastoral and forestry land that has been identified as eroding or at risk of eroding.</li> <li>▪ Promote the need for land use change on LUC class 7 land pastoral land – advocate land retirement, forestry and suitable stock regimes.</li> <li>▪ Work with landowners to apply soil and water conservation methods and good land management practice to maintain and/or repair landscapes.</li> <li>▪ Work to ensure that earthworks, track construction and roading complies with best practice to minimise run-off.</li> <li>▪ Increase the awareness of the impact of cattle and deer on steeper slopes.</li> <li>▪ Ensure that landowners apply appropriate land management practices.</li> </ul>	50 properties with 'at risk' land have management plans by 2022.	<ul style="list-style-type: none"> <li>▪ Bay of Plenty Regional Council</li> <li>▪ Landowners</li> <li>▪ Western Bay of Plenty District Council</li> <li>▪ Department of Conservation</li> <li>▪ NZ Landcare Trust working with community care groups</li> </ul>
<b>Improve biodiversity protection and enhancement</b> <ul style="list-style-type: none"> <li>▪ Advocate protection and restoration of valuable areas within the sub-catchment.</li> <li>▪ Continue tree planting on private land in native or non-invasive exotic species.</li> <li>▪ 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.</li> <li>▪ 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.</li> </ul>	By 2022 an additional 30 sites are managed for biodiversity protection and enhancement.	<ul style="list-style-type: none"> <li>▪ Bay of Plenty Regional Council</li> <li>▪ Landowners</li> <li>▪ Western Bay of Plenty District Council</li> <li>▪ Department of Conservation</li> <li>▪ NZ Landcare Trust working with community care groups</li> </ul>

# Monitoring

## Tuapiro catchment action plan key performance indicators (KPI's)

Key performance indicator	Tuapiro sub-catchment targets								
	Current Year ending 30 June 2012	Year 1*	Year 2*	Year 3*	Year 4*	Year 5*	Years 6*-10	Total	
<b>Soil and water</b>	Km of riparian margins with no stock access	88% - 228 km	2.2 km	2.2 km	2.2 km	2.2 km	2.2 km	22 km (250 km 100%)	
	Number of properties 'at risk' for erosion which are managed by a property management plan.	New measure	5	5	5	5	5	50	
<b>Biodiversity</b>	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	
	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	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

Jill Henderson has been fairly busy revitalising her four hectare property. A programme of large tree removal and pasture renewal was the perfect opportunity for Jill to establish a more practical fence layout. This included retiring grazing from a wetland gully.

"I have a wonderful view looking over the wetland now. Hopefully it adds to the value of my property and I can be sure that any run off from my block is now being filtered before getting to the Harbour".

Over the coming seasons, a programme of extensive weed control and planting will see a dramatic transformation. The Bay of Plenty Regional Council is contributing towards this programme under its Riparian Management Programme.



Jill Henderson in front of her protection area.

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