

# **A Guide to Surface Water Availability and Allocation in Taranaki**

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This document is a **GUIDE ONLY** and is written in good faith with a desire to inform or be helpful. While every endeavour has been made to ensure the information in this Guide is accurate, the Taranaki Regional Council accepts no responsibility for any error or omission in these pages. Any resource consent application to take surface water will be considered by the Council on the case-by-case basis and in accordance with the *Regional Policy Statement for Taranaki*, the *Regional Fresh Water Plan for Taranaki* and the Resource Management Act 1991. In the case of any inconsistency, relevant policies and provisions contained in the Act and the regional policy statement and plan will prevail.

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Taranaki Regional Council  
August 2005

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# Introduction

Fresh water is integral to the health, well-being, livelihood and culture of New Zealanders. Until recently we have taken our abundance of fresh water for granted. We have assumed that there will always be enough available to meet the needs of all communities and interests, including aquatic and instream values. However, this is not the case. Freshwater resources are under increasing pressure from those wishing to take large quantities of surface water.

The Taranaki Regional Council has prepared the *Regional Fresh Water Plan for Taranaki* under the Resource Management Act 1991. This Plan sets out policies and rules that address the sustainable management of Taranaki's freshwater resources. The Plan aims, amongst other things, to provide for the taking and use of fresh water while avoiding, remedying or mitigating the adverse effects associated with the use and taking of that water.

Many small day-to-day takes and uses of surface water have very little environmental effect and you do not need a resource consent from the Taranaki Regional Council, provided you meet the conditions set out in the *Regional Fresh Water Plan for Taranaki*. These activities are classified in the plans as *permitted activities*.

Other takes and uses of fresh water have greater environmental effects and the Taranaki Regional Council has determined that you must get a resource consent to take or use that water to ensure that environmental effects are avoided or minimised. The Plan spells out which water use activities need resource consents. There are also some activities that are not allowed to be undertaken at all – they are classified in the plans as *prohibited*.

## About this Guide

This Guide is to help water users or those planning to take or use surface water to interpret the *Regional Fresh Water Plan for Taranaki*. Its aim is to show at a general level how much and from where in our rivers and streams, water can be taken under the Plan. The Guide includes sections on:

- an overview of water use and availability in Taranaki, including pressures on surface water availability
- the Council's policies and rules set out in the *Regional Fresh Water Plan for Taranaki* relating to water allocation to help you to work out whether a resource consent is needed
  - if it is clear that a resource consent is not required, the activity can be carried out as a permitted activity
  - if it is not clear whether a consent is required, then contact the Taranaki Regional Council
  - if it is clear that a resource consent is required then contact the Taranaki Regional Council or look at *How to apply for a resource consent* for further guidance
- how to apply for a resource consent to take or use water; information to be included with a resource consent application; and matters the Council will consider for your application. Consent conditions that will generally be applied are also presented
- case studies of major water users demonstrating good practice and techniques adopted to conserve water and avoid, remedy and mitigate adverse effects associated with taking water
- catchment-specific information for 38 selected rivers and streams in the Taranaki region, including a resource description and summary of water availability, use and pressures in relation to these catchments.

### Taranaki Regional Council

Staff are available to help you and answer your questions.

Telephone us: (06) 765-7127

Call in to the office: 47 Cloten Road, Stratford

Fax us: (06) 765-5097

E-mail us: [info@trc.govt.nz](mailto:info@trc.govt.nz)

Web: [www.trc.govt.nz](http://www.trc.govt.nz)



Photo 1: Waingongoro River and Mount Taranaki

# Surface water use and availability in Taranaki

## Water – the source of all life

The form and distribution of water varies – in some areas there may be plenty of water, while in other areas there is little. Water exists in three states – liquid, solid (ice) and gas (water vapour). Water is in a continually changing state as it moves through the 'hydrological cycle'.

The hydrological cycle involves the circulation and conservation of water. The process begins with evaporation. The sun heats up the surface of large water bodies causing water vapour to evaporate into the atmosphere. Most of the water on Earth is in the oceans. The water vapour is warmer than the surrounding air and rises. As the vapour cools in the atmosphere, it condenses to form water particles, which then come together to form droplets, and then clouds. As clouds form, winds move them to other areas. When eventually the clouds cannot hold the moisture, the clouds release the water to earth in the form of rain, hail or snow.

Rain falling on land recharges river flows, lakes and groundwater aquifers through runoff and infiltration through the ground. Snow and ice act in a similar way on melting. Provided there is no human intervention, most of the water that ends up in rivers will eventually find its way to the sea or lakes where the water cycle begins again. Although a similar process occurs with groundwater, it may be some time (months to hundreds of years) before that water finds its way to rivers or the sea.

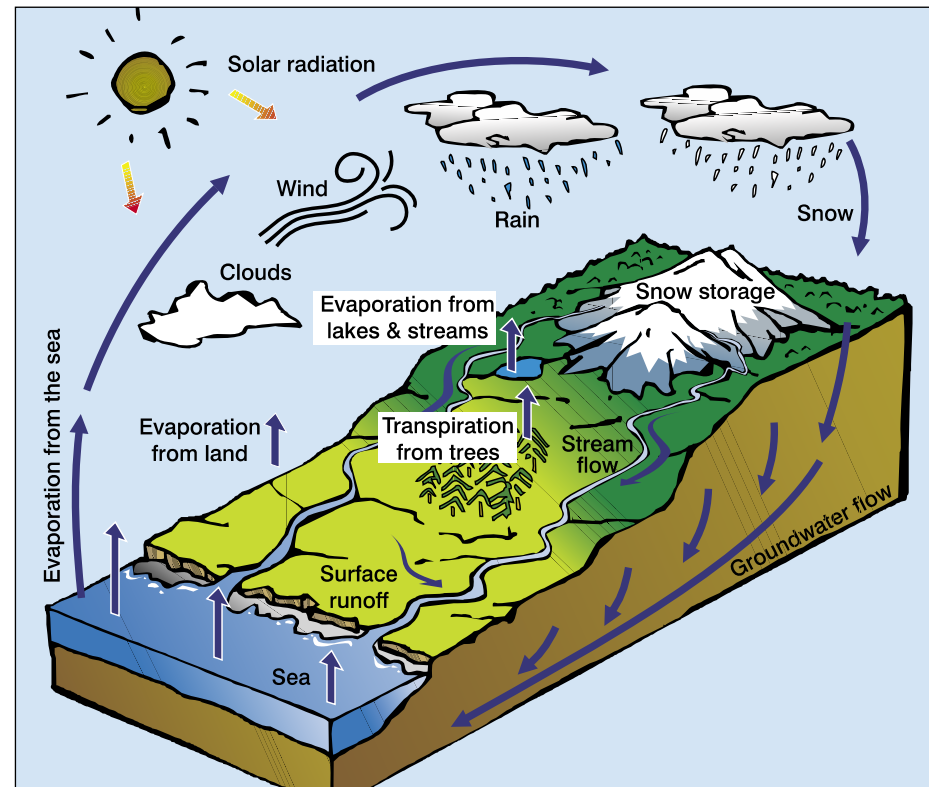


Figure 1: The hydrological cycle



### Surface water quantity, flows and characteristics

Taranaki is fortunate in its extended coastline, mild climate and frequent and plentiful rainfall. It has many rivers, which unlike other parts of the country, provide good secure water supply for most users – even during dry periods.

Over 300 rivers and streams flow from the flanks of Mount Taranaki in a distinctive radial pattern. On the ring plain, most rivers and streams are characterised by relatively small narrow catchments of steep gradient. The rivers that flow from the hill country are generally larger with short tributaries contained by narrow valleys.

The heaviest demand for water is on the ring plain rivers and streams. The Egmont National Park plays a critical role in controlling the flow of ring plain rivers and streams – on average up to 6,800 millimetres of rainfall falls each year on the upper slopes of Mount Taranaki. The mountain supplies a steady flow of water, even during prolonged dry periods.

River and stream flows are typically high in winter and low in summer. In most summers, ring plain streams recede to approximately 50% of their normal (median) flow levels. Our rivers and streams also tend to rise fast when it rains and recede steadily once rain has stopped.

### Surface water use

Taranaki's surface waters are extensively used. Our water bodies are highly valued for their natural, recreational and instream values. Popular uses include fishing, swimming, kayaking or simply enjoying the scenic and amenity aspects of our rivers and streams while walking or picnicking. Water is also 'taken' out of rivers and streams for a wide range of uses – from watering gardens and lawns to major water takes such as hydroelectricity generation, pasture irrigation and town and industrial water supply.

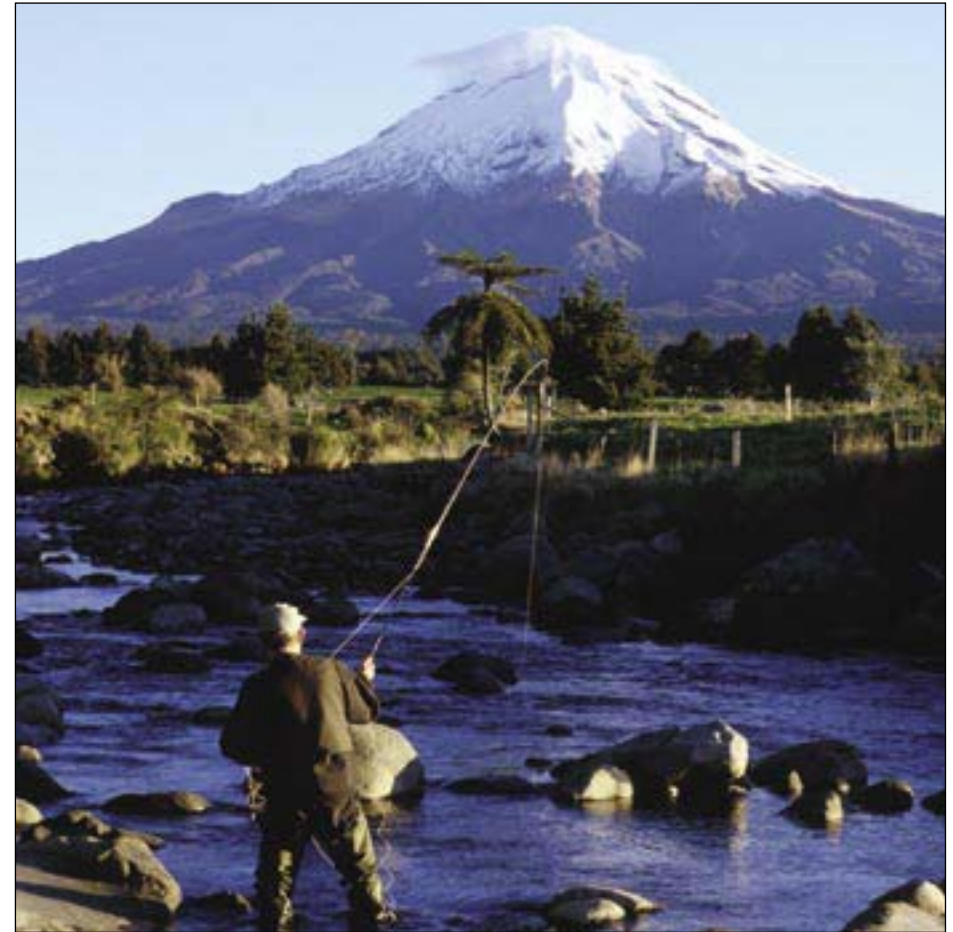


Photo 2: Angling – a popular pastime on many Taranaki rivers and streams

The major 'consumptive' users of water in Taranaki (other than hydroelectricity generation, which takes then returns water to the river) are:

- industry including petrochemical processing and dairy processing (39%)
- municipal (town) and rural water supplies (33%)
- pasture irrigation (27%)
- other – includes stock and domestic, horticulture and golf course irrigation (1%).

A number of municipal supplies also provide water for industries in the communities.

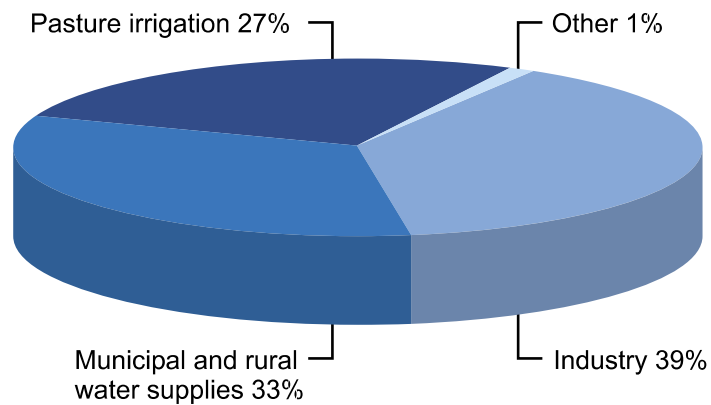


Figure 2: Surface water allocation by use category

## Surface water pressures

Taranaki's regular rainfall and generally stable river flows during drier periods mean that most of the time there is no significant water use pressures in most water catchments. That is, there is enough water to provide for users that consume water and to maintain recreational uses and the natural character and life supporting capacity of the stream.

To assess the level of use or the pressure that water resources are under, the level of use needs to be compared with river flows. A useful measure of water use pressure is to compare allocated water use with normal flow and low flow conditions. Normal flows are represented by median flows – flows that occur 50% of the time. Low flows are represented by the average or mean annual low flow (MALF) – this represents the low flow that occurs on average each summer.

State of the environment monitoring undertaken by the Taranaki Regional Council confirms that, for the 25 largest catchments in Taranaki (by MALF), the water taken for consumptive purposes (excluding that taken for hydroelectricity generation purposes) represents only 3.5% of the median flow (Figure 3). In low flow conditions, the proportion of water allocated increases but is still relatively low at 12.8% of the mean annual low flow (Figure 4).

Pages 21 to 97 of this Guide include information on rivers and streams, which have the heaviest demands in terms of water use. Even in these catchments, most (76%) have water available for further consumptive use – although some restrictions may apply.

Although the 'overall' amount of surface water taken from Taranaki rivers and streams for consumptive use is relatively low, increasing demands for large quantities of surface water mean that some river catchments are near to or have reached full allocation – particularly smaller catchments. Many catchments in Taranaki

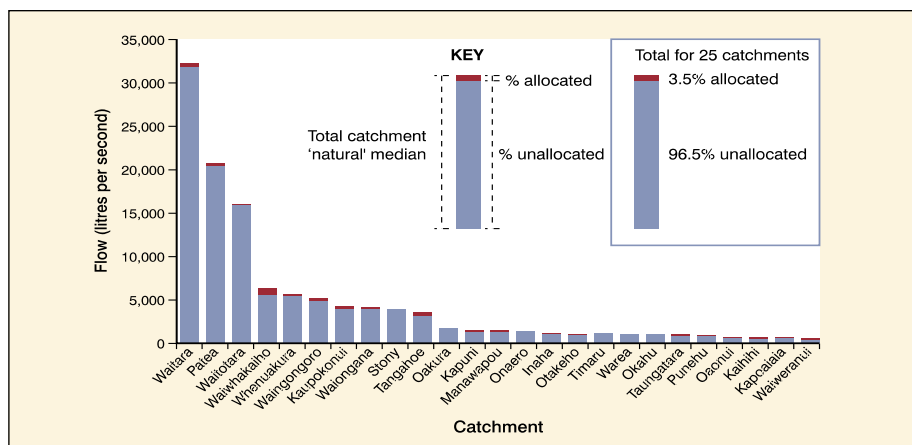


Figure 3: Comparison of consented water allocation with median flows for Taranaki's 25 largest catchments (by MALF)

are relatively small and therefore the amount of water available is small. Some catchments or some parts of a catchment may be more heavily used than others. In many catchments, during low flow conditions, one or two major abstractions may take all the water available for consumptive purposes.

### Why have surface water allocations increased in some areas?

Since 1996, there has been a 35% increase in total water allocation. Figure 5 identifies catchments that are now fully allocated.

Some increases in water use can be attributed to more intensive farming practices. Increased stocking rates and requirements for more stringent dairy farm hygiene standards mean greater on-farm water use. Increased water use may also be due to

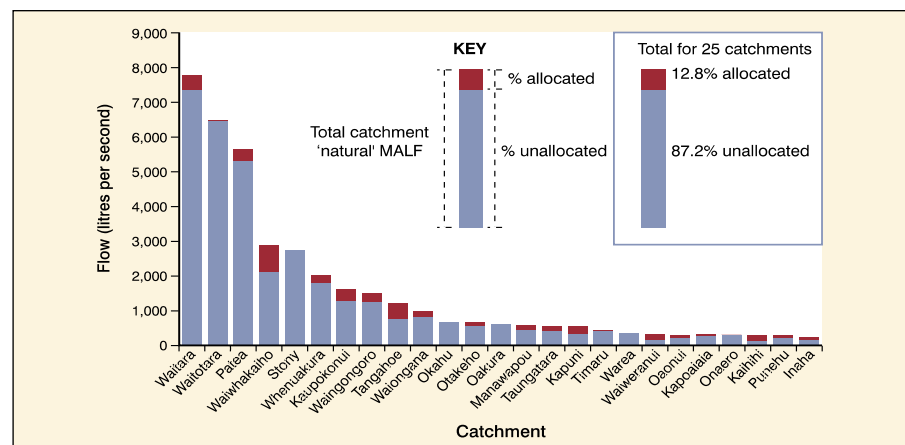


Figure 4: Comparison of consented water allocation with mean annual low flows (MALF) for Taranaki's 25 largest catchments (by MALF)

### What's the significance of over allocation?

If the amount of water allocated in a catchment is greater than the amount available then:

- future expectations or needs for water may not be met
- conflicts may increase between the values associated with particular catchments and the way people want to use them
- water quality may decline as flows and the assimilative capacity of water are reduced
- natural character, instream habitat and the life supporting capacity of water may decline.



Figure 5: Rivers and streams fully allocated

more watering in urban areas, the development of rural water schemes, and increased industrial use. However, increased pasture irrigation – particularly in the drier coastal parts of western and south Taranaki – is probably the main reason for the increase.

The Guide takes a closer look at pasture irrigation – including good practice guidelines – in a later chapter on page 19.

### Do I need a resource consent to take water?



Photo 3: The benefits of pasture irrigation. A farm near Manaia in south Taranaki during the 2002/03 summer drought.

# What rules and controls apply to taking surface water?

Whether or not you need a resource consent from the Taranaki Regional Council to take or use surface water generally depends on how much water you want, for what purpose, and where it's taken from. Answers to these questions will help the Council determine priorities and whether there are concerns about minimum flows and protecting ecological or instream values.

## Takes of small volumes of water

**Where less than 1.5 litres/second (l/s) or 50 cubic metres/day (m<sup>3</sup>/day), and less than 25% of the stream flow is taken.**

Generally, taking small volumes of surface water for domestic use, stock watering, fire-fighting and other purposes is a permitted activity under the Regional Fresh Water Plan for Taranaki. That is, you may take small volumes of water without a resource consent.

However, if you want to take small quantities of surface water from the Stony (Hangatahua) catchment then additional restrictions apply and you may have to obtain a resource consent. Check the Guide on page 9 under *Catchments for which stricter controls* apply for further details.

## Takes of large volumes of water

**Where the quantities of water sought are greater than 1.5 l/s or 50 m<sup>3</sup>/day.**

To take larger volumes of surface water you must obtain a resource consent from the Taranaki Regional Council.

The Taranaki Regional Council will look at proposals to take large volumes of water on a case-by-case basis and on a "first come, first served" basis. Heavy use is already made of some catchments and there may be restrictions to taking water in these



Photo 4: Washdown at the farm dairy

catchments to maintain minimum flows sufficient to safeguard instream values.

Furthermore, no resource consents will be granted for the taking of large volumes of water from the Stony (Hangatahua) River, the Maketawa Stream and parts of Manganui River (see page 9) – check the Guide under *Catchments for which stricter controls* apply on page 14 for further details.



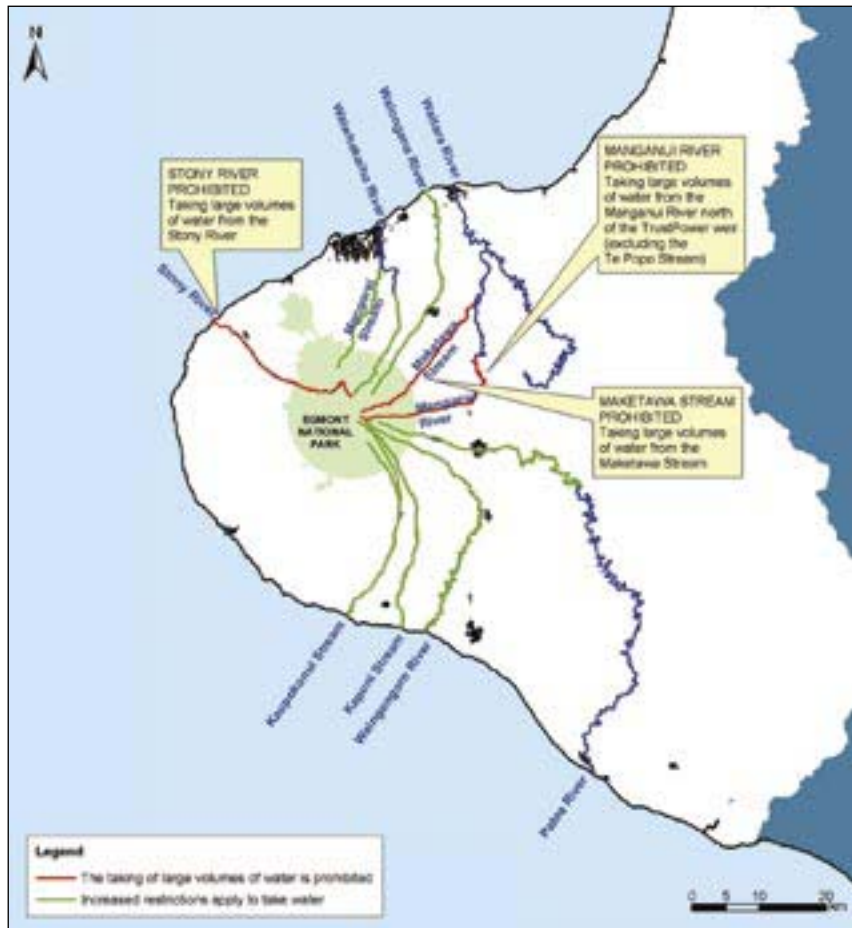


Figure 6: Rivers and streams for which stricter controls apply

### Catchments for which stricter controls apply

Where do you plan to take surface water from? The location of your take may determine whether you need a resource consent and likely restrictions. Figure 6 shows rivers and streams that have been identified in the *Regional Fresh Water Plan for Taranaki* as having particularly high environmental values and relatively high levels of water use for which stricter controls apply.

#### Stony (Hangatahua) River

You do not need a consent from the Taranaki Regional Council to take small volumes of water (less than 1.5 l/s or 50 m<sup>3</sup>/day, and less than 25% of the stream flow measured at the point of abstraction) from the Stony (Hangatahua) River catchment for domestic use, stock watering or fire-fighting purposes.

If the taking of small volumes of water from the Stony (Hangatahua) River catchment is for agricultural (other than domestic or stock watering needs) or horticultural purposes, a resource consent is needed. Your consent will be granted so long as:

- the rate of abstraction is less than 1.5 l/s **or**, for a temporary take, the rate of abstraction is no more than 5 l/s for no more than 30 minutes/day
- the combined quantity of takes within the catchment is less than 30 l/s
- any take for irrigation purposes is for private individual horticultural schemes
- you provide the Council with an assessment of available alternative sources of water.



**Prohibited**

**Taking large volumes of water from the Stony (Hangatahua) River catchment**

### The Maketawa Stream and Manganui River

Stricter controls apply to the Maketawa stream and that part of the Manganui River 100 metres upstream of the TrustPower weir (but excluding the Te Popo Stream). You do not need a consent from the Taranaki Regional Council to take small volumes of water (less than 1.5 l/s or 50 m<sup>3</sup>/day, and less than 25% of the stream flow measured at the point of abstraction) from the Maketawa Stream and Manganui River.



#### Prohibited

**Taking large volumes of water from the Maketawa Stream and that part of the Manganui River 100 metres upstream of the TrustPower weir (but excluding the Te Popo Stream)**

### Other rivers and streams for which additional controls apply

There are other rivers and streams with high natural values identified in the *Regional Fresh Water Plan for Taranaki*, which also have relatively high levels of use. For these catchments the Taranaki Regional Council has signalled that further takes (above the existing level of use) will be strictly limited. These catchments are:

- Kapuni Stream
- Kaupokonui Stream
- Mangorei Stream
- Patea River (above Mangaehu Stream confluence)
- Waiongana Stream

- Waingongoro River
- Waiwhakaiho River (from 100m upstream of the TrustPower weir).

You do not need a resource consent for small takes of water. However, to take large volumes of water, you will need to obtain a resource consent from the Taranaki Regional Council.

In the Council's consideration of your consent application, it will take into account water allocation priorities for that river or stream and in particular the community or regional benefit arising from taking or using that water – check the Guide under *Water availability by catchment* on pages 21 to 97. Should the Council authorise the taking of water, limits on volumes, location, times and/or flows at which they occur are likely.

# How to apply for a resource consent

The staff at the Taranaki Regional Council are available to help you if you need to apply for a resource consent. You can either telephone them or call in to the office to get advice.

An application for a resource consent to take surface water needs to be made on the relevant application form and include the information listed in the next section of this Guide.

Once the Taranaki Regional Council has all the information it requires, it will process your application.

Depending on what you are applying to do and the nature of the environmental effects, the Taranaki Regional Council may need to publicly notify your application in the newspaper. Staff will be able to advise you of this perhaps immediately or at least soon after they receive your application. An application fee plus other costs associated with processing your application is charged to cover the Council's reasonable costs.

Guides to consent applications are available from the Taranaki Regional Council – these give more detail on how to apply.

## Information to be submitted with a resource consent application

If you are required to obtain a resource consent from the Taranaki Regional Council to take surface water your application will need to include the following information:

- your name and address
- a description of the activity you wish to undertake
- the location of the activity, including a map or plan

- the reason for which water is to be taken (pasture irrigation, industry, other (specify))
- an indication of the state of completion of the project (existing, partly developed, proposed)
- quantities of water applied for:
  - maximum daily quantity (m<sup>3</sup>/day)
  - total annual quantity (m<sup>3</sup>/day)
  - maximum abstraction rate (l/s).
- the environmental effects of your activity, including whether there are any streams, rivers, wetlands, indigenous bush or other sensitive areas that would be affected, including any sites of significance to Maori
- anything you propose to do to avoid or minimise the environmental effects
- a list of any other people or organisations (such as neighbours, Fish and Game New Zealand or the Department of Conservation) who may be affected by your activity and whether you have spoken to them about your plans.

## Matters to be considered by Council

In considering your resource consent application to take or use surface water the Taranaki Regional Council will have particular regard to:

- the quantity of water to be taken and the need to avoid, remedy or mitigate any adverse environmental effects associated with the taking and using of that water
- the need to maintain minimum instream flows
- where necessary, water allocation priorities among competing users
- other considerations.



### Quantity of water and adverse environmental effects

In assessing the quantity of surface water that may be taken and adverse environmental effects to be avoided remedied or mitigated, the Taranaki Regional Council will consider:

- the hydrological characteristics of the catchment (for example, duration and frequency of low flows, and flow variability)
- the natural, ecological and amenity values associated with the river or stream, and the relationship of Tangata Whenua with that water body
- the importance of the water body for community and other water supplies
- the significance of flows to the maintenance or enhancement of downstream flows, particularly in relation to maintaining or enhancing instream habitat
- the effects on water quality arising from any changes in water levels and flows.

### Minimum instream flows

For any particular river or stream, the Taranaki Regional Council aims to maintain minimum instream flows that provide for a river's natural character and life-supporting capacity in low flow conditions.

The proportion of water set aside as a minimum flow will be decided on a case-by-case basis and may vary from catchment to catchment and within catchments.

For most rivers and streams, the Taranaki Regional Council will consider allocating below the mean annual low flow (MALF) so long as adequate aquatic habitat is retained in the river or stream. The measure of adequate aquatic habitat retention

adopted by this Council is the **2/3 habitat guideline**. The 2/3 habitat guideline refers to a flow in the river or stream that retains two-thirds of the instream habitat in that river or stream at MALF. This flow will generally meet the physical needs of trout and indigenous fish species, and is based on the average between food-producing habitat and the physical habitat requirements for trout.

The flows required to meet the 2/3 habitat guideline vary from one river or stream to another and over the length of the river or stream depending on the characteristics of the individual river or stream. These flows, however, typically range from 50% to 75% of MALF. For those catchments identified as regionally significant or heavily allocated, water will generally be allocated on a conservative basis. That is, minimum flows retained to protect instream values and existing consumptive uses may be set near the higher end of that range and may be higher in some catchments. Water will also be conservatively allocated where the benefits that accrue from taking that water are private rather than community based.

### Water allocation priorities

In some water catchments, which are fully or nearly fully allocated or where there are competing uses of water, there is a need to determine water allocation priorities among competing uses.

Water allocation is determined on a "first-in, first served" basis (a position that has been confirmed by recent case law involving Aoraki Water Trust, Timaru District Council v Meridian Energy Ltd, Canterbury Regional Council, Attorney General and TrustPower Ltd – CIV 2003 476 733). When considering any consent application to take water, the Taranaki Regional Council will take into account the effect of any new or additional abstractions of water on those already authorised to take water.

In situations where water catchments are fully or nearly fully allocated or where there are competing uses of water, the Taranaki Regional Council, when considering any consent application to take water, will also consider the degree of community or regional benefit from the taking of water as distinct from any private or individual benefit.

### Other considerations

When assessing a consent application to take surface water the Taranaki Regional Council will also consider:

- the need to make surface water available for reasonable domestic needs, stock drinking water requirements and fire-fighting purposes
- the need for the volumes sought
- the need to use water efficiently and with a minimum of waste
- what alternative sources of water or water collection or storage methods have been considered
- possible mitigation measures
- the need to install systems to accurately measure the volumes of water abstracted and to reduce or suspend abstractions.

### Conditions likely to be applied to a resource consent

When your resource consent to take or use surface water is granted, conditions will be attached to it specifying what you must do to comply with your consent.

Consent conditions will be considered on a case-by-case basis and will depend on how much water you want, for what purpose, and where from. However, in most cases you would expect the standard consent conditions to apply (see next page).

In addition, and depending on circumstances, other conditions may be applied. These include:

- fencing and planting of riparian (streambank) margins
- requirement to reduce the amount of water abstracted in the future to enable an equitable sharing of the water resources with others.



#### Good Practice Tip

**Harvest and store surface water – abstract water during high river flow periods and store the water in holding ponds for use during periods of low flows.**

### **Standard conditions to take surface water**

1. The consent holder shall adopt the best practicable option, as defined in Section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment from the exercise of this consent, including, but not limited to, the efficient and conservative use of water.
2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of Application ----- . In the case of any contradiction between the documentation submitted in support of Application ----- and the conditions of this consent, the conditions of this consent shall prevail.
3. The volume of water abstracted shall not exceed ----- cubic metres/day, at a rate not exceeding ----- litres/second.
4. Water shall be abstracted only from -----(the specified waterway).
5. The abstraction authorised by this consent shall cease when the flow in the ----- Stream immediately below the ----- is at or below ----- litres/second.
6. The consent holder shall maintain records of abstraction including date, daily pumping hours and daily volume abstracted, and shall make these records available to the Chief Executive, Taranaki Regional Council, no later than 31 July of each year, or earlier upon request.
7. Prior to exercising this consent, the consent holder shall install and maintain on the pump system an ----- water meter, or a similar type approved by the Chief Executive, Taranaki Regional Council, for the purposes of recording the abstraction.
8. The consent holder shall ensure that the pump intake structure is appropriately screened to avoid the entrapment of freshwater fish.
9. This consent shall be subject to annual compliance monitoring inspections and any additional monitoring as required by the Taranaki Regional Council, including payment of related charges.
10. This consent shall lapse on the expiry of five years after the date of commencement of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to Section 125 (1)(b) of the Resource Management Act 1991.
11. The Taranaki Regional Council may review, under Section 128 of the Resource Management Act 1991, any or all of the conditions of this consent by giving notice of review during the month of June ---- and/or June ----- and/or June -----, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

# Water shortage events

Despite our best endeavours, and despite Taranaki's generally plentiful and regular rainfall, there will be occasions when water shortages will restrict consumptive use of water and threaten instream values – a drought!

A water shortage event is a lengthy period of low rainfall that results in a reduction in stream flows and groundwater levels to a point such that their use and ability to support aquatic ecosystems are compromised. Major water shortage events occur periodically eg, 1928, 1929, 1978 and 2003.

During a water shortage event it may be necessary for the Taranaki Regional Council to apportion, restrict or suspend both the abstraction of water and the discharge of contaminants to water, depending on the extent and magnitude of a particular water shortage event. These controls are likely to be placed, firstly, on resource consent holders that have specific conditions on their consent relating to stream flow. In a worse case scenario the Council may place a general restriction on all abstractions of water and discharges of contaminants to water, both permitted and consented, regardless of consent conditions, by issuing a Water Shortage Direction under section 329 of the Resource Management Act.

Pursuant to its statutory responsibilities under the Resource Management Act, the Taranaki Regional Council has prepared a *Water Shortage Event Standard Operating Procedure*. As a water shortage event continues and intensifies the Council's response progresses through four steps, which are set out in the operating procedure (Table 1).

Table 1: Taranaki Regional Council's response in a water shortage event

Status	Description	Taranaki Regional Council actions
One	Normal water resource	<ul style="list-style-type: none"> <li>• Standard data collection and monitoring</li> </ul>
Two	Impending water shortage	<ul style="list-style-type: none"> <li>• Notification of impending water shortage to appropriate organisations (eg, district councils, Federated Farmers, major resource user groups, media, general public)</li> <li>• Water shortage event warnings to consent holders with low flow restrictions</li> </ul>
Three	Water use restrictions	<ul style="list-style-type: none"> <li>• Notification of water use restrictions to appropriate organisations</li> <li>• Consent holders required to limit their use of water resources</li> <li>• Compliance monitoring of water use restrictions</li> </ul>
Four	Water Shortage Direction	<ul style="list-style-type: none"> <li>• Notification of impending water shortage to appropriate organisations</li> <li>• Issue of a water shortage direction under section 329 of the Resource Management Act</li> <li>• General restrictions limiting the use of water placed on all consent holders and other users of water</li> <li>• Compliance monitoring of water use restrictions</li> </ul>

# Using water wisely and managing adverse effects

## Water shortage event - 2003 drought

In the early part of 2003, Taranaki experienced, by its standards, a serious drought. Between early January and late March 2003, rainfall was 20% to 40% less than normal, resulting in a prolonged period of low flows in Taranaki's streams.

By the first week of February, stream flows in the Waiongana, lower Waingongoro, Kapuni and Manganui rivers reached their lowest one-day flow on record.

On 17 February 2003, the Taranaki Regional Council, in applying its *Water Shortage Event Standard Operating Procedure* determined it had to restrict water use. That was a Status Three Water Shortage Response whereby the Council:

- required water users with a resource consent with specific low stream flow conditions to restrict their use
- regularly notified and provided advice to major water users such as the three district councils, Methanex, NGC, Stratford Power Station and TrustPower in relation to self regulating their water usage
- increased its compliance monitoring to ensure conditions were being adhered to.

Through these measures and the cooperation of resource users, the need for the Council to issue a Water Shortage Direction (Status 4 and the highest order response) under section 329 of the Resource Management Act was averted. The last three days of March 2003 saw heavy rainfall throughout most of the region and instream flows increased. Crisis over!

The wise and efficient use of surface water is a key component for managing our water resources. Efficient use and conservation of water means using no more water than is absolutely necessary for a particular activity. Inefficient use not only costs more, it also means water allocation limits are reached more quickly. This reduces the availability of water for other uses and for further social and economic development.

You can use surface water more efficiently and limit the impact on the environment by:

- harvesting and storing water during times of abundance – storage is a good idea to ensure supply during periods of low flow, or to allow you to take water at faster rates than would otherwise be allowed if the abstraction was coming directly from a river or stream
- sharing arrangements – a policy in the *Regional Fresh Water Plan for Taranaki* has been adopted to provide for the transfer of water permits from one user to another. The transfer of water permits allows for greater flexibility and efficiency in managing and allocating water resources and ensures that water is used where it is most needed (ie, an allocation is not wasted by a permit holder keeping an allocation but not using it, while another user is forced to apply for a new permit)
- water recycling – for example dairy farmers recycling their plate cooling water as wash down water or using waste water or stormwater
- minimising wastage
- improving water use technology or techniques.

The following users have adopted “best practice” or measures to conserve water, promote water efficiencies and limit the impact on the environment.

## Fonterra Whareroa – New technology

Milk processing in Taranaki is concentrated at one site – Fonterra Group Cooperative Ltd's Whareroa dairy processing site near Hawera. The Whareroa complex is the largest single dairy factory site in the world. At peak production this facility processes over 14 million litres of milk a day, which is approximately 20% of New Zealand's milk production.

Substantial expansion of the Whareroa site and increased production capacity has led to greater demands on water. Water is an essential requirement for the factory and is used for product cooling and plant cleaning purposes. There are several sources of water supply including two surface waterways – the Tawhiti Stream and its parent catchment the Tangahoe River (combined take cannot exceed 347 l/s).

Over the years, Fonterra and its predecessors have implemented a number of water recovery and reuse programmes including:

- recovery and reuse of evaporator milk condensate, saving up to 3 million litres/day
- recirculation system installed in cheese plant, saving 8,000 litres/hour
- reuse of post rinse water from cheese tanks, saving 200,000 litres/day water
- cheese permeate used to cool whey instead of chilled water
- reduction in water used to backwash sand filters in water treatment
- reuse of cooling water, saving 300,000 litres/day
- installation of blanket heaters for lecithin drums, saving 15,000 litres/day
- installation of compressed air heating for lecithin, saving 336,000 litres/day.

More recently, Fonterra has adopted a new process that saves even more water for use on the site. A significant quantity of water arrives on the site each day in the

form of raw milk. Given that milk in its natural state is about 86% water, Fonterra has invested in specific technology, developed on the site, which recovers, treats and reuses the water derived from the milk itself.

In the production of milk powder, which is a significant product type for the site, water is evaporated from the milk. Historically this water would have been discharged to wastewater and not utilised.

However, once the treatment technology was proven, the site has been able to reuse this water. The treatment process involves ozonation, a filter aid being added, sand filtration and then further ozonation before being used in various applications on the site. The water recovery plant has the capacity to process and treat about 5.5 million litres of water per day and this represents about 25% of the site's daily water requirement.



Photo 5: Fonterra Group Cooperative Ltd's Whareroa dairy processing site near Hawera

## Vickers Quarries Ltd – Recycling water

Quarries are relatively small industries but require a lot of water to wash aggregate. In recent times, quarries have adopted a number of measures to promote water efficiencies and water conservation.

One such example of good water conservation is Vickers Quarries Ltd, which operates two aggregate extraction sites located at Toko Road and York Road. At the Toko Road quarry near Stratford a washwater reticulation system has been installed to collect water in treatment ponds for recycling. This means that the site does not need to take so much water from the Patea River for aggregate washing purposes and, therefore, the taking of that water is authorised as a permitted activity.

At the York Road quarry, Vickers Quarries is authorised to take 45 cubic metres of water per day at a maximum rate of 2.8 l/s from an unnamed tributary of the Waipuku Stream for aggregate washing purposes. The Waipuku Stream is a tributary of the regionally significant Manganui River.

In 2003/2004, the rate of water abstracted by Vickers Quarries from the Waipuku Stream tributary exceeded the allowable allocated rate. To avoid such incidents in the future, Vickers Quarries are currently in the process of installing a new washing plant and plan to modify the three treatment ponds so that it can treat and reuse the stormwater and washwater generated on-site. Fresh water abstracted directly



### Good Practice Tip

**Water abstraction for quarries is mainly required for the washing of aggregate. With efficient recycling of washwater and stormwater, the small volumes of surface water required to be abstracted for washing at quarries should not exceed the 50 cubic metres/day limit and can be a permitted activity.**

from the unnamed tributary of the Waipuku Stream would then only be required as a “top-up” or for domestic and emergency purposes and would not need to be extracted everyday.

## New Plymouth Golf Club – Use of alternative sources

The maintenance of greens, tee box areas and fairways, requires irrigation, which uses a lot of water. In the case of the New Plymouth Golf Club Inc, large amounts of water were required for a new fairway irrigation system. The irrigation system waters approximately 12 hectares of fairways and greens, using a fully automated, remote controlled, below-ground system with pop-up sprinklers.

The New Plymouth Golf Club’s only access to surface water is from a small unnamed tributary of the Waiwhakaiho River which, in low flow conditions, is too small to supply the quantities needed by the Club to irrigate its course.

To meet their irrigation needs the New Plymouth Golf Club is authorised to abstract 800 m<sup>3</sup>/day, at a rate not exceeding 22 l/s. However, it was recognised that this amount of water was unlikely to meet all the Golf Club’s irrigation needs during dry periods (conditions apply requiring irrigation to cease if the stream’s residual flow reaches 8 l/s). Consequently, the Golf Club has investigated and obtained agreement to use water from alternative sources.

The New Plymouth Golf Club is located next to the New Plymouth Wastewater Treatment Plant where municipal wastewater from the New Plymouth urban area is treated to a high standard prior to being discharged to sea. The Golf Club proposes to use the treated wastewater as a backup in situations where the stream flow falls below 8 l/s and the Club is required to cease taking water. It is planned to pipe the wastewater directly into the Club’s storage lakes with all the recycled water then being used for irrigation (ensuring there is no discharge of this water to the tributary below the lake).

The benefits of this approach are many. First, the Golf Course is able to maintain irrigation operations even during the driest of years. Second, the wastewater (which



Photo 6: The New Plymouth Golf Club

must meet all recognised public health guidelines for the safe use and application of wastewater) contains a variety of nutrients that are beneficial for pasture growth. Third, a waste that otherwise would be discharged to sea will be converted to a valued resource. This allows the Golf Club to meet all of its irrigation needs, despite limited water availability.

### **Ray & Anne Barron - Water harvesting/reducing the impacts of irrigation**

Ray and Anne Barron own a 105-hectare dairy property near Okato. Ray and Anne have been granted a resource consent to take up to 1,188 m<sup>3</sup>/day of water (at a rate no greater than 27.5 l/s) from the Mangatete Stream to irrigate up to 35 hectares of pasture. The Mangatete Stream is a tributary of the Kaihihi Stream.

As part of their consent conditions Ray and Anne have adopted a number of mitigation measures to minimise the impact of their take on existing users and instream values associated with the stream.

First, Ray and Anne screened the intake for the irrigation system to ensure fish and other aquatic life does not get trapped in the structure.

Second, it was recognised that abstracting approximately 27.5 l/s from a small stream such as the Mangatete Stream could have the effect of raising the temperature of water in the stream below the abstraction point. To avoid this (and to take advantage of lower night-time rates for electricity) Ray and Anne agreed to only irrigate at night when water is less likely to be lost through evapotranspiration. They are also in the process of fencing and planting the streambanks within their property. The planting of riparian (streambank) vegetation provides many instream benefits including shade, which should offset any instream temperature increases.

Finally, during times of water shortage, the amount of water that can be abstracted may be progressively reduced to ensure residual flows in the Mangatete Stream do not fall below 165 l/s (2/3 instream habitat of mean annual low flow). This occurred in February 2003.

Harvesting water in this way enables higher rates of water use when stream flows are higher and reduces the pressure placed on the stream as flows fall.

### **Pasture irrigation – a closer look**

Pasture irrigation may deliver significant on-farm benefits by reducing the impact of summer and autumn droughts on annual farm production. However, there are significant costs associated with establishing irrigation systems and their operation and maintenance.

The benefits and costs of pasture irrigation vary throughout the region, based on local rainfall patterns and the soil's water-holding characteristics – both of which have a direct bearing on the optimum rate of application of water.

To determine your specific on-farm requirements you should directly monitor soil moisture levels (by using, for example, a neutron probe, tensiometer or TDR) or





Photo 7: A centre-pivot irrigator

calculate the soil moisture balance (for example by measuring rainfall and evaporation), or use complete water balance modelling. However, as a guide, the Taranaki Regional Council commissioned Lincoln Environment to investigate and report on the benefits and costs of pasture irrigation in Taranaki.

The Lincoln report noted that Taranaki can be divided into eight zones according to the financial benefits of pasture irrigation (Figure 7). The most potential for the development of pasture irrigation is considered to be in coastal parts of south Taranaki – around Inaha (Zone 3) and to a lesser extent around Normanby, Hawera and Opunake (zones 2, 4 and 5). North and central Taranaki (zones 1, 6, 7 and 8) were considered to have the least potential for pasture irrigation, with the cost of irrigation likely to exceed the financial benefits.

To determine your pasture’s water requirements you need to consider climate, pasture type and soil water-holding capacity.

Increasing numbers of irrigators are harvesting (abstracting) surface water during higher river flow periods, storing the water in holding ponds, and then using the water when required during periods of low flows.

Up to 40% of the allocated water may be lost from some pasture irrigation systems. However, avoiding and minimising water loss is a relatively simple matter. Fixing leaking pipes is an obvious measure but the best water savings are achieved by avoiding or minimising uneven or excessive application of water.



**Only use what you need - do not over irrigate. That is, do not apply water at a rate that exceeds what the soil can hold!**

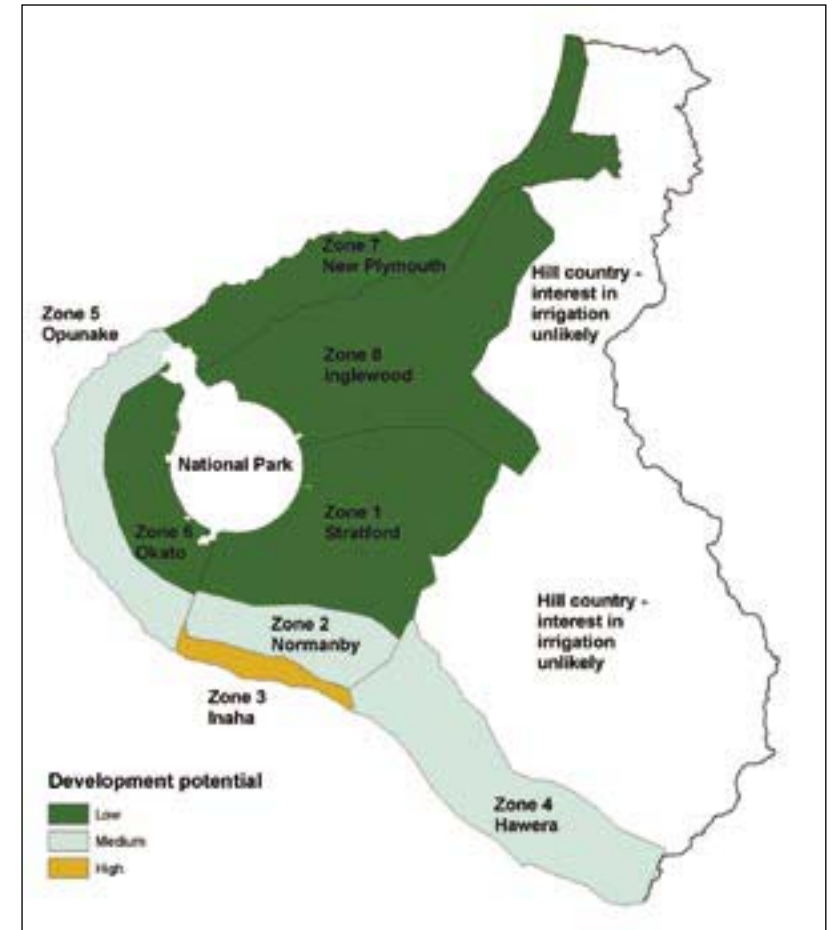


Figure 7: Pasture irrigation zones

# Water availability by catchment

## Reader's guide

Taranaki has 217 parent catchments in total and 530 named rivers from which you can take water. This section provides information on surface water allocation for 38 of these catchments – these catchments include the 25 largest catchments in Taranaki plus other catchments with a mean annual low flow over 150 l/s and for which there are consented takes. The information is of particular value if you are taking or are considering taking water from these catchments.

For each catchment, an inventory sheet has been compiled, which includes a table, diagram and map summarising water allocation information. A guide to using inventory sheets is as follows:

- **Catchment No:** Reference number given to that catchment by the Taranaki Regional Council.
- **General description:** A physical description of the catchment and any features and values of regional significance.
- **Current consumptive uses:** Identifies the quantity of permitted and consented takes of water as at 1 January 2005 including the major consumptive uses.
- **Water allocation and minimum flow:** Identifies median flows (flows that occur 50% of the time), mean (average) annual low flow (MALF), how much water has been allocated (for consumptive users and to maintain instream values) and how much water remains at MALF.

Information in this section is specific to the point in the catchment at which the flows have been measured or calculated (eg, at the stream mouth or a particular flow gauging site). **It is important to note that median flows, MALF and instream habitat retention flow figures elsewhere in the catchment will differ from the rates given in the inventory sheet.**

The proportion of water set aside at MALF to maintain the catchment's natural character and life-supporting capacity (ie, the instream habitat retention) may also vary from that shown in the Inventory Sheet. Water allocation is based upon the **2/3 instream habitat guide**. For the purposes of this Guide, unless catchment-specific instream habitat assessment work has been carried out for a particular river or stream, 2/3 instream habitat retention has been calculated at 67% of natural MALF. However, this is a guide only. Circumstances may still apply where the Taranaki Regional Council determines that it is appropriate to set aside a higher or lower proportion of the water flow for instream habitat retention.

## Key Points

At MALF, of the 38 selected catchments:

- 16 catchments (42%) have relatively low water use pressures (ie, over 20% of MALF is potentially available for further consumptive uses)
- 13 catchments (34%) have relatively high consumptive use and increasing water take restrictions may apply
- 9 catchments (24%) are fully or over allocated and increasing water take restrictions will apply
- 3 of the 9 fully allocated catchments have been allocated for hydroelectricity generation purposes.

# Huatoki catchment

**Catchment No: 389 000**

## General description

The Huatoki Stream and its tributaries have a catchment area of 37 km<sup>2</sup>. A small spring fed stream, its source lies on the Egmont National Park boundary. The stream and its tributaries meander through farmland on the northern ring plain, through the New Plymouth urban area and finally enter the Tasman Sea.

The Huatoki catchment and the adjacent walkway, parks and reserves are highly rated and valued for their scenic and recreational values.

## Current consumptive uses

Total consumptive use in the Huatoki catchment is 14 l/s. One consent has been granted to take 12 l/s of surface water from the Huatoki catchment:

- Fonterra New Plymouth Coolstore takes water from the Mangaotuku Stream, a tributary of the Huatoki Stream, for cooling plant purposes.

In addition, approximately 2 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Huatoki catchment is 570 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Huatoki catchment is 160 l/s at the stream mouth.

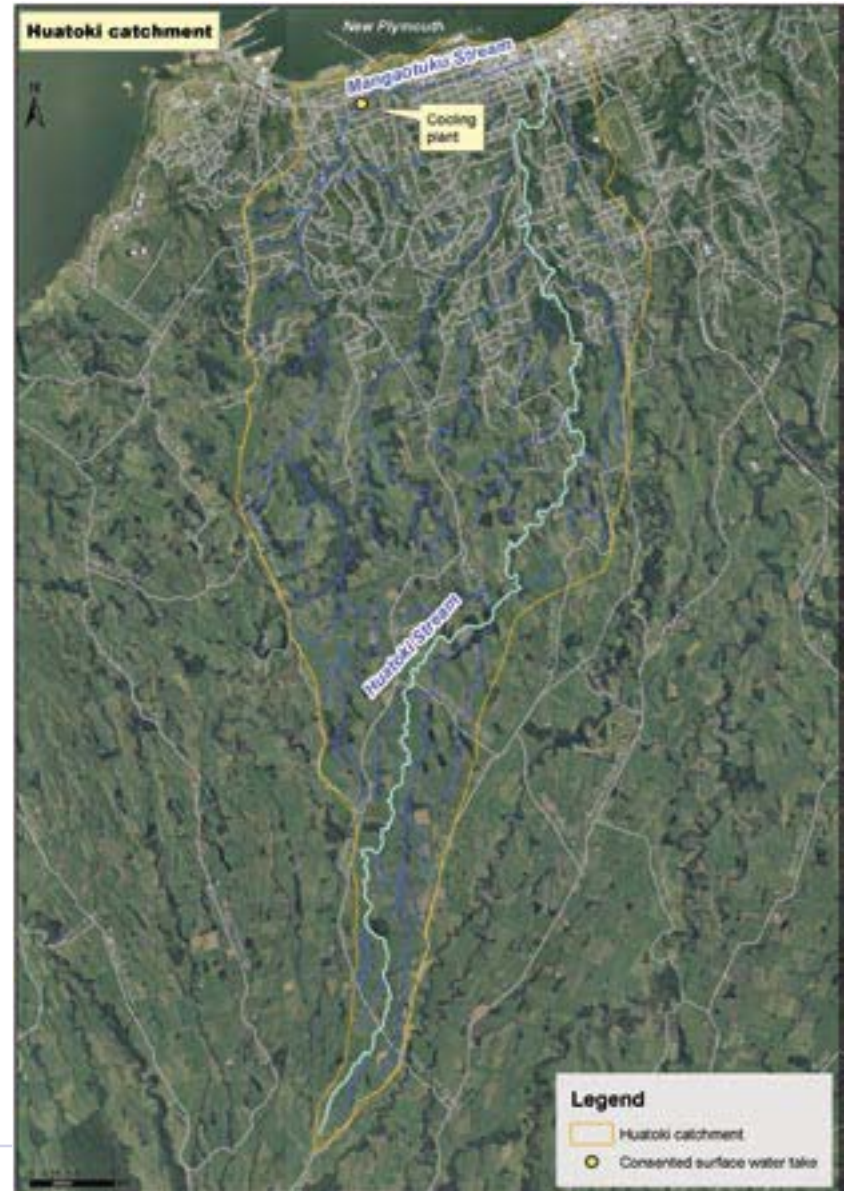
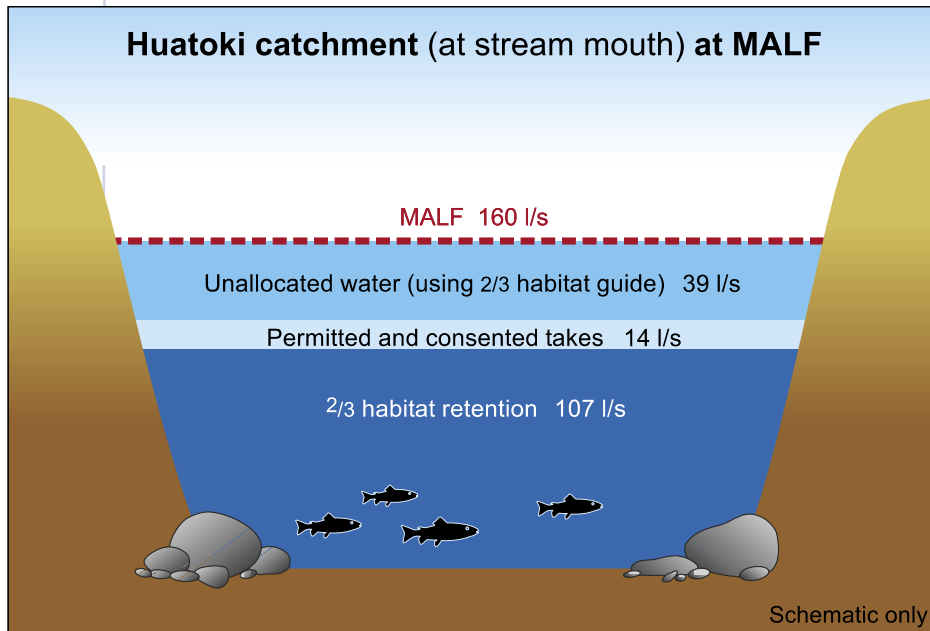
At MALF, if the 2/3 habitat guide is applied to the Huatoki catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 80 and 112 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 107 l/s. This leaves 53 l/s (33% of MALF) that potentially is available for consumptive use at MALF.

Of the water that is potentially available for consumptive use, 14 l/s has been allocated (9% of MALF). This means that up to 39 l/s (24% of MALF) of water is unallocated and is potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Huatokei catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
570 l/s	160 l/s	107 l/s	14 l/s	39 l/s
% of natural MALF		67%	9%	24%



# Inaha catchment

**Catchment No: 351 000**

## General description

The Inaha Stream and its tributaries have a catchment area of 62 km<sup>2</sup>. The source of the small stream lies just outside the Egmont National Park. The stream and its tributaries meander through farmland on the upper and lower ring plain and, just east of Manaia, finally enters the Tasman Sea.

## Current consumptive uses

Total consumptive use in the Inaha catchment is 92 l/s. Two consents, totalling 85 l/s, have been granted to take surface water from the catchment:

- Taranaki By-Products rendering operation (50 l/s)
- pasture irrigation (35 l/s).

Both consented takes are concentrated in the lower reaches of the catchment.

In addition, approximately 7 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Inaha catchment is 1,220 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Inaha catchment is 240 l/s at the stream mouth.

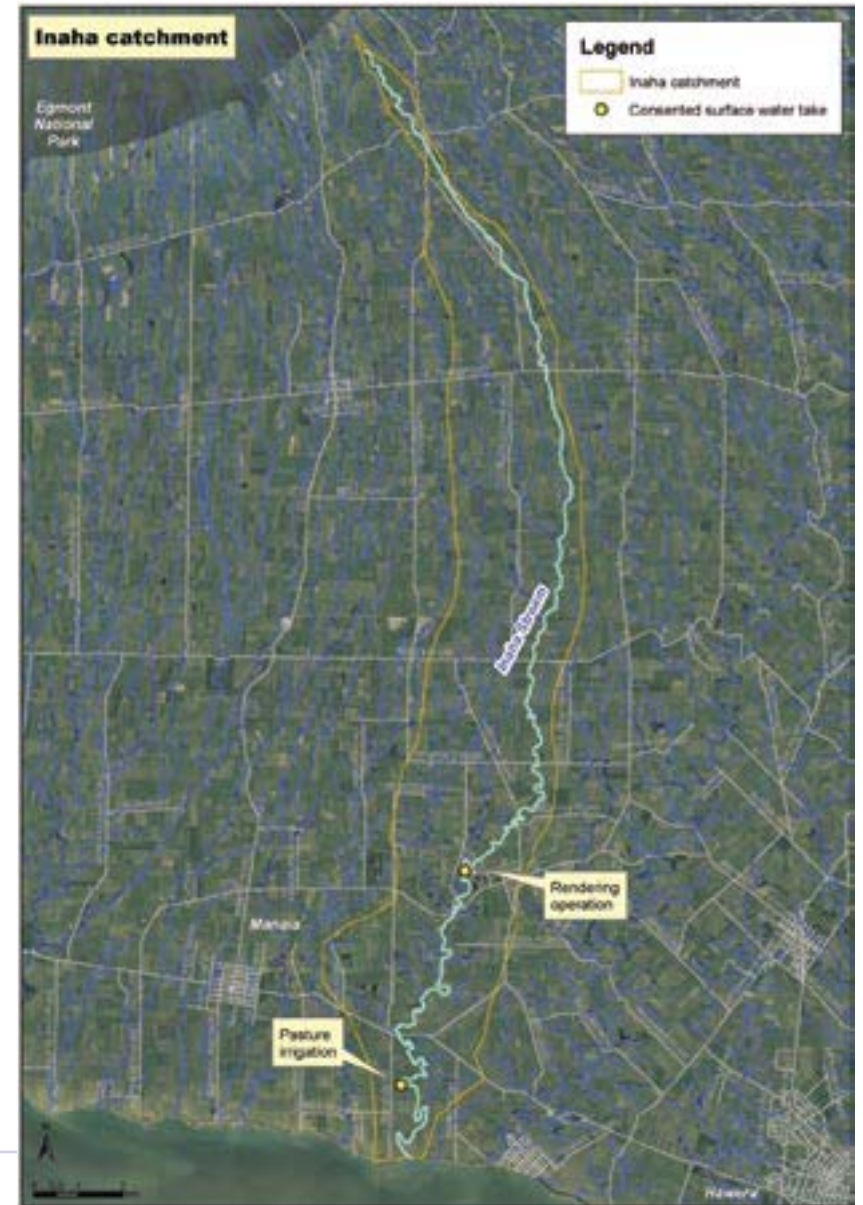
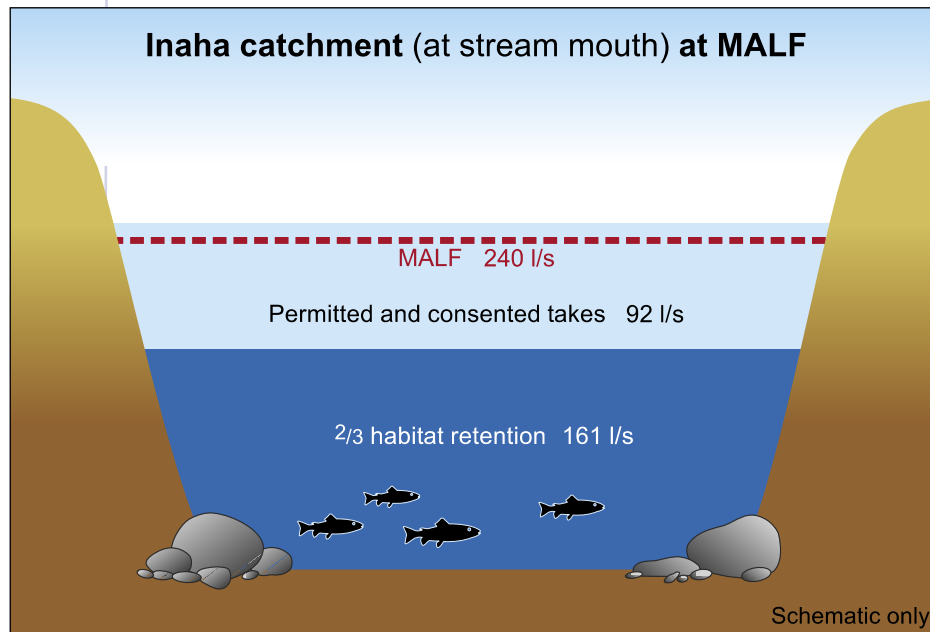
At MALF, if the 2/3 habitat guide is applied to the Inaha catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 120 and 168 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 161 l/s. This leaves 79 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 92 l/s has been allocated (38% of MALF). This means that theoretically the catchment has been over allocated by 13 l/s. However, this is not the case in practice as major abstractions have residual flow requirements in their consent conditions or require abstractions to be reduced or to cease as flows in the stream fall.

 **Fully allocated at MALF**



Inaha catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,220 l/s	240 l/s	161 l/s	92 l/s	(-13 l/s)
% of natural MALF		67%	38%	0%



# Kaihihi catchment

**Catchment No: 381 000**

## General description

The Kaihihi catchment and its tributaries have a catchment area of 39 km<sup>2</sup>. The small catchment's headwaters lie on the lower western slopes of Mount Taranaki. It meanders through farmland on the upper and lower ring plain, past the Okato township, and finally enters the Tasman Sea.

## Current consumptive uses

Total consumptive use in the Kaihihi catchment is 174 l/s. Five consents, totalling 164 l/s, have been granted to take surface water from the catchment:

- New Plymouth District Council for municipal water supply purposes (14 l/s)
- pasture irrigation (x4) (150 l/s total).

These consented takes are concentrated in the mid and lower reaches of the catchment.

In addition, approximately 10 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

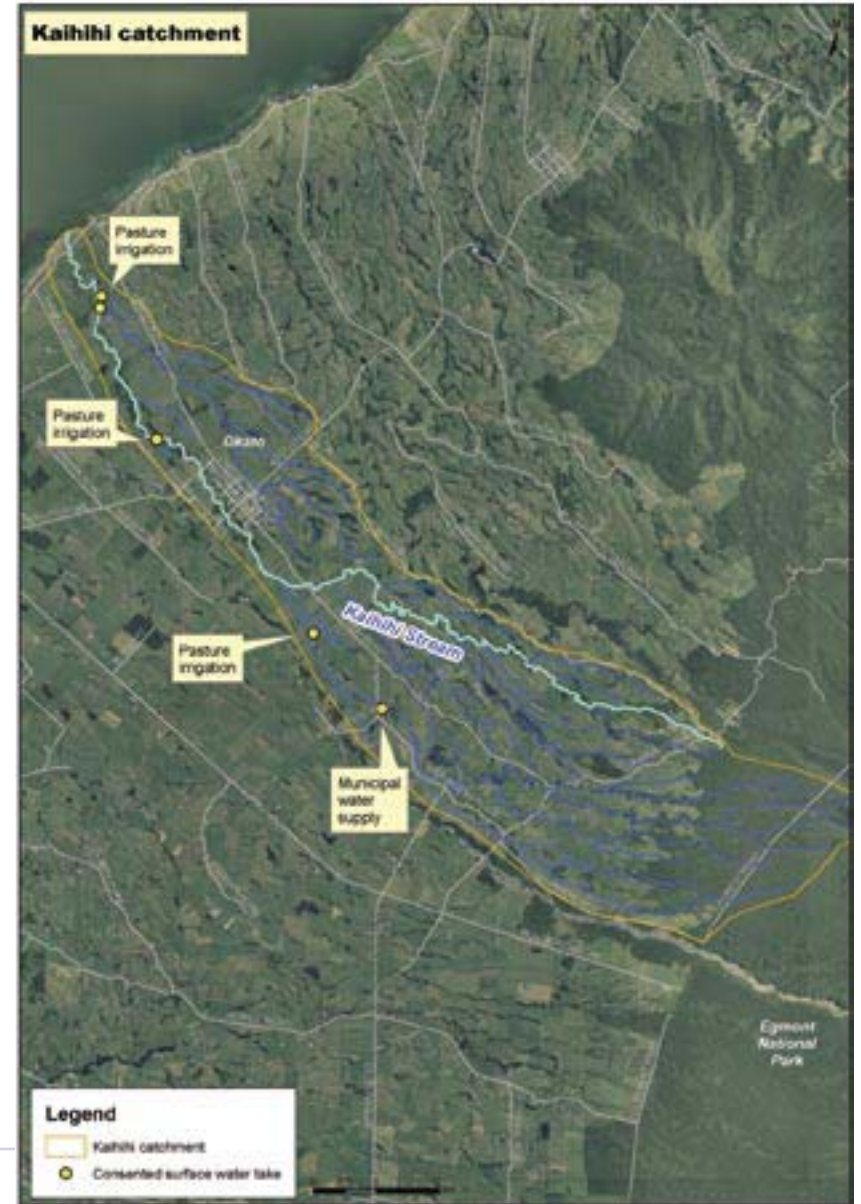
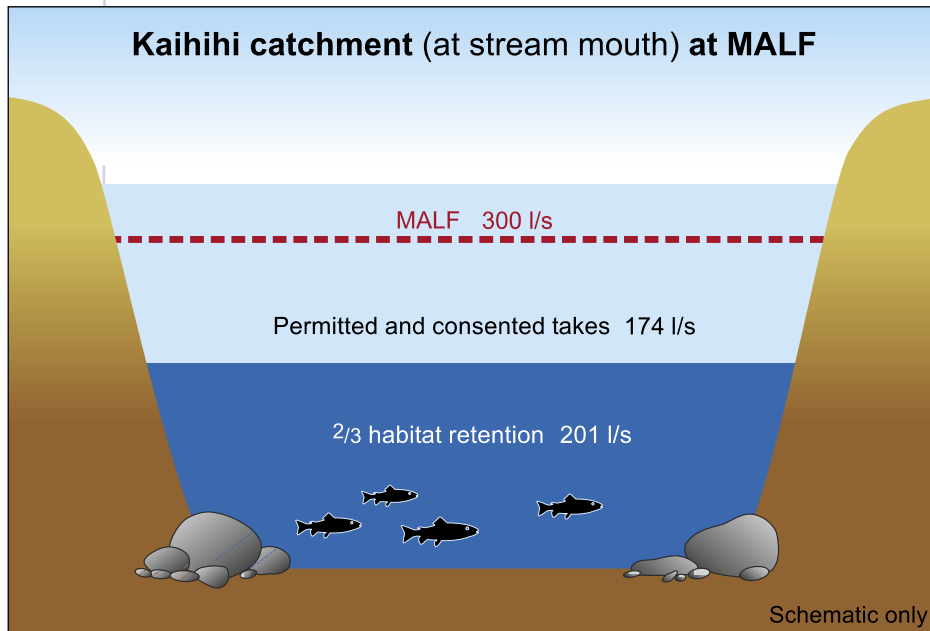
The estimated natural median flow (ie, flow that occurs 50% of the time) of the Kaihihi catchment is 700 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Kaihihi catchment is 300 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Kaihihi catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 150 and 210 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 201 l/s. This leaves 99 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 174 l/s has been allocated (58% of MALF). This means that theoretically the catchment has been over allocated by 75 l/s. However, this is not the case in practice as major abstractions have residual flow requirements in their consent conditions or require abstractions to be reduced or to cease as flows in the stream fall.

 **Fully allocated at MALF**

Kaihihi catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
700 l/s	300 l/s	201 l/s	174 l/s	-75 l/s
% of natural MALF		67%	58%	0%





# Kapoaiaia catchment

**Catchment No: 375 000**

## General description

The Kapoiaia Stream and its tributaries have a catchment area of 17 km<sup>2</sup>. The small catchment's headwaters lie on the upper western slopes of Mount Taranaki. The stream meanders through the Egmont National Park and farmland on the upper and lower ring plain, past Pungarehu, and finally enters the Tasman Sea.

## Current consumptive uses

Total consumptive use in the Kapoiaia catchment is 39 l/s. Two consents, totalling 34 l/s, have been granted to take surface water from the catchment:

- the Pungarehu Farmers Group Water Scheme (3.5 l/s)
- pasture irrigation (30 l/s).

Both consented takes are located in the lower reaches of the catchment.

In addition, approximately 5 l/s is taken for permitted uses involving small takes of water.

## Water flows and allocation

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Kapoiaia catchment is 690 l/s at the stream mouth. The natural mean annual low flow (MALF) for the catchment is 305 l/s at the stream mouth.

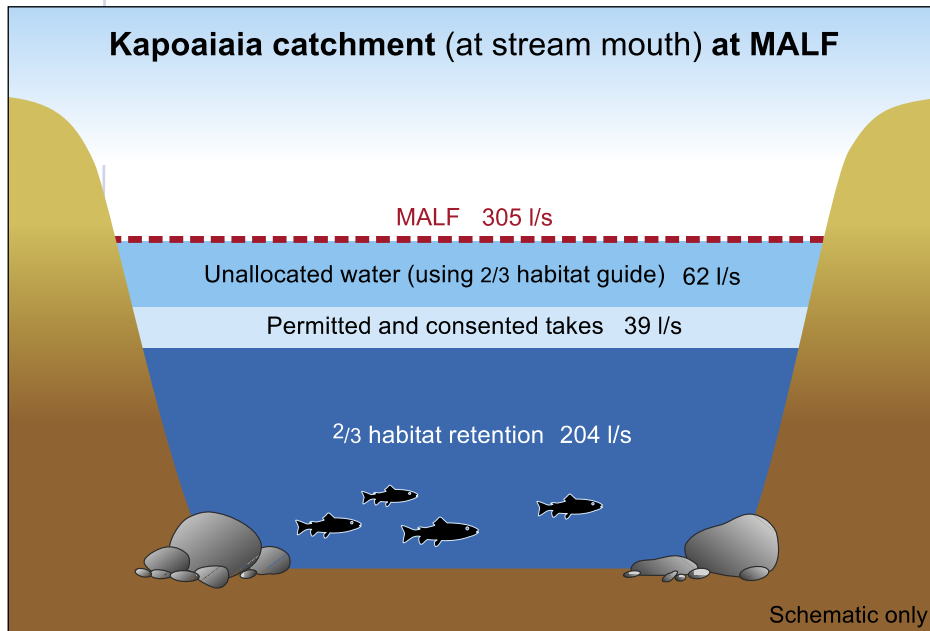
At MALF, if the 2/3 habitat guide is applied to the Kapoiaia catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat is 204 l/s (67% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 101 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 39 l/s has been allocated (13% of MALF). This means that only 62 l/s (20% of MALF) of water is unallocated and is potentially available for further consumptive uses.



**Unallocated water  
below MALF  
but nearing full  
allocation**

Kapoaiaia catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
690 l/s	305 l/s	204 l/s	39 l/s	62 l/s
% of natural MALF		67%	13%	20%



# Kapuni catchment

**Catchment No: 352 000**

## General description

The Kapuni Stream and its tributaries have a catchment area of 44 km<sup>2</sup>. The stream drains the south-eastern slopes of Mount Taranaki. The Kapuni catchment's headwaters lie on the south-eastern slopes of Mount Taranaki. The stream and its tributaries meander through the Egmont National Park, farmland on the upper and lower ring plain, just east of Kaponga and Manaia, and finally enter the Tasman Sea.

The Kapuni catchment is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. It contains threatened fish species and is a highly valued angling catchment. It is also highly rated for its recreational, aesthetic and scenic values.

## Current consumptive uses

Total consumptive use in the Kapuni catchment is 219 l/s. Four consents, totalling 203 l/s, have been granted to take surface water from the catchment:

- NGC Kapuni gas treatment plant (two takes)
- Ballance Agri-Nutrients Kapuni ammonia urea plant
- Hawera municipal water supply.

These consented takes are concentrated near each other in the mid-catchment area. In addition, approximately 16 l/s is taken for permitted uses involving small takes of water.

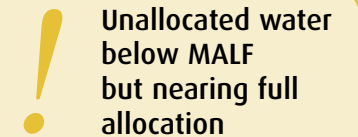
## Water flows and allocation

The natural median flow (ie, flow that occurs 50% of the time) of the Kapuni catchment is 1,502 l/s at the stream mouth. The natural mean annual low flow (MALF) for the catchment is 538 l/s at the stream mouth.

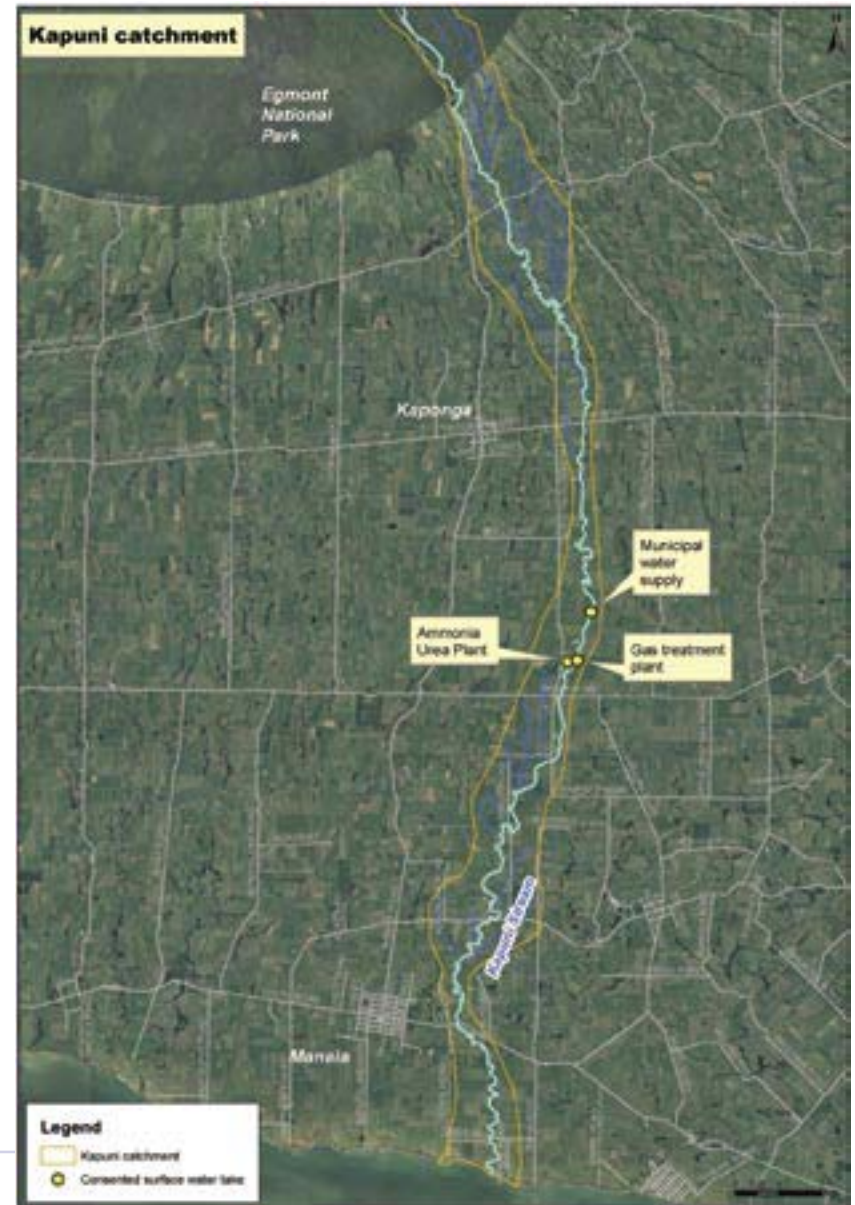
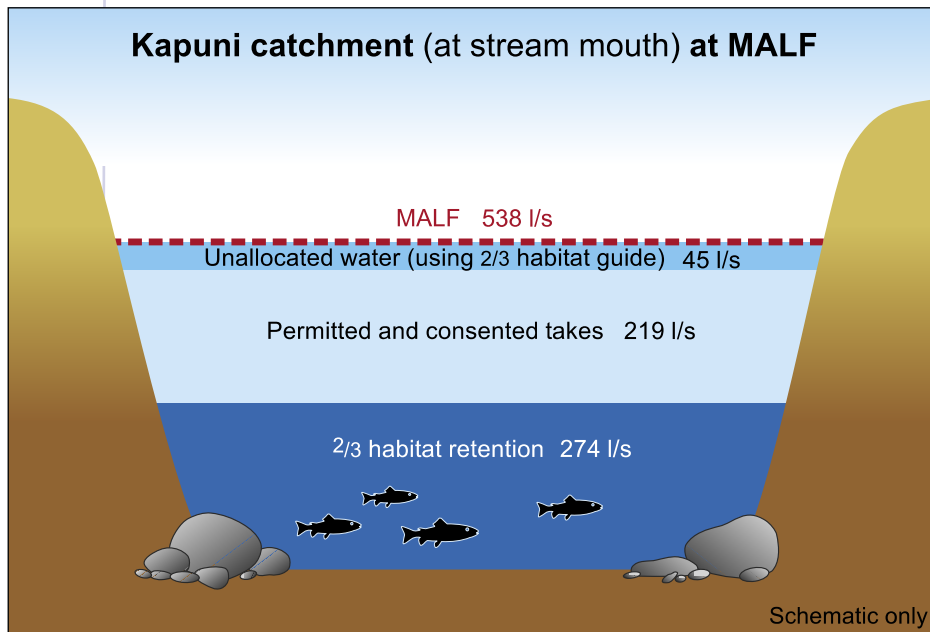
At MALF, if the 2/3 habitat guide is applied to the Kapuni catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat is 274 l/s (51% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 264 l/s (49% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 219 l/s has been allocated (41% of MALF). This means that only 45 l/s (8% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Kapuni catchment is identified as having regionally significant natural values and already experiences high levels of consumptive use (219 l/s). Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Kapuni catchment.

 **Unallocated water below MALF but nearing full allocation**

Kapuni catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,502 l/s	538 l/s	274 l/s	219 l/s	45 l/s
% of natural MALF		51%	41%	8%



# Kaupokonui catchment

**Catchment No: 355 000**

## General description

The Kaupokonui Stream and its tributaries (including the Mangawhero sub-catchment) have a catchment area of 147 km<sup>2</sup>. The large catchment's headwaters lie on the south-western slopes of Mount Taranaki. The stream and its tributaries meander through the Egmont National Park, farmland on the upper and lower ring plain, past Kaponga, and finally enter the Tasman Sea just west of Manaia.

The Kaupokonui catchment is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. It is a very popular and highly valued angling catchment.

## Current consumptive uses

Total consumptive use in the Kaupokonui catchment is 384 l/s. Four consents, totalling 334 l/s, have been granted to take surface water from the catchment:

- the Fonterra Kapuni plant (225 l/s, which is used for cooling purposes and returned to the stream)
- South Taranaki District Council for rural water supply purposes (164 l/s)
- pasture irrigation (x2) (170 l/s total).

In addition, approximately 50 l/s is taken for permitted uses involving small takes of water.


## Water flows and allocation:

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Kaupokonui catchment is 4,290 l/s at the stream mouth. The natural mean annual low flow (MALF) for the catchment is 1,620 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Kaupokonui catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat is 1,004 l/s (62% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 616 l/s (38% of MALF) that is potentially available for consumptive uses at MALF.

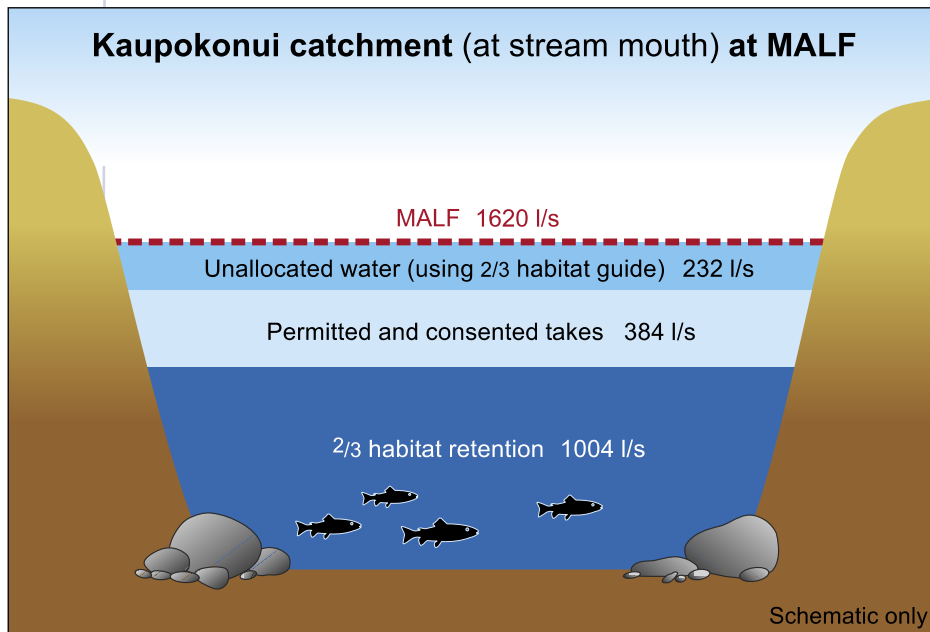
Of the water that is potentially available for consumptive use, 384 l/s has been allocated (24% of MALF). This means that only 232 l/s (14% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Kaupokonui catchment is identified as having regionally significant natural values and already experiences high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Kaupokonui catchment.

 **Unallocated water below MALF but nearing full allocation**



Kaupokonui catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
4,290 l/s	1,620 l/s	1,004 l/s	384 l/s	232 l/s
% of natural MALF		62%	24%	14%



# Maketawa catchment

**Catchment No: 395 045.30**

## General description

The Maketawa Stream and its tributaries have a catchment area of 34 km<sup>2</sup>. The Maketawa is a tributary of the Ngatoro Stream, which in turn is a tributary of the Manganui River.

The Maketawa catchment's headwaters lie on the north-eastern slopes of Mount Taranaki. The small stream and tributaries meander through the Egmont National Park and through farmland on the upper ring plain, just south of Inglewood until they enter the Ngatoro Stream.

The Maketawa catchment is largely unmodified, with few water pressures. The existing natural flows are a major contributor to the catchment's regionally important natural, scenic and recreational values. The catchment contains threatened fish species and is a highly valued angling catchment.


## Current consumptive uses


Because of the Maketawa catchment's special status under the *Regional Fresh Water Plan for Taranaki*, no consents have been granted to take or use surface water from the Maketawa above the State Highway 3 (SH3).

Consumptive use in the catchment above SH3 is confined to 2 l/s, which is taken for permitted uses involving small takes of water.

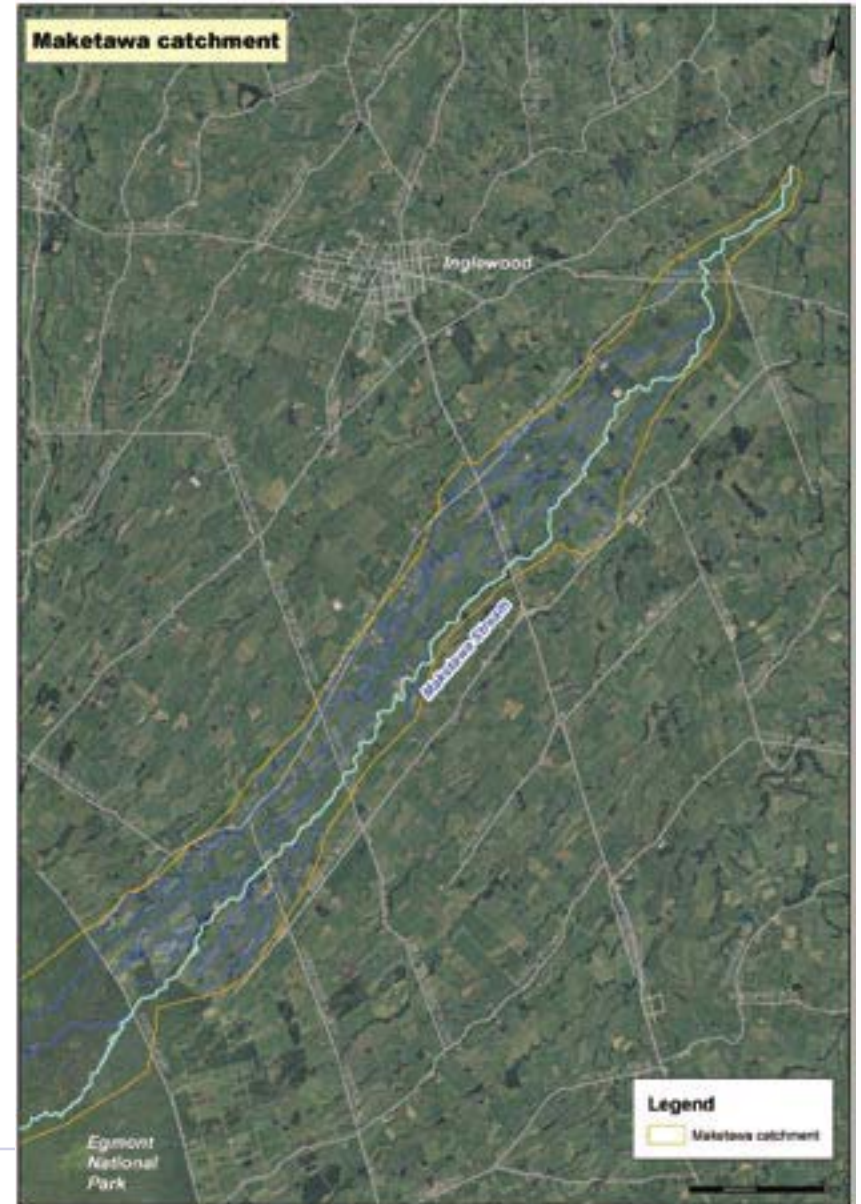
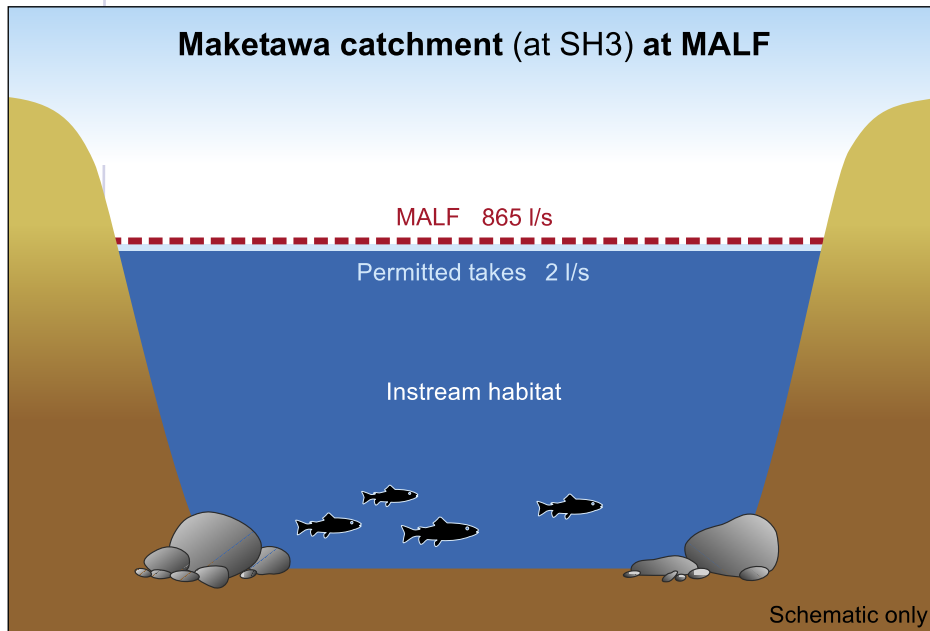
## Water flows and allocation

The observed median flow (ie, flow that occurs 50% of the time) of the Maketawa catchment above SH3 is 1,335 l/s. The natural mean annual low flow (MALF) at SH3 is 865 l/s.

 Major takes of water prohibited

 Water available for allocation below MALF for minor takes

Maketawa catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,335 l/s	865 l/s	Not applicable	2 l/s	Not applicable
% of natural MALF		Not applicable	6%	6%





# Manawapou catchment

**Catchment No: 347 000**

## General description

The Manawapou Stream and its tributaries have a catchment area of 122 km<sup>2</sup>. The small spring-fed stream and its tributaries meander through farmland on the inland and coastal terraces of south Taranaki and enter the Tasman Sea just south of Hawera.

The Manawapou catchment is highly valued for whitebaiting.

## Current consumptive uses

Total consumptive use in the Manawapou catchment is 144 l/s. Six consents, totalling 133 l/s, have been granted to take surface water from the catchment:

- Swift Energy (x5) takes water for intermittent drilling rig and pipeline hydrostatic testing purposes (125 l/s)
- horticulture irrigation, stock and domestic purposes (8 l/s).

Both consented takes are located in the lower reaches of the catchment.

In addition, approximately 11 l/s of surface water is taken for permitted uses involving small takes of water.

## Water flows and allocation

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Manawapou catchment is 1,440 l/s at the stream mouth. The natural mean annual low flow (MALF) for the catchment is 575 l/s at the stream mouth.

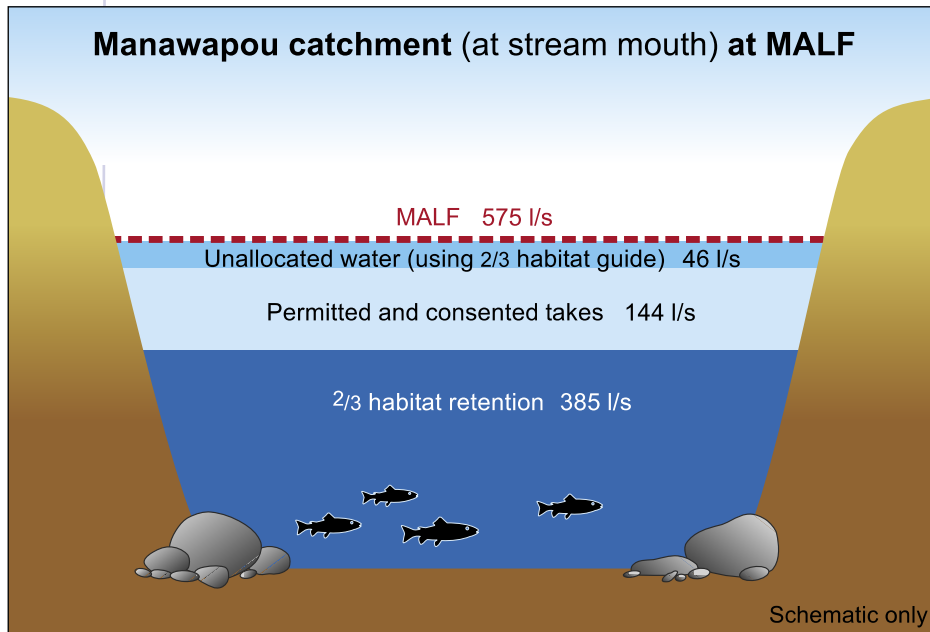
At MALF, if the 2/3 habitat guide is applied to the Manawapou catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 288 and 403 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67 % of MALF or 385 l/s. This leaves 190 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 144 l/s has been allocated (25% of MALF). This means that 46 l/s (8% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Unallocated water below MALF but nearing full allocation**

Manawapou catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,440 l/s	575 l/s	385 l/s	144 l/s	46 l/s
% of natural MALF		67%	25%	8%



# Manganui catchment

**Catchment No: 395 040**

## General description

The Manganui River and its tributaries have a catchment area of 294 km<sup>2</sup>. The Manganui is a major tributary of the Waitara River and includes the Maketawa catchment, which is also addressed in this Guide.

The Manganui catchment's headwaters lie on the north-eastern slopes of Mount Taranaki. The large river and tributaries meander through the Egmont National Park and through farmland on the upper ring plain, just south of Inglewood until they join up with the Waitara River.

The river contains regionally important scenic levels and recreational values associated with current water levels and flows – particularly in the upper reaches (upstream of the TrustPower weir). The catchment also contains threatened native fish species and is a highly valued angling catchment.

## Current consumptive uses

Total consumptive use in the Manganui catchment is 5,348 l/s. In the lower reaches of the catchment, 8 consents totalling 5,328 l/s have been granted to take surface water from the catchment:

- TrustPower hydroelectric generation (5,200 l/s)
- urban water supply for Inglewood (x2) (75 l/s)
- community water supply for Midhurst (5 l/s)
- rural water reticulation system (2 l/s)
- aggregate washing for Vickers Quarries (2.8 l/s)
- horticulture irrigation (1.2 l/s)
- pasture irrigation (42 l/s).

Approximately 20 l/s of surface water is taken from the Manganui catchment for permitted uses involving small takes of water.

## Water flows and allocation:

The observed median flow (ie, flow that occurs 50% of the time) of the Manganui catchment at Everett Park is 9,835 l/s. The natural mean annual low flow (MALF) for the catchment is 3,225 l/s at Everett Park.

The Manganui catchment does not meet the 2/3 habitat guide but meets other criteria set out in policies of *Regional Fresh Water Plan for Taranaki*. The catchment at Everett Park is affected by the Motukawa Power Scheme (established in 1927), which directs water from the river to Lake Ratapiko and then into the Waitara River. This longstanding abstraction provides other benefits to the community and is required to maintain a residual flow of 400 l/s (12% of MALF) as part of their consent conditions.

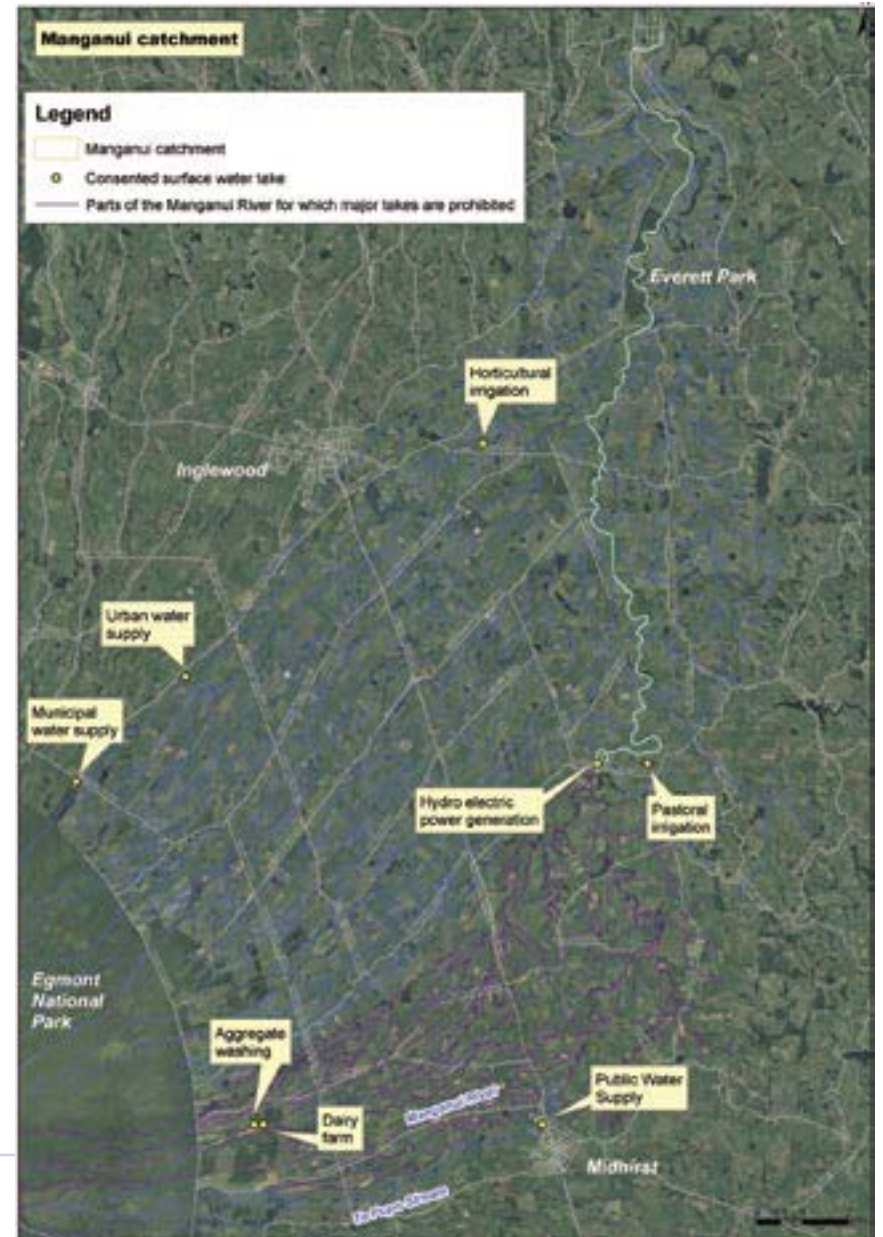
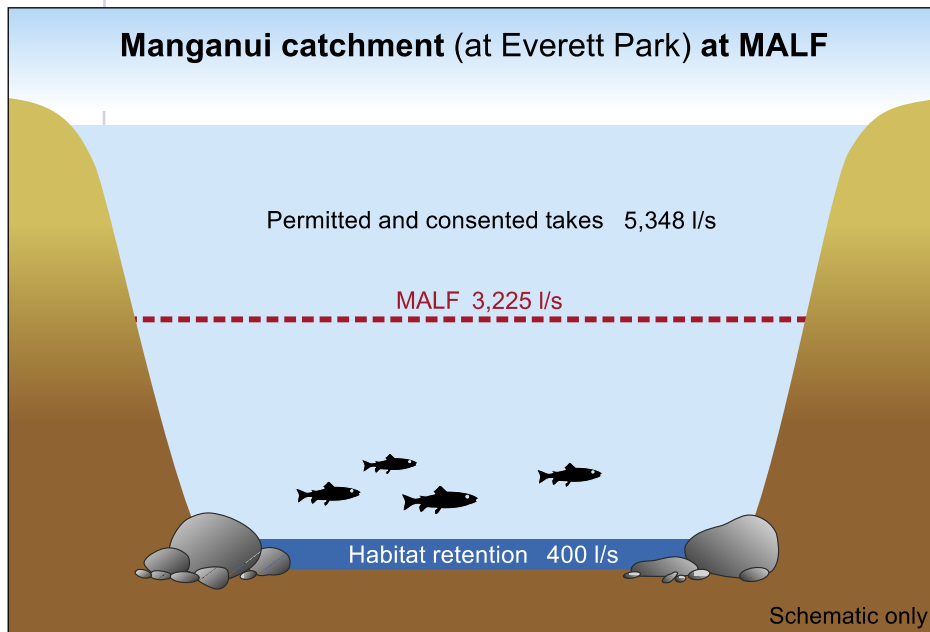
Two thousand eight hundred and twenty-five litres per second (88% of MALF) has been set aside for consumptive uses. Of this, 5,348 l/s has been allocated (166% of MALF). This means that theoretically the catchment has been over allocated by 2,523 l/s.



**Fully allocated at MALF**

**Major takes of water prohibited in parts of the catchment**

Manganui catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
9,835 l/s	3225 l/s	400 l/s	5,348 l/s	(-2,523) l/s
% of natural MALF		12%	166%	0%



# Mangaoraka catchment

**Catchment No: 394 010**

## General description:

The Mangaoraka Stream and its tributaries (a sub-catchment of the Waiongana River) have a catchment area of 55 km<sup>2</sup>. The catchment's source lies just within the Egmont National Park boundary. The stream and its tributaries meander through farmland on the northern ring plain and enter the Waiongana River near the coast between Bell Block and Waitara.

The Mangaoraka catchment is highly valued for trout fishing and for supporting whitebait fisheries in the Waiongana River.

## Current consumptive uses:

Total consumptive use in the Mangaoraka catchment is 40 l/s. Five consents, totalling 30 l/s, have been granted to take surface water from the catchment:

- intermittent speedway track watering (15 l/s)
- aggregate washing for Winstone Aggregates Ltd (5 l/s)
- horticulture irrigation (x2) (9 l/s total)
- poultry farm watering (0.7 l/s).

In addition, approximately 10 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow:

The observed median flow (ie, flow that occurs 50% of the time) of the Mangaoraka catchment is 1,295 l/s at the Corbett Road flow gauging site. The natural mean annual low flow (MALF) for the Mangaoraka catchment is 260 l/s at Corbett Road.

At MALF, if the 2/3 habitat guide is applied to the Mangaoraka catchment at Corbett Road, then the quantity of water set aside to maintain instream habitat is 145 l/s (56% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 115 l/s (44% of MALF) that is potentially available for consumptive uses at MALF.

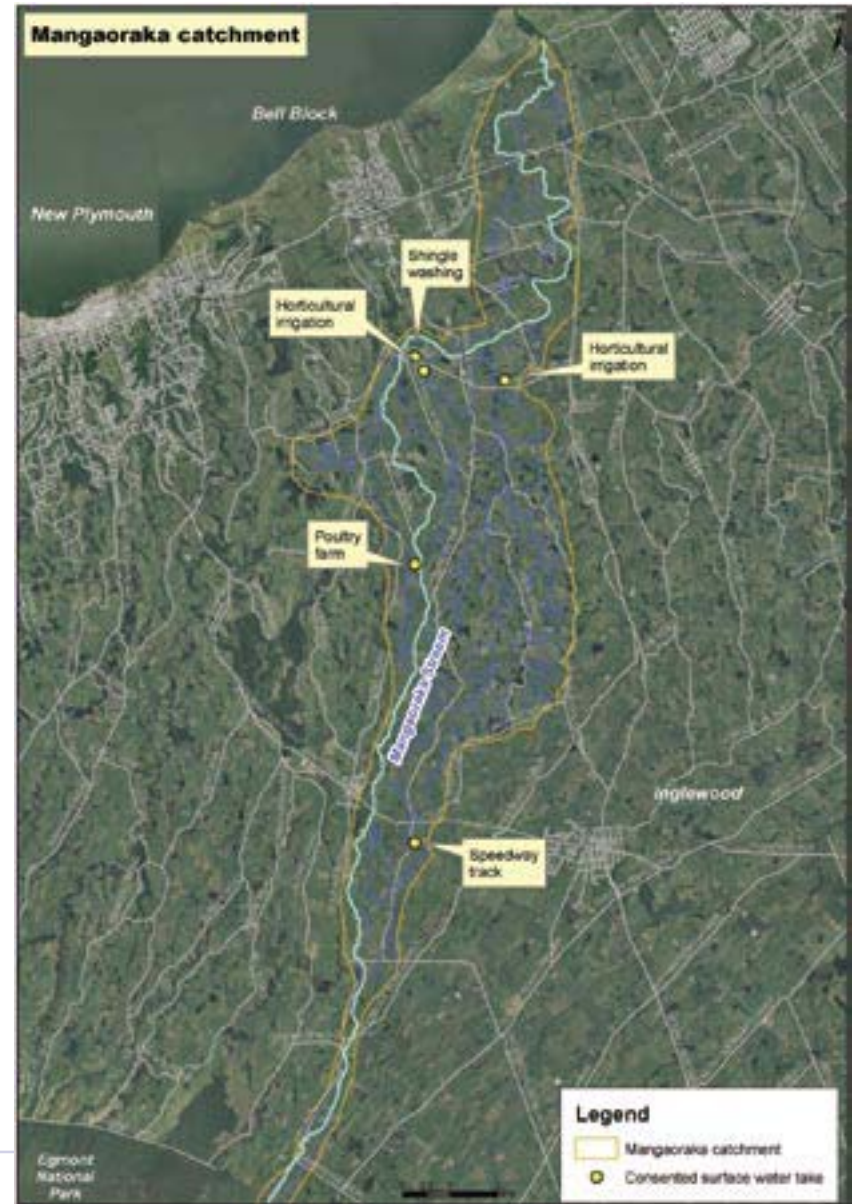
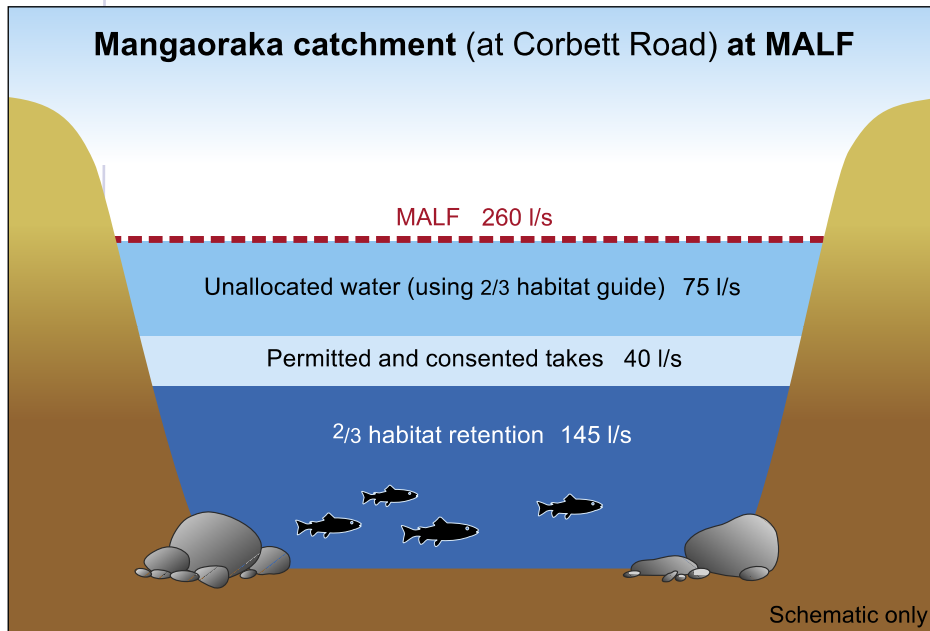
Of the water that is potentially available for consumptive use, 40 l/s has been allocated (15% of MALF). This means that up to 75 l/s (29% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Mangaoraka catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,295 l/s	260 l/s	145 l/s	40 l/s	75 l/s
% of natural MALF		56%	15%	29%



# Mangaroa catchment

**Catchment No: 345 000**

## General description

The Mangaroa Stream and its tributaries have a catchment area of 17 km<sup>2</sup>. The small spring-fed stream drains the inland and coastal terraces of south Taranaki and enters the Tasman Sea approximately halfway between Hawera and Patea.

## Current consumptive users

Total consumptive use in the Mangaroa Stream is 141 l/s. Four consents, totalling 138 l/s, have been granted to take surface water from the catchment:

- Swift Energy (x2) for intermittent hydrocarbon exploration and pipeline testing purposes (25 l/s total)
- pasture irrigation (x2) (113 l/s total).

All the consented takes are located in the lower reaches of the catchment.

In addition, approximately 3 l/s of surface water is taken for permitted uses involving small takes of water.

## Water flows and allocation

The estimated median flow (ie, flow that occurs 50% of the time) of the Mangaroa catchment is 350 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Mangaoraka catchment is 168 l/s at the stream mouth.

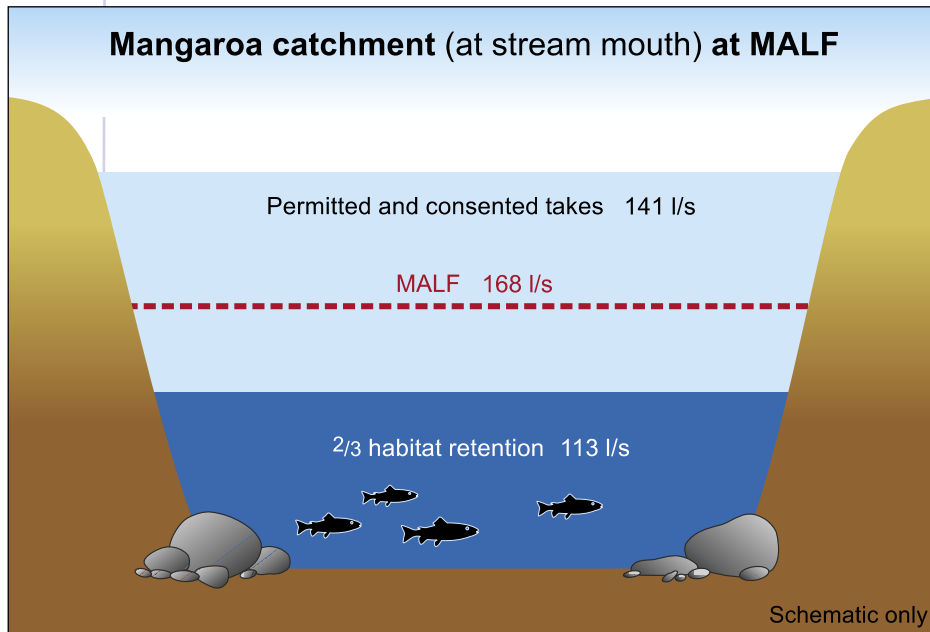
At MALF, if the 2/3 habitat guide is applied to the Mangaroa catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 84 and 118 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 113 l/s. This leaves 55 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 141 l/s has been allocated (84% of MALF). This means that theoretically the catchment has been over allocated by 136 l/s. However, this is not the case in practice as major abstractions have consent conditions requiring residual flows to be maintained (residual flow requirements range from 18 to 88 l/s).

 **Fully allocated at MALF**



Mangaroa catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
350 l/s	168 l/s	113 l/s	141 l/s	(-136 l/s)
% of natural MALF		67%	84%	0%



# Mangatoki catchment

**Catchment No: 350 010**

## General description

The Mangatoki Stream and its tributaries have a catchment area of 35 km<sup>2</sup>. The stream is a sub-catchment of the Waingongoro River.

The Mangatoki catchment's headwaters drain the lower south-eastern slopes of the Egmont National Park. The small stream and tributaries meander through the Egmont National Park and through farmland on the upper ring plain, just east of Kaponga, until they enter the Waingongoro River.

The Waingongoro catchment, which is the parent catchment of the Mangatoki, is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. The catchment is highly rated for its recreational, aesthetic and scenic values. It is also a very popular, highly valued angling river.

## Current consumptive users

Total consumptive use in the Mangatoki catchment is 39 l/s. Two consents have been granted to South Taranaki District Council to take 29 l/s water from the Mangatoki Stream for the Inaha Rural Water Supply Scheme.

Both consented takes are located in the upper reaches of the catchment just outside the Egmont National Park.

In addition, approximately 10 l/s of surface water is taken for permitted uses involving small takes of water.


## Water flows and allocation:

The observed median flow (ie, flow that occurs 50% of the time) of the Mangatoki catchment at Hastings Road is 815 l/s. The natural mean annual low flow (MALF) for the catchment is 250 l/s at Hastings Road.

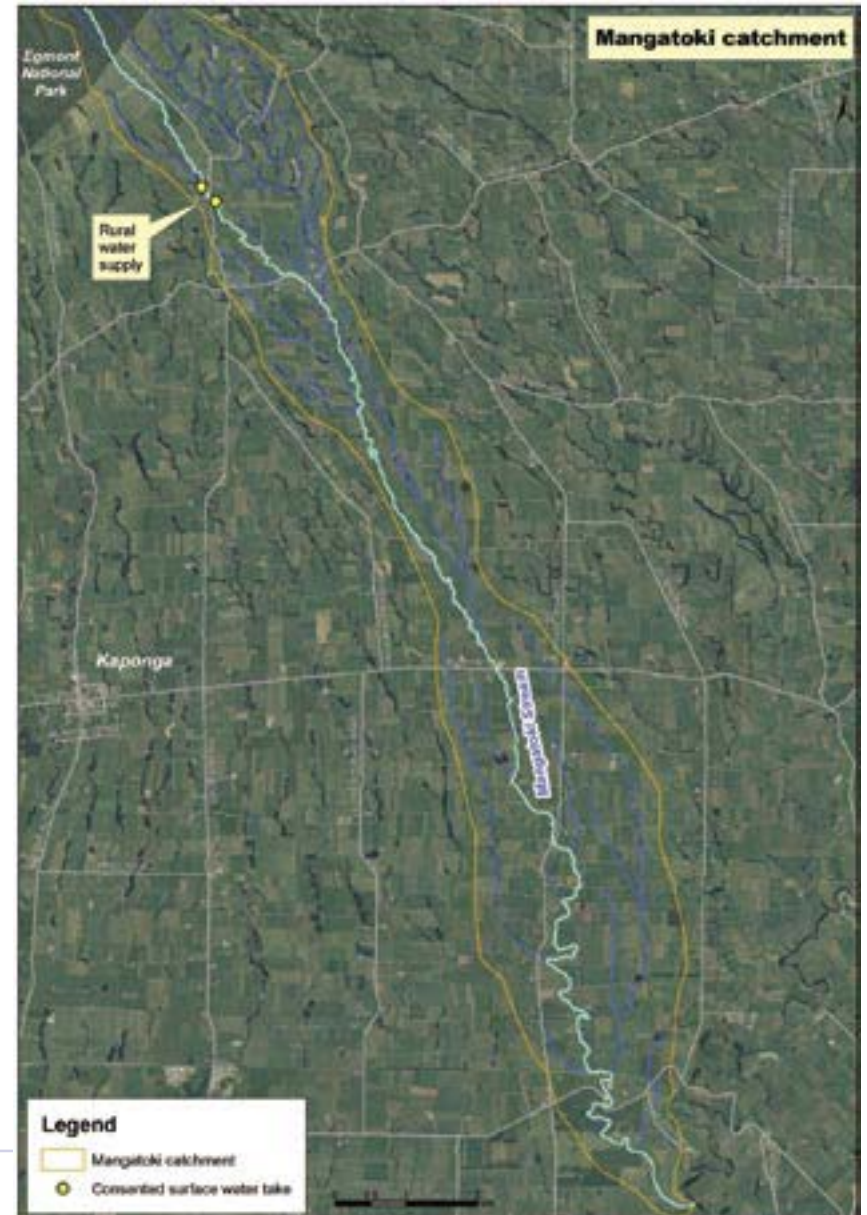
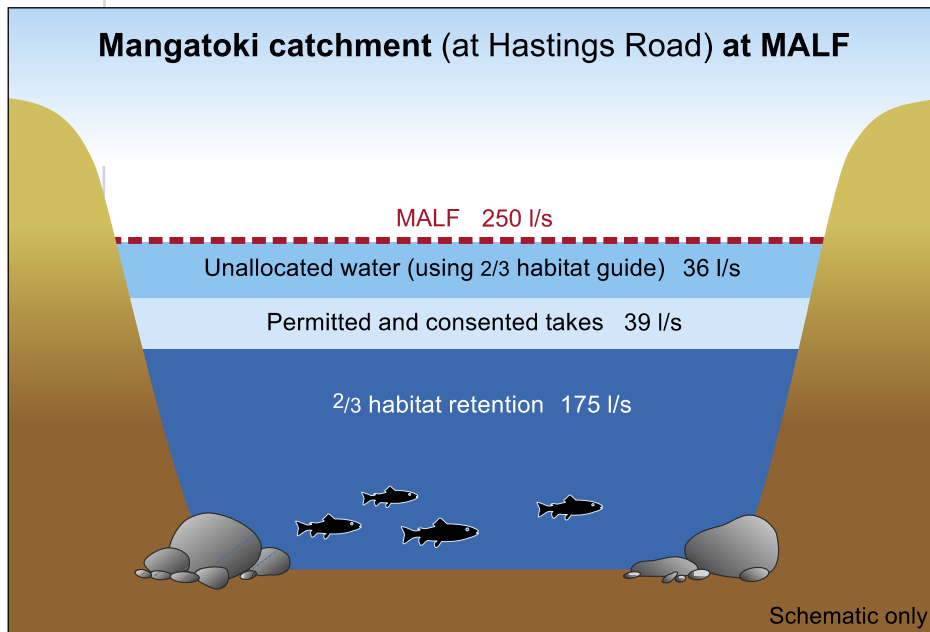
At MALF, if the 2/3 habitat guide is applied to the Mangatoki catchment at Hastings Road, then the quantity of water set aside to maintain instream habitat may vary between 125 and 175 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 168 l/s. This leaves 82 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 39 l/s has been allocated (16% of MALF). This means that only 43 l/s (17% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Waingongoro catchment, which is the parent catchment of the Mangatoki, is identified as having regionally significant natural values and already experiences relatively high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Mangatoki catchment.

 **Unallocated water below MALF but nearing full allocation**

Mangatoki catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
815 l/s	250 l/s	168 l/s	39 l/s	43 l/s
% of natural MALF		67%	16%	17%



# Ngatoro catchment

**Catchment No: 395 045**

## General description

The Ngatoro Stream and its tributaries have a catchment area of 75 km<sup>2</sup>. The Ngatoro is a tributary of the Manganui River, which in turn is a tributary of the Waitara River.

The Ngatoro catchment's headwaters lie on the north-eastern slopes of Mount Taranaki. The small stream and tributaries meander through the Egmont National Park and through farmland on the upper ring plain, and finally enter the Manganui River just east of Inglewood.

The Maketawa catchment, which is a sub-catchment of the Ngatoro, is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. The catchment is largely unmodified, contains threatened fish species and is a highly valued angling catchment.

## Current consumptive users

Total consumptive use in the Ngatoro catchment is 78 l/s. Three consents, totalling 76 l/s, have been granted to take water from the catchment:

- urban water supply for Inglewood (x2) (75 l/s total)
- horticulture irrigation (1.2 l/s).

Approximately 2 l/s of surface water is taken from the Ngatoro catchment for permitted uses involving small takes of water.

## Water flows and allocation

The observed median flow (ie, flow that occurs 50% of the time) of the Ngatoro catchment at State Highway 3 (SH3) is 600 l/s. The natural mean annual low flow (MALF) for the catchment is 345 l/s at SH3.

At MALF, if the 2/3 habitat guide is applied to the Ngatoro catchment at SH3, then the quantity of water set aside to maintain instream habitat may vary between 173 and 242 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 231 l/s. This leaves 114 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 78 l/s has been allocated (23% of MALF). This means that only 36 l/s (10% of MALF) of water is unallocated and potentially available for further consumptive uses.

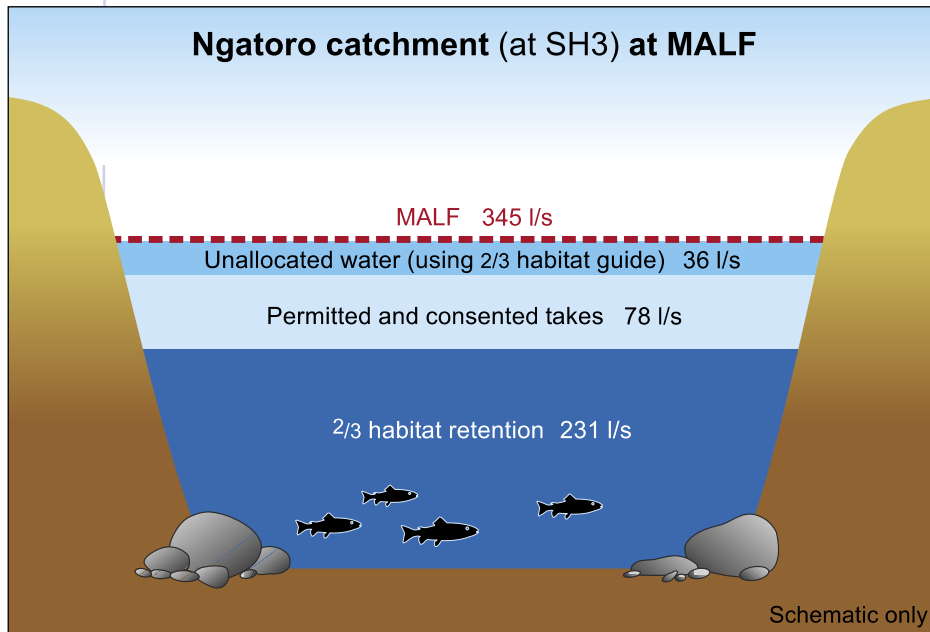
Note: The Ngatoro catchment is the parent catchment of the Maketawa catchment, which has been identified as having regionally significant natural values. While existing takes from the Ngatoro are allowed, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Ngatoro catchment.



**Unallocated water below MALF but further takes to be strictly limited**



Ngatoro catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
600 l/s	345 l/s	231 l/s	78 l/s	36 l/s
% of natural MALF		67%	23%	10%



# Oakura catchment

**Catchment No: 385 000**

## General description

The Oakura River and its tributaries have a catchment area of 44 km<sup>2</sup>. The river drains the northern slopes of the Pouakai Ranges and the south-eastern slopes of the Kaitake Ranges. The river and its tributaries meander through the Egmont National Park and farmland on the northern ring plain and enter the Tasman Sea at Oakura.

The Oakura catchment is highly rated for its recreational (particularly swimming and whitebaiting), aesthetic and scenic values. Tributaries also provide valuable habitat for threatened native fish species.

## Current consumptive uses

Total consumptive use in the Oakura catchment is 11 l/s. One consent has been granted to take surface water from the catchment. This is to take water for game bird processing purposes.

In addition, approximately 10 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The observed median flow (ie, flow that occurs 50% of the time) of the Oakura catchment is 1,730 l/s at the Surrey Hill Road flow gauging site. The natural mean annual low flow (MALF) for the Oakura catchment is 565 l/s at Surrey Hill Road.

At MALF, if the 2/3 habitat guide is applied to the Oakura catchment at Surrey Hill Road, then the quantity of water set aside to maintain instream habitat may vary between 283 and 396 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 379 l/s. This leaves 186 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

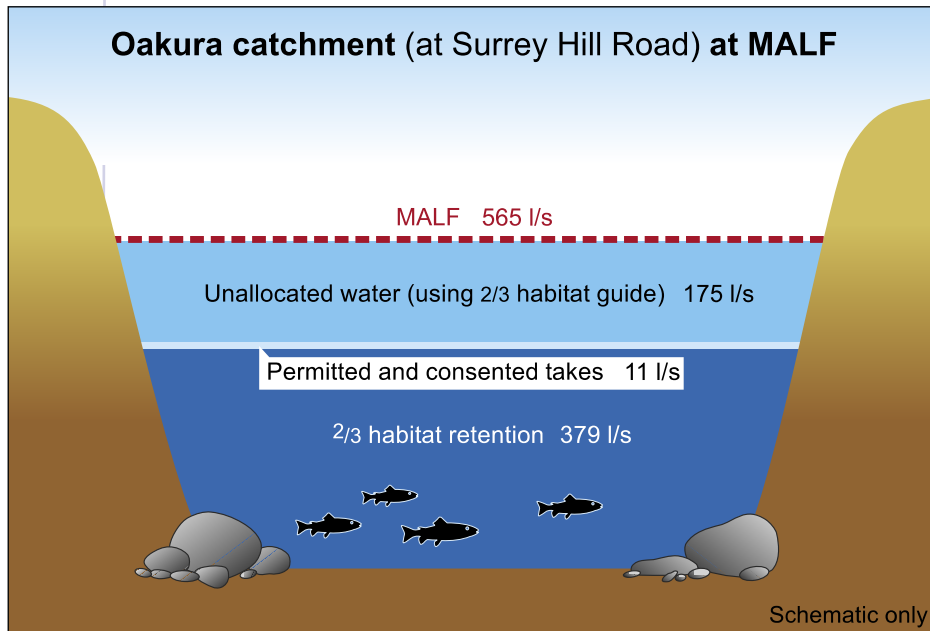
Of the water that is potentially available for consumptive use, only 11 l/s has been allocated (2% of MALF). This means that up to 175 l/s (31% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Oakura catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,730 l/s	565 l/s	379 l/s	11 l/s	175 l/s
% of natural MALF		67%	2%	31%



# Oaonui catchment

**Catchment No: 368 000**

## General description

The Oaonui Stream and its tributaries have a catchment area of 42 km<sup>2</sup>. The Oaonui catchment's headwaters lie on the lower south-western slopes of Mount Taranaki.

The small stream and its tributaries meander through the Egmont National Park and farmland on the western upper and lower ring plain and enter the Tasman Sea north of Opunake.

## Current consumptive uses

Total consumptive use in the Oaonui catchment is 82 l/s. Two consents, totalling 75 l/s, have been granted to take surface water from the catchment:

- Oaonui Rural Community Water Supply Scheme (50 l/s)
- aggregate washing for Winstone Aggregates Ltd (25 l/s).

Both consented takes lie in the mid catchment.

In addition, approximately 7 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Oaonui catchment is 750 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Oaonui catchment is 305 l/s at the stream mouth.

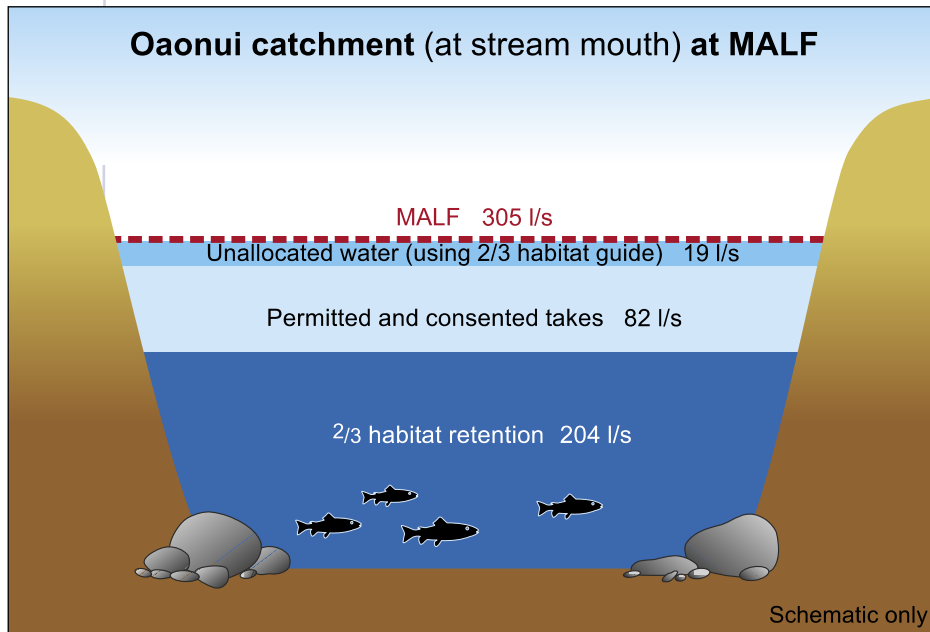
At MALF, if the 2/3 habitat guide is applied to the Oaonui catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 153 and 214 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 204 l/s. This leaves 101 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 82 l/s has been allocated (27% of MALF). This means that only 19 l/s (6% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Unallocated water below MALF but nearing full allocation**

Oaonui catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
750 l/s	305 l/s	204 l/s	82 l/s	19 l/s
% of natural MALF		67%	27%	6%



# Okahu catchment

**Catchment No: 371 000**

## General description

The Okahu Stream and its tributaries have a catchment area of 35 km<sup>2</sup>. The stream drains the upper western slopes of Mount Taranaki.

The small stream and its tributaries meander through the Egmont National Park and farmland on the western upper and lower ring plain and enter the Tasman Sea north of Opunake.

The Okahu catchment is highly rated as a trout fishery and for its aesthetic and scenic values. It is also an important habitat for threatened native fish species.

## Current consumptive uses

Approximately 5 l/s of surface water from the Okahu catchment is taken for permitted uses involving small takes of water. There are no consented takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Okahu catchment is 1,045 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Okahu catchment is 670 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Okahu catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 335 and 469 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 449 l/s. This leaves 221 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

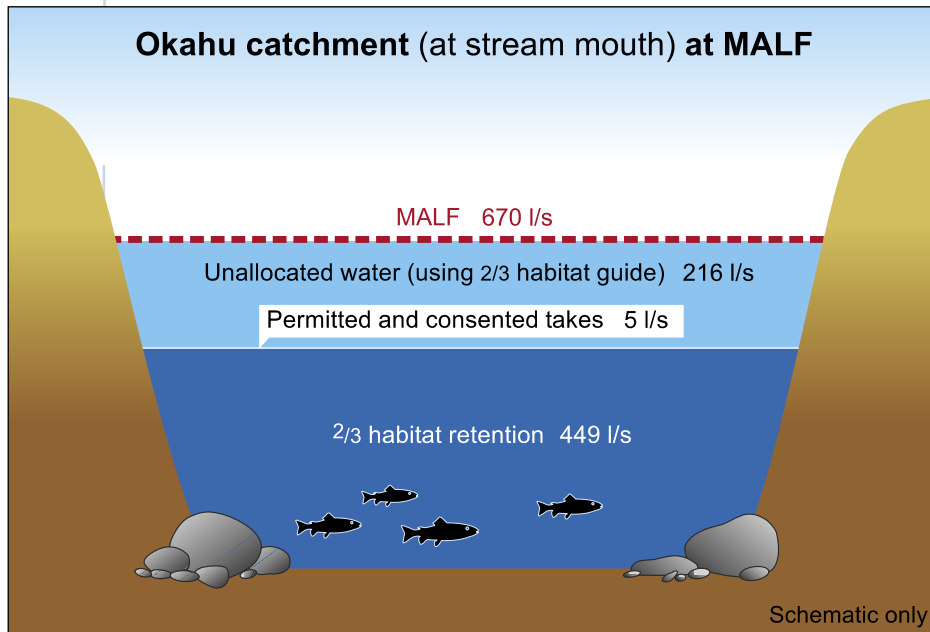
Of the water that is potentially available for consumptive use, only 5 l/s has been allocated (1% of MALF). This means that 216 l/s (32% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Okahu catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,045 l/s	670 l/s	449 l/s	5 l/s	216 l/s
% of natural MALF		67%	1%	32%



# Onaero catchment

**Catchment No: 398 000**

## General description

The Onaero Stream and its tributaries have a catchment area of 90 km<sup>2</sup>. The Onaero catchment's headwaters lie in the northern frontal hill country.

The small stream and its tributaries meander through the forested, scrubland and pastoral areas of the frontal hill country and the northern coastal marine terraces and enter the Tasman Sea west of the Onaero township.

The Onaero catchment contains a good diversity of indigenous aquatic fauna including eels, whitebait, bullies and torrent fish and some threatened species. It is also highly rated for its recreational (particularly camping, picnicking and whitebaiting), aesthetic and scenic values.

## Current consumptive uses

Total consumptive use in the Onaero catchment is 4 l/s. One consent has been granted to take surface water from the catchment. Shell Todd Oil Services Ltd takes water (2 l/s) from the Mangahewa Stream for process, fire-fighting and domestic purposes associated with the operation of the Mckee Production Station.

In addition, approximately 2 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Onaero catchment is 1,355 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Oaonui catchment is 300 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Onaero catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 150 and 210 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 201 l/s. This leaves 99 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

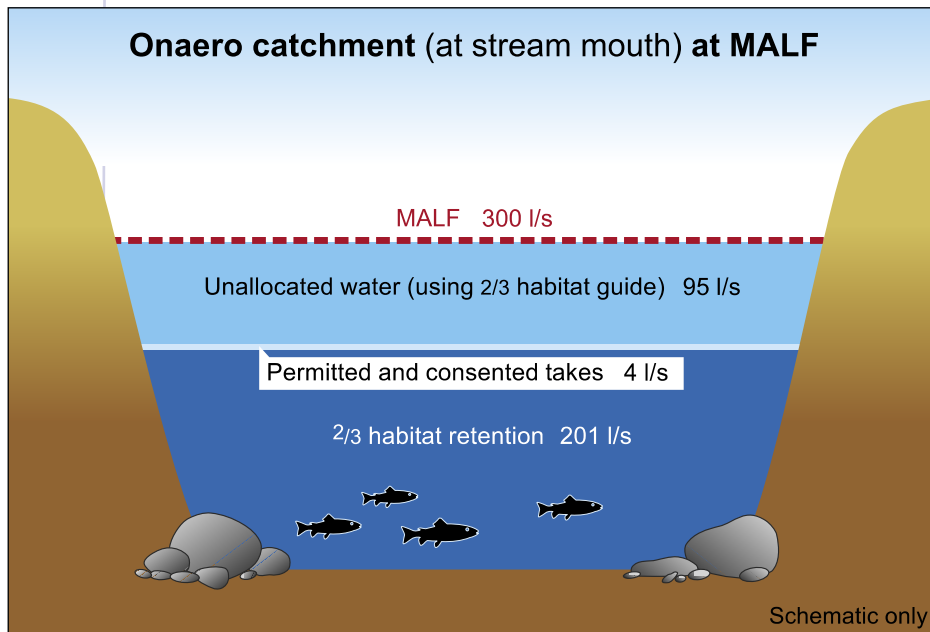
Of the water that is potentially available for consumptive use, only 4 l/s has been allocated (1% of MALF). This means that 95 l/s (32% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Onaero catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,355 l/s	300 l/s	201 l/s	4 l/s	95 l/s
% of natural MALF		67%	1%	32%



# Otakeho catchment

**Catchment No: 356 000**

## General description

The Otakeho Stream and its tributaries have a catchment area of 43 km<sup>2</sup>. The Otakeho catchment's headwaters lie on the upper slopes of Mount Taranaki.

The small stream and its tributaries meander through the Egmont National Park and farmland on the southern upper and lower ring plain and enter the Tasman Sea west of Manaia.

## Current consumptive uses

Total consumptive use in the Otakeho catchment is 105 l/s. One consent has been granted to take 95 l/s of surface water from the Otakeho Stream for pasture irrigation purposes.

In addition, approximately 10 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Otakeho catchment is 1,110 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Otakeho catchment is 660 l/s at the stream mouth.

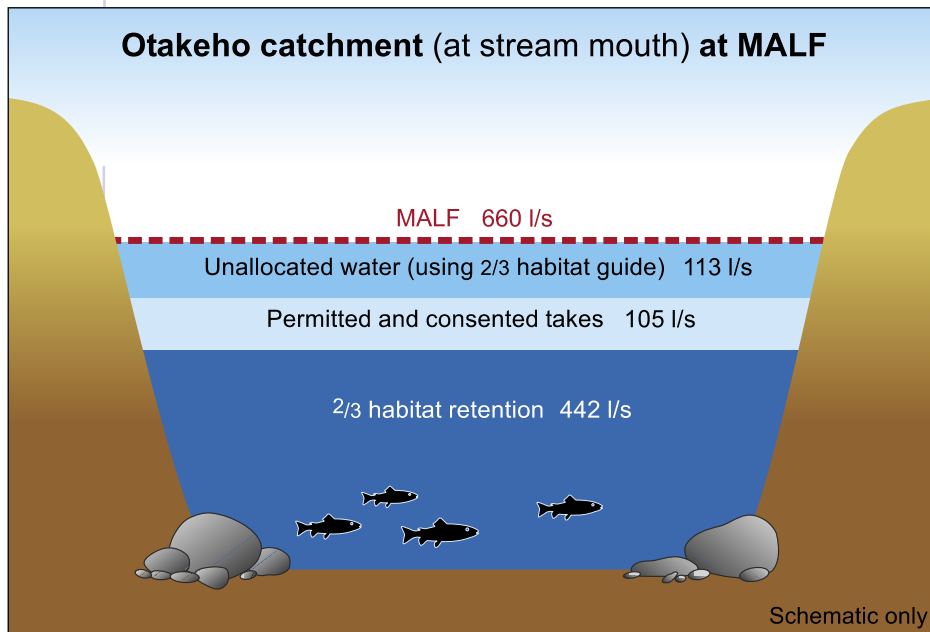
At MALF, if the 2/3 habitat guide is applied to the Otakeho catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 330 and 462 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 442 l/s. This leaves 218 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 105 l/s has been allocated (16% of MALF). This means that 113 l/s (17% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Otakeho catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,110 l/s	660 l/s	442 l/s	105 l/s	113 l/s
% of natural MALF		67%	16%	17%



# Ouri catchment

**Catchment No: 359 000**

## General description

The Ouri Stream and its tributaries have a catchment area of 24 km<sup>2</sup>. The Ouri catchment's headwaters lie on the upper southern slopes of Mount Taranaki.

The small stream and its tributaries meander through the Egmont National Park and farmland on the southern upper and lower ring plain and enter the Tasman Sea west of Manaia.

The Ouri catchment contains a good diversity of native aquatic fauna.

## Current consumptive uses

Total consumptive use in the Ouri catchment is 36 l/s. One consent has been granted to take 31 l/s of surface water from the Ouri Stream for pasture irrigation purposes.

In addition, approximately 5 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Ouri catchment is 430 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Ouri catchment is 200 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Ouri catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 100 and 140 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 134 l/s. This leaves 66 l/s (33% of MALF) that potentially is available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 36 l/s has been allocated (18% of MALF). This means that 30 l/s (15% of MALF) of water is unallocated and potentially available for further consumptive uses.

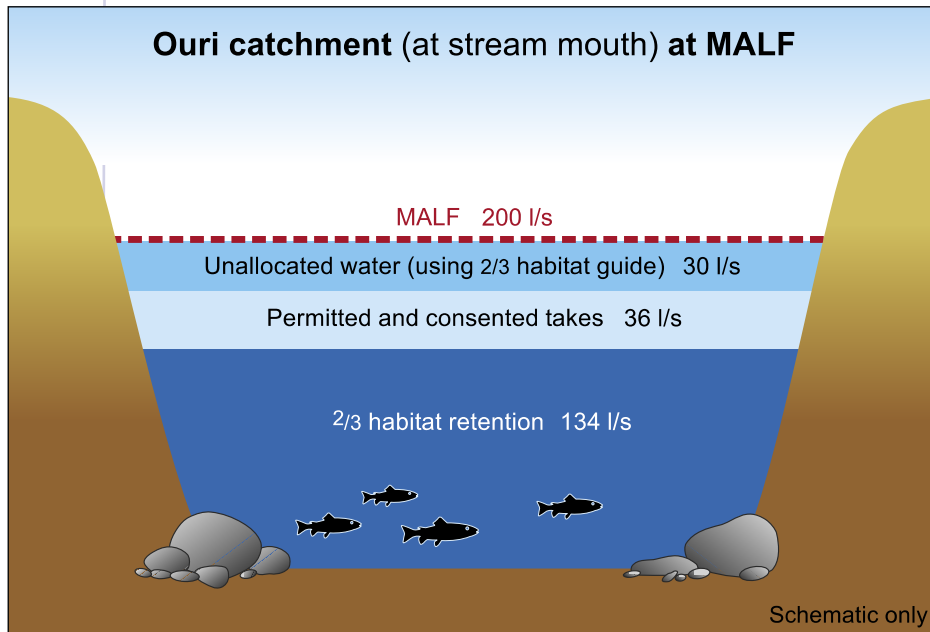
It is noted, however, that the consented take for horticulture irrigation maintains a residual flow of 200 l/s (100% of MALF).



**Water available  
for allocation  
below MALF**



Ouri catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
430 l/s	200 l/s	134 l/s	36 l/s	30 l/s
% of natural MALF		67%	18%	15%



# Patea catchment

**Catchment No: 343 000**

## General description

The Patea River and its tributaries represent the third largest catchment area of Taranaki – 1,043 km<sup>2</sup>. The river drains the eastern slopes of Mount Taranaki and the upper and lower ring plain and portions of the eastern hill country.

The river and its tributaries meander through the Egmont National Park and farmland on the ring plain, frontal and inland hill country, the inland and coastal terraces, and through the Patea township to enter the Tasman Sea.

The Patea catchment (upstream of the Mangaehu Stream confluence) is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. It is a very popular and highly valued angling catchment and highly rated for its recreational, aesthetic and scenic values. The river (excluding Lake Rotorangi) is also identified as being of particular cultural, spiritual, historical and traditional interest to Ngati Ruanui Iwi.

## Current consumptive uses

Total consumptive use in the Patea catchment upstream of the Skinner Road flow gauging site is 332 l/s. Seven consents, totalling 321 l/s, have been granted to take surface water from the catchment upstream of the Skinner Road:

- Egmont Tanneries (7 l/s)
- the Stratford Power Station (225 l/s)
- water supply for the Stratford township (x2) (61 l/s)
- Taranaki abattoirs (3.25 l/s)
- intermittent hydrocarbon exploration (25 l/s)
- water heating purposes for the Stratford Public swimming pool (in/out system).

In addition, approximately 11 l/s of surface water is taken from the Patea river upstream of the Skinner Road for permitted uses involving small takes of water.

Other consents have been granted to take surface water downstream of the Skinner Road recorder site – these relate to one take for hydro-electricity generation from Lake Rotorangi and four takes near the coast for pasture irrigation.

## Water allocation and minimum flow

The observed median flow (ie, flow that occurs 50% of the time) of the Patea catchment at the Skinner Road flow gauging site is 3,325 l/s. The natural mean annual low flow (MALF) for the Patea catchment at Skinner Road is 855 l/s.

At MALF, if the 2/3 habitat guide is applied to the Patea catchment at Skinner Road, then the quantity of water set aside to maintain instream habitat is 428 l/s (50% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 427 l/s (50% of MALF) that potentially is available for consumptive uses at MALF. Of that 427 l/s, 332 l/s has been allocated (39% of MALF). This means that only 95 l/s (11% of MALF) of water is unallocated and potentially available for further consumptive uses.

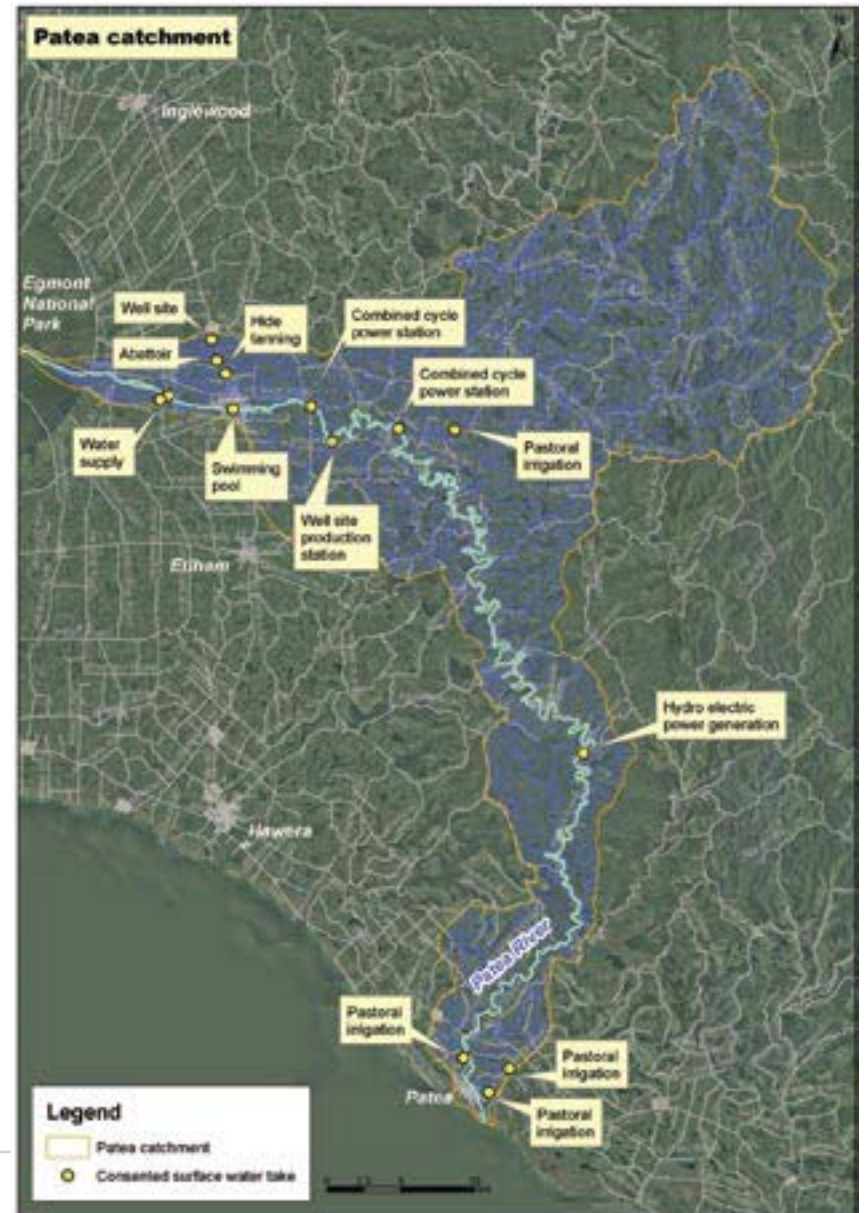
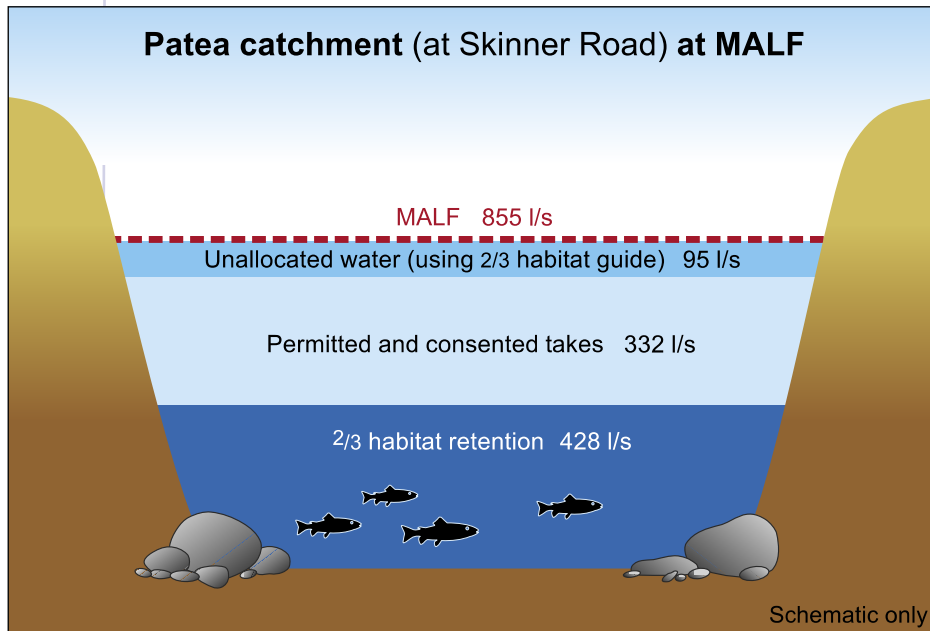
Note: The Patea catchment is identified as having regionally significant natural values and already experiences high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Patea catchment.



**Unallocated water below MALF but nearing full allocation**



Patea catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
3,325 l/s	855 l/s	428 l/s	332 l/s	95 l/s
% of natural MALF		50%	39%	11%



# Punehu catchment

**Catchment No: 360 000**

## General description

The Punehu Stream and its tributaries have a catchment area of 40 km<sup>2</sup>. From the top of Fantham's Peak, the small stream and its tributaries drain the south-western slopes of Mount Taranaki, meander through the Egmont National Park and farmland on the south-western ring plain and enter the Tasman Sea between Opunake and Manaia.

## Current consumptive uses

Total consumptive use in the Punehu catchment is 79 l/s. Two consents have been granted to take that amount of surface water from the Punehu Stream for pasture irrigation purposes.

Both consented takes are located downstream near the coast.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Punehu catchment is 945 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Punehu catchment is 287 l/s at the stream mouth.

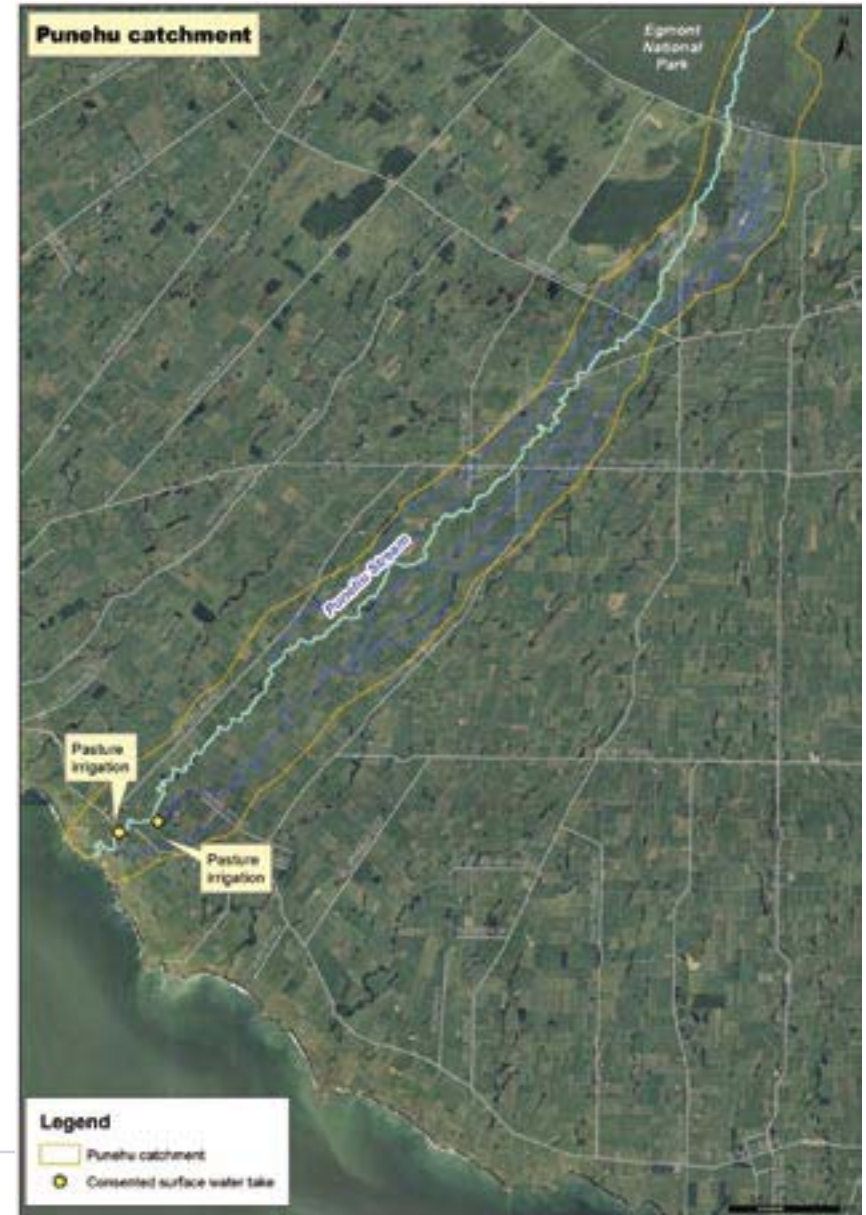
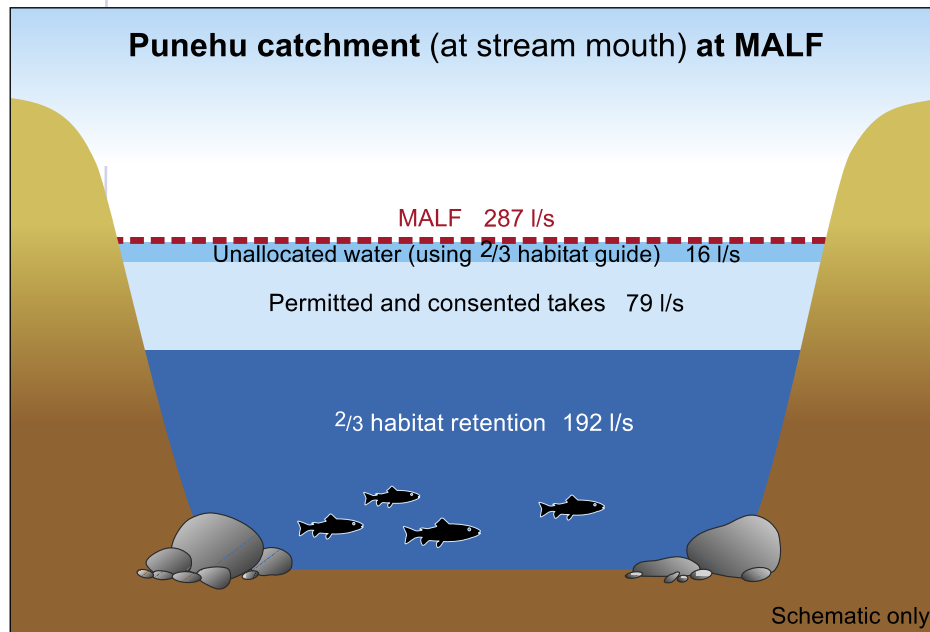
At MALF, if the 2/3 habitat guide is applied to the Punehu catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 144 and 201 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 192 l/s. This leaves 95 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 79 l/s has been allocated (28% of MALF). This means that 16 l/s (6% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Unallocated water below MALF but nearing full allocation**

Punehu catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
945 l/s	287 l/s	192 l/s	79 l/s	16 l/s
% of natural MALF		67%	28%	6%



# Stony (Hangatahua) catchment

**Catchment No: 380 000**

## General description

The Stony (Hangatahua) River and its tributaries have a catchment area of 51 km<sup>2</sup>. The Stony catchment's headwaters lie on the western slopes of Mount Taranaki. The river and tributaries meander through the Egmont National Park and through farmland on the ring plain, just north of Rahotu, and finally enter the Tasman Sea.

The Stony catchment is largely unmodified, with few water pressures, where existing natural flows are a major contributor to the catchment's regionally important natural, scenic and recreational values. The catchment has a wide diversity of native fish including threatened native fish species and is a highly valued angling catchment.

## Current consumptive uses


Because of the Stony catchment's special status under the *Regional Fresh Water Plan for Taranaki*, no consents have been granted to take surface water.


Consumptive use in the catchment is confined to 5 l/s, which is taken for permitted uses involving small takes of water.

## Water flows and allocation

The estimated median flow (ie, flow that occurs 50% of the time) of the Stony catchment is 3,860 l/s. The natural mean annual low flow (MALF) for the catchment is 2,730 l/s.

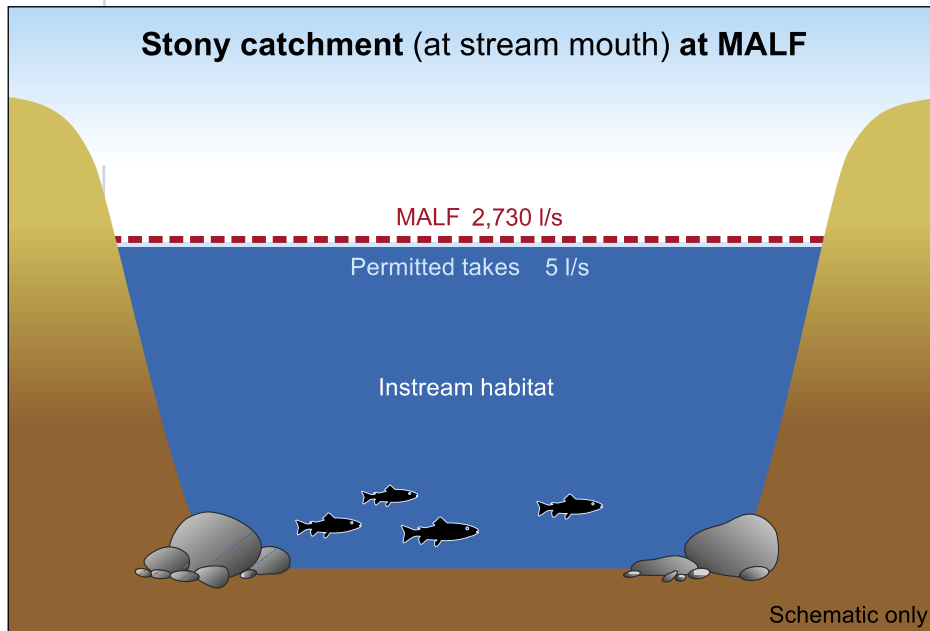
Approximately 5 l/s has been allocated (0.2% of MALF) for permitted uses with the residual flow being 2,728 l/s.

 **Water available for allocation below MALF for minor agricultural and horticultural takes**

 **Major takes of water prohibited**



Stony (Hangatahua) catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
3,860 l/s	2,730 l/s	Not applicable	5 l/s	Not applicable
% of natural MALF		Not applicable	0.2%	0%



# Tangahoe catchment

**Catchment No: 348 000**

## General description

The Tangahoe Catchment and its tributaries (including the Tawhiti Stream) have a catchment area of 298 km<sup>2</sup>. The Tangahoe catchment's headwaters lie in the frontal and inland hill country. The river and its tributaries then meander through farmland on the ring plain and the coastal marine terraces, and enter the Tasman Sea south of Hawera.

The Tangahoe catchment is highly valued for whitebaiting and is identified (through a statutory acknowledgement included in the *Regional Fresh Water Plan for Taranaki*) as being of particular cultural, spiritual, historical and traditional interest to the Ngati Ruanui Iwi.

## Current consumptive uses

Total consumptive use in the Tangahoe catchment is 482 l/s. Seven consents, totalling 452 l/s, have been granted to take surface water from the catchment:

- the Fonterra Whareroa plant (x2) (347 l/s total)
- horticultural irrigation (3 l/s)
- nursery irrigation (0.5 l/s)
- farm stock use (1 l/s)
- the Richmond meat processing plant (75.2 l/s)
- Swift Energy for intermittent hydrostatic testing (25 l/s).

In addition, approximately 30 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Tangahoe catchment is 3,600 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Tangahoe catchment is 1,225 l/s at the stream mouth.

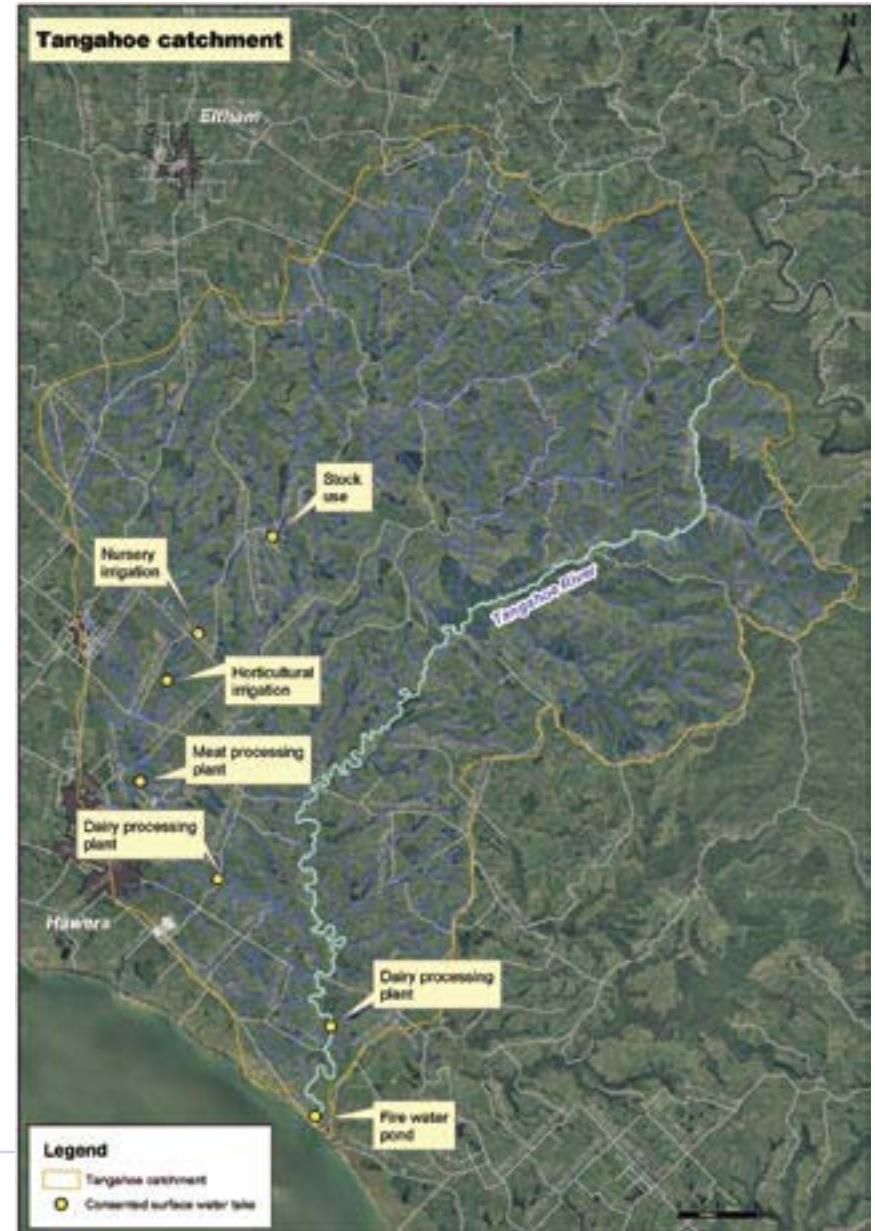
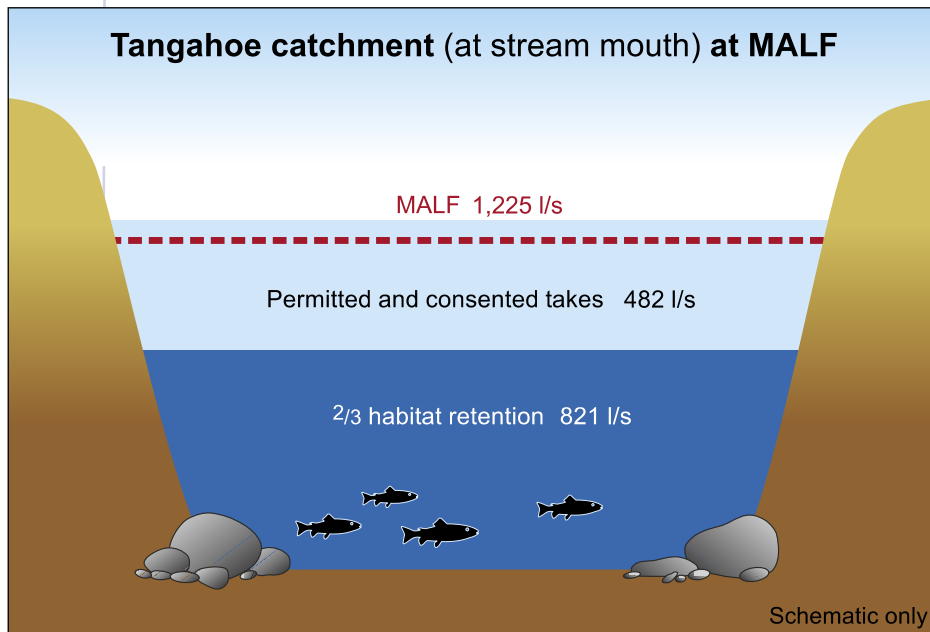
At MALF, if the 2/3 habitat guide is applied to the Tangahoe catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 613 and 858 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 821 l/s. This leaves 404 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 482 l/s has been allocated (39% of MALF). This means that theoretically the catchment has been over allocated by 78 l/s. However, this is not the case in practice as major abstractions have consent conditions requiring residual flows to be left.

 **Fully allocated at MALF**



Tangahoe catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
3,600 l/s	1,225 l/s	821 l/s	482 l/s	(-78 l/s)
% of natural MALF		67%	39%	0%



# Taungatara catchment

**Catchment No: 361 000**

## General description

The Taungatara Stream and its tributaries have a catchment area of 38 km<sup>2</sup>. The Taungatara catchment's headwaters lie on the south-western slopes of Mount Taranaki. The small stream and its tributaries meander through the Egmont National Park and through farmland on the ring plain until entering the Tasman Sea between Manaia and Opunake.

## Current consumptive uses

Total consumptive use in the Taungatara catchment is 151 l/s. Three consents, totalling 146 l/s, have been granted to take surface water from the catchment:

- South Taranaki District Council – the Cold Creek Rural Water Supply (46 l/s)
- pasture irrigation (50 l/s)
- horticultural irrigation (50 l/s but only on one day of the year).

In addition, approximately 5 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Taungatara catchment is 955 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Taungatara catchment is 565 l/s at the stream mouth.

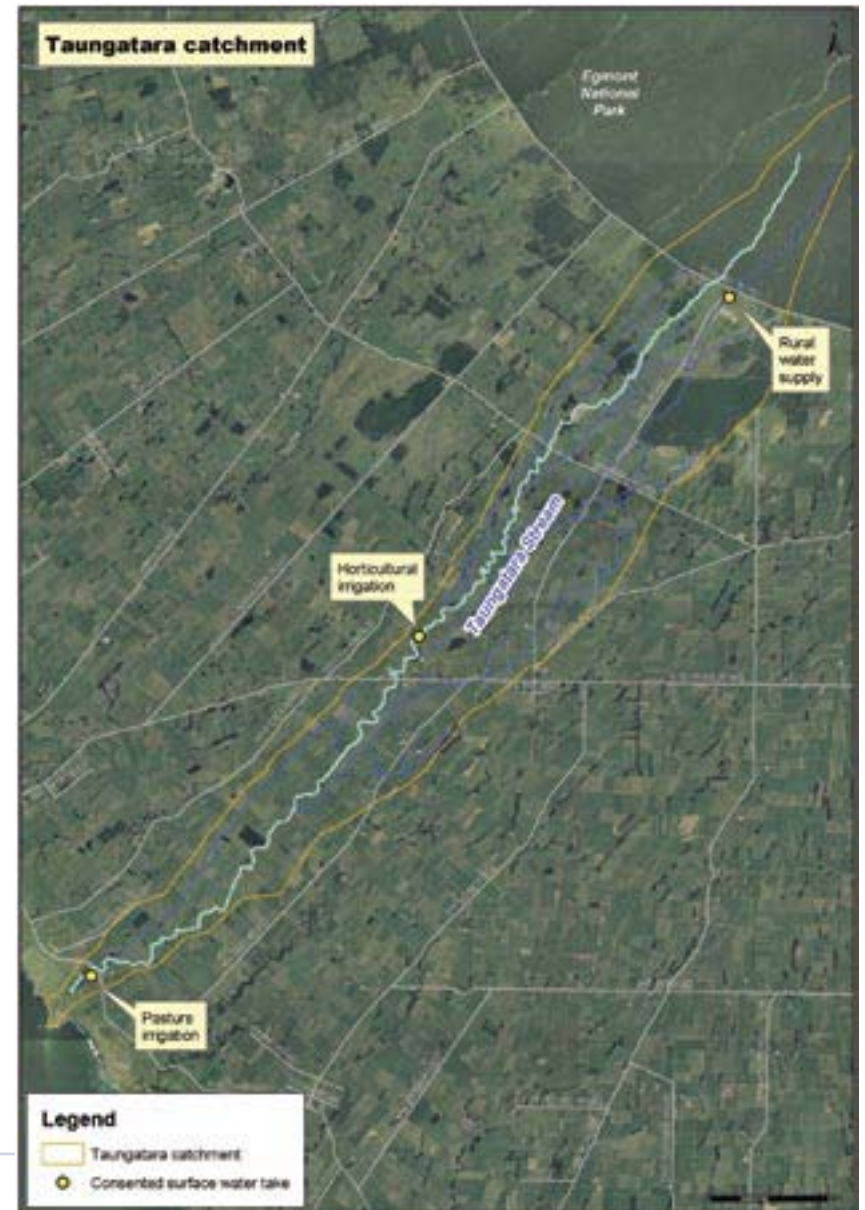
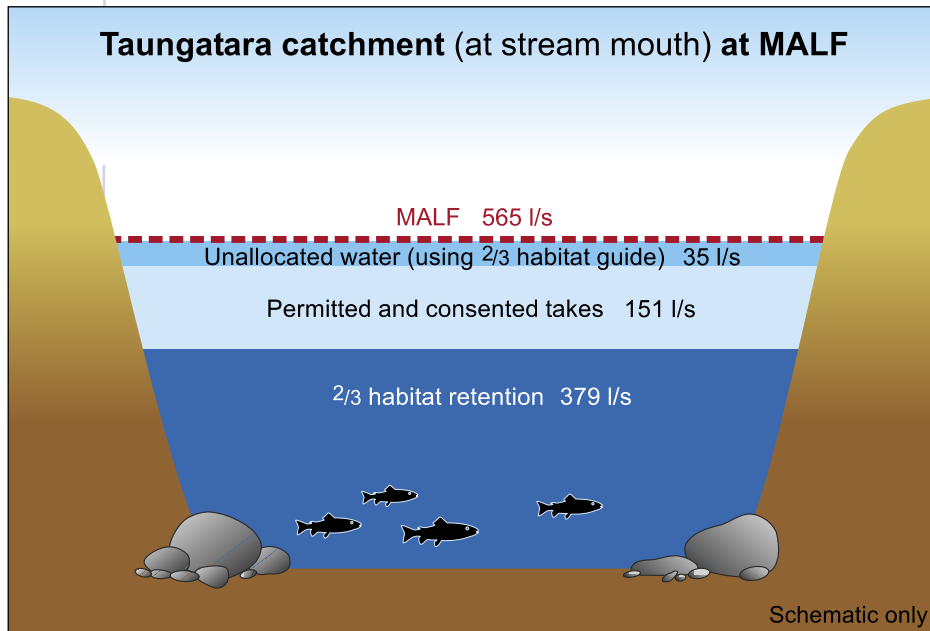
At MALF, if the 2/3 habitat guide is applied to the Taungatara catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 283 and 396 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 379 l/s. This leaves 186 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 151 l/s has been allocated (or 27% of MALF). This means that only 35 l/s (or 6% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Unallocated water below MALF but nearing full allocation**

Taungatara catchment				
Estimated Natural median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
955 l/s	565 l/s	379 l/s	151 l/s	35 l/s
% of natural MALF		67%	27%	6%



# Te Henui catchment

**Catchment No: 391 000**

## General description

The Te Henui Stream and its tributaries have a catchment area of 29 km<sup>2</sup>. The Te Henui catchment's headwaters lie on the lower northern slopes of Mount Taranaki. The small stream and its tributaries meander through the Egmont National Park and farmland on the ring plain, through the New Plymouth urban area and finally enter the Tasman Sea.

The Te Henui catchment is highly rated for its recreational, aesthetic and scenic values and is a locally important trout fishery and angling river. The catchment also contains threatened native fish species.

## Current consumptive uses

Total consumptive use in the Te Henui catchment is 13 l/s. Two consents, totalling 10 l/s, have been granted to take surface water from the catchment:

- golf course irrigation (5 l/s)
- horticultural irrigation (5 l/s).

Both of the consented takes are located mid catchment, upstream of the New Plymouth urban area.

In addition, approximately 3 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Te Henui catchment is 750 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Te Henui catchment is 160 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Te Henui catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 80 and 112 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 107 l/s. This leaves 53 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

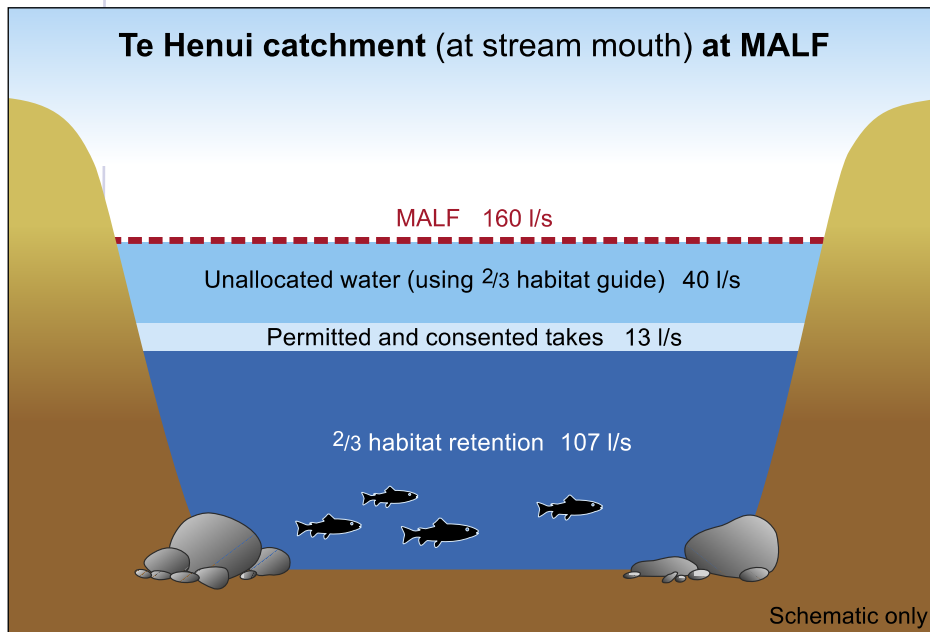
Of the water that is potentially available for consumptive use, 13 l/s has been allocated (8% of MALF). This means that 40 l/s (25% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Te Henui catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
750 l/s	160 l/s	107 l/s	13 l/s	40 l/s
% of natural MALF		67%	8%	25%



# Timaru catchment

**Catchment No: 384 000**

## General description

The Timaru Stream and its tributaries have a catchment area of 31 km<sup>2</sup>. The Timaru catchment's headwaters lie on the southern and western slopes of the Kaitake Ranges and the north-western slopes of the Pouakai Ranges.

The small stream and its tributaries meander through the Egmont National Park and farmland on the north-western ring plain and enter the Tasman Sea south of Oakura.

The Timaru catchment is highly rated as an angling river and for its recreational, aesthetic and scenic values. Its tributaries provide important habitat for threatened indigenous aquatic species. The catchment is also locally important for its whitebait fishing.

## Current consumptive uses

Total consumptive use in the Timaru catchment is 14 l/s. One consent has been granted to take surface water from the Timaru Stream. This is to take 4.4 l/s of water for pasture irrigation purposes.

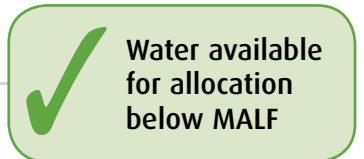
In addition, approximately 10 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Timaru catchment is 1,110 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Timaru catchment is 420 l/s at the stream mouth.

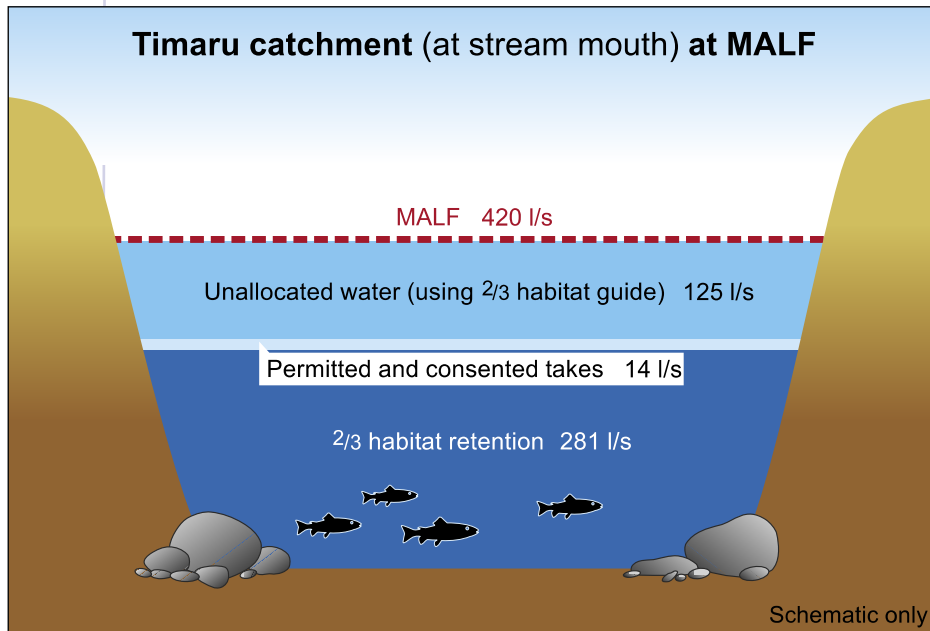
At MALF, if the 2/3 habitat guide is applied to the Timaru catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 210 and 294 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 281 l/s. This leaves 139 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, only 14 l/s has been allocated (3% of MALF). This means that 125 l/s (30% of MALF) of water is unallocated and potentially available for further consumptive uses.





Timaru catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,110 l/s	420 l/s	281 l/s	14 l/s	125 l/s
% of natural MALF		67%	3%	30%



# Urenui catchment

**Catchment No: 399 000**

## General description

The Urenui River and its tributaries have a catchment area of 133 km<sup>2</sup>. The Urenui catchment's headwaters lie in the northern frontal hill country. The river and its tributaries meander through the forested, scrubland and pastoral areas of the frontal hill country and the northern coastal marine terraces and enter the Tasman Sea just north of the Urenui township.

The Urenui catchment has high ecological values – particularly in the upper reaches. The catchment contains a good diversity of indigenous aquatic fauna including eels, whitebait, bullies and torrent fish. It is also highly rated for its recreational (particularly whitebaiting), aesthetic and scenic values.

## Current consumptive uses

No consents have been granted to take surface water from the Urenui catchment. Consumptive use in the catchment is confined to 2 l/s, which is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The natural mean annual low flow (MALF) for the Urenui catchment is 200 l/s at the stream mouth.

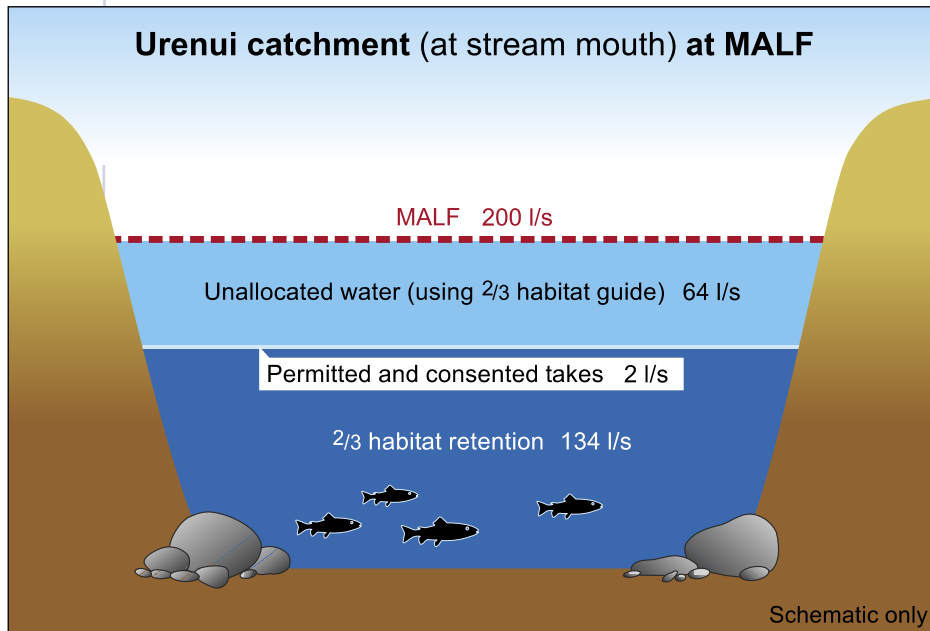
At MALF, if the 2/3 habitat guide is applied to the Urenui catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 100 and 140 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 134 l/s. This leaves 66 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, only 2 l/s has been allocated (1% of MALF). This means that 64 l/s (32% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Urenui catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
Insufficient Data	200 l/s	134 l/s	2 l/s	64 l/s
<b>% of natural MALF</b>		67%	1%	32%



# Waiaua catchment

**Catchment No: 364 000**

## General description

The Waiaua Stream and its tributaries have a catchment area of 45 km<sup>2</sup>. The catchment's headwaters lie on the upper south-western slopes of Mount Taranaki. It meanders through the Egmont National Park and farmland on the western ring plain, and finally enters the Tasman Sea at the Opunake township.

## Current consumptive uses

Total consumptive use in the Waiaua catchment is 3,946 l/s. Two consents, totalling 3,942 l/s, have been granted to take surface water from the catchment:

- NZ Energy hydroelectric generation (3,900 l/s)
- urban water supply for Opunake (42.2 l/s).

These consented takes are concentrated in the mid and lower reaches of the catchment.

In addition, approximately 4 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The natural mean annual low flow (MALF) for the Waiaua catchment is 1,100 l/s at the State Highway 45 (SH45) bridge.

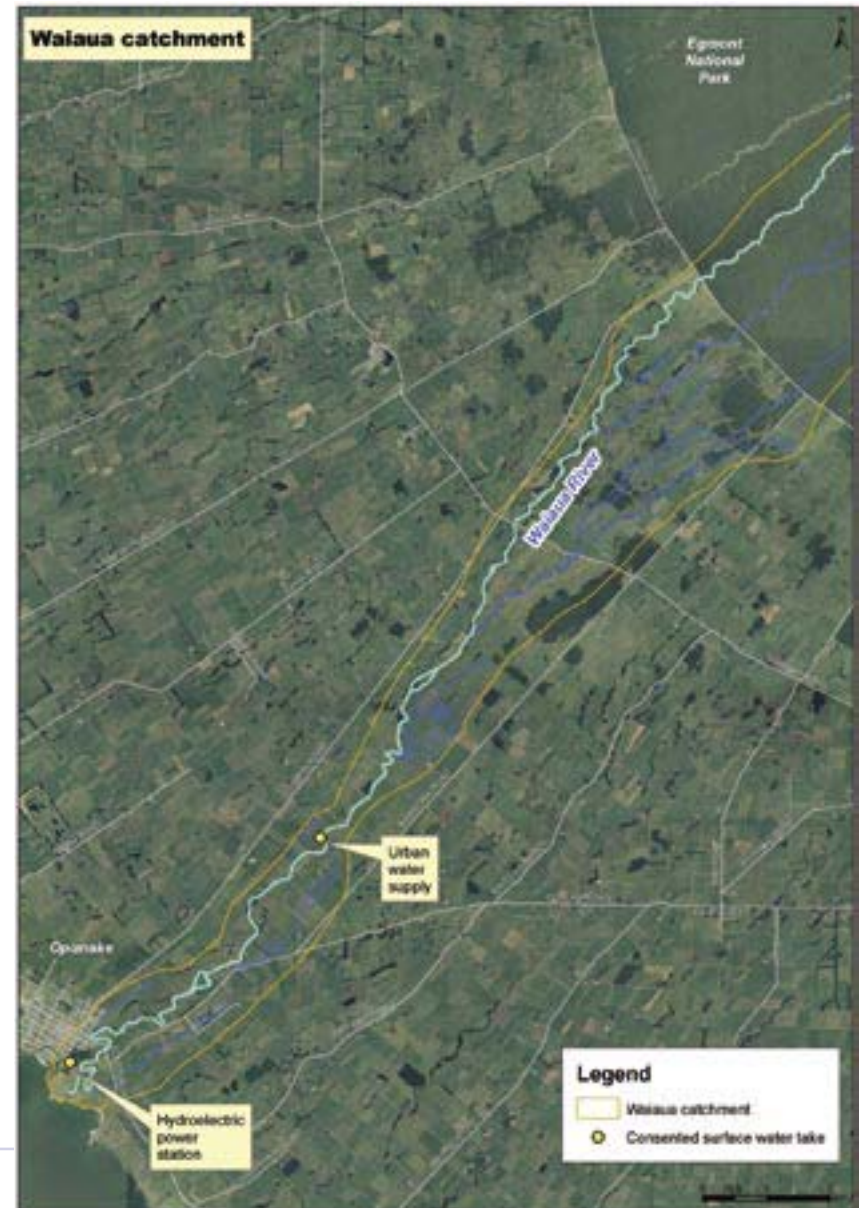
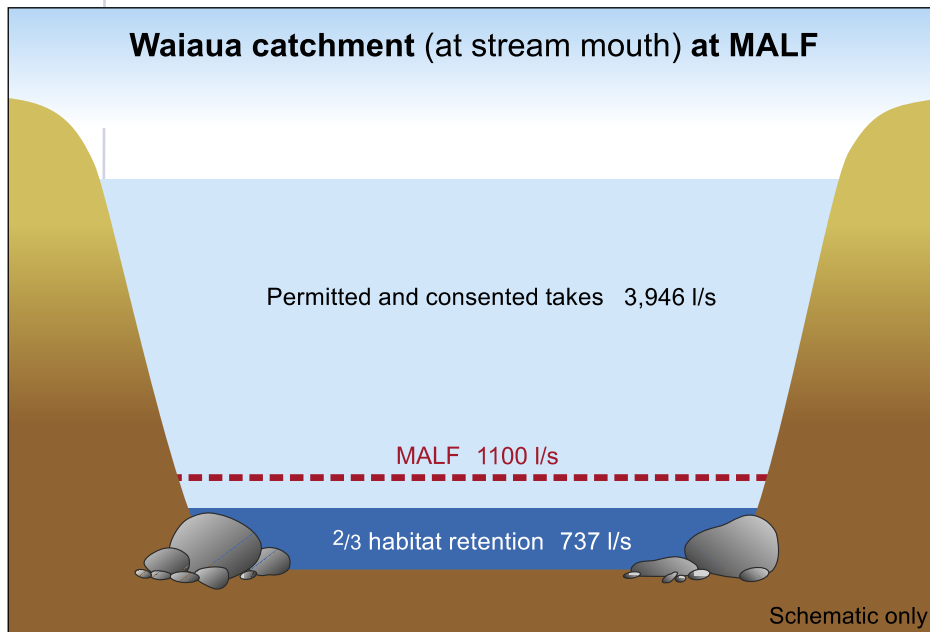
At MALF, if the 2/3 habitat guide is applied to the Waiaua catchment at the SH45 bridge, then the quantity of water set aside to maintain instream habitat may vary between 550 and 770 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 737 l/s. This leaves 363 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 3,946 l/s has been allocated (359% of MALF). This means that theoretically the Waiaua catchment has been over allocated by 3,583 l/s and does not meet the 2/3 habitat guide. The catchment is affected by the Opunake hydroelectric power scheme near the mouth of the stream, which directs water from the stream below the SH45 bridge to Lake Opunake and then into the sea. This longstanding abstraction provides other benefits to the community and is required to maintain a residual flow of 100 l/s through and downstream of their fish pass as part of their consent conditions.

 **Fully allocated at MALF**



Waiaua catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
Insufficient Data	1,100 l/s	737 l/s	3,946 l/s	(-3,583 l/s)
% of natural MALF		67%	359%	0%



# Waingongoro catchment (at the river mouth)

**Catchment No: 350 000**

## General description

The Waingongoro River and its tributaries (including the Mangatoki Stream) have a catchment area of 219 km<sup>2</sup>. The catchment's headwaters lie on the upper south-eastern slopes of Mount Taranaki. The river and its tributaries meander through the Egmont National Park and farmland on the ring plain, past Stratford, through Eltham and finally enter the Tasman Sea at Ohawe.

The Waingongoro catchment is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. The catchment is highly rated for its recreational, aesthetic and scenic values. It is a highly popular and valued angling river.

## Current consumptive uses

Total consumptive use in the Waingongoro catchment is 322 l/s. Ten consents, totalling 250 l/s, have been granted to take surface water from the catchment:

- South Taranaki District Council for Eltham municipal water supply purposes (47 l/s unrestricted, 17 l/s restricted)
- Shingle washing purposes (x2) (6 l/s total)
- Balance Agri-nutrients for operation of the ammonia urea plant at Kapuni (100 l/s)
- South Taranaki District Council for Inaha rural water supply purposes (x3) (59 l/s total)
- Riverlands Eltham (10 l/s)
- pasture irrigation (x2) (28 l/s total).

In addition, approximately 72 l/s of surface water is taken from the Waingongoro catchment for permitted uses involving small takes of water.


## Water allocation and minimum flow

The observed median flow (ie, flow that occurs 50% of the time) of the Waingongoro catchment at the river mouth is 5,150 l/s. The natural mean annual low flow (MALF) for the Waingongoro catchment at the river mouth is 1,511 l/s.

At MALF, if the 2/3 habitat guide is applied to the Waingongoro catchment at the river mouth, then the quantity of water set aside to maintain instream habitat is 740 l/s (49% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 771 l/s (51% of MALF) that is potentially available for consumptive uses at MALF.

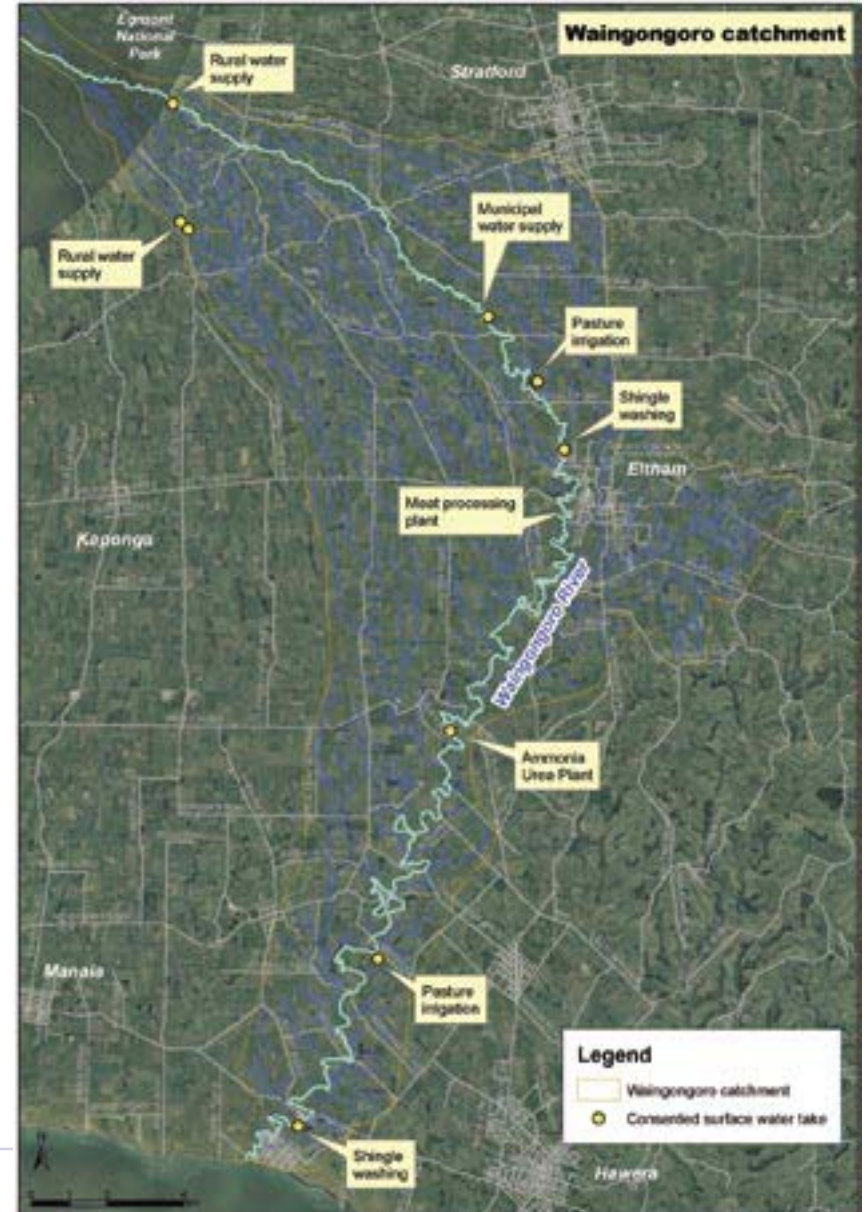
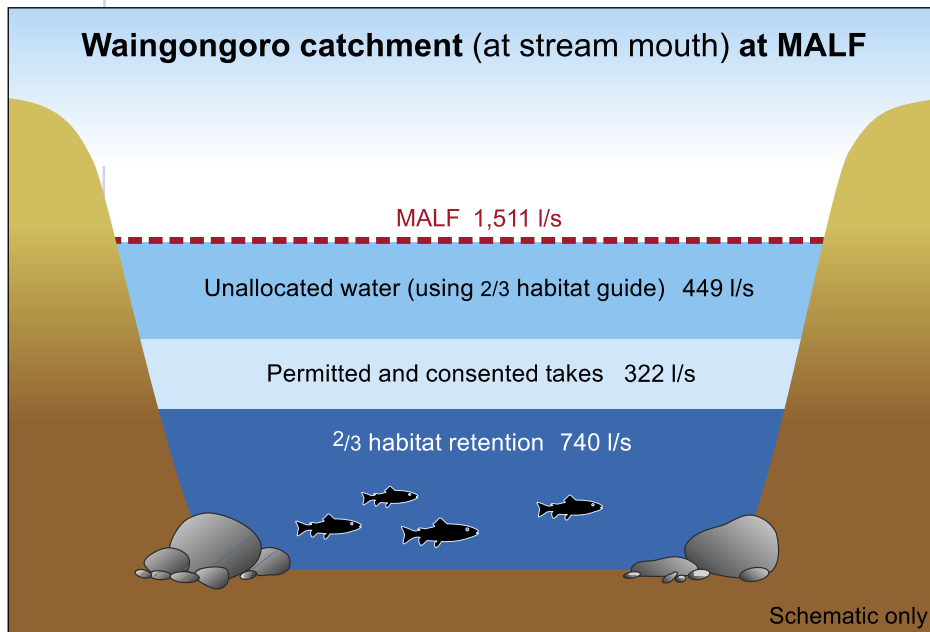
Of the water that is potentially available for consumptive use, 322 l/s has been allocated (21% of MALF). This means that 449 l/s (30% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Waingongoro catchment is identified as having regionally significant natural values and already experiences relatively high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Waingongoro catchment.

 **Unallocated water below MALF but further takes to be strictly limited**



Waingongoro catchment (at stream mouth)				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
5,150 l/s	1,511 l/s	740 l/s	322 l/s	449 l/s
% of natural MALF		49%	21%	30%



# Waingongoro catchment (at Eltham Road)

**Catchment No: 350 000**

## General description

The Waingongoro River and its tributaries, upstream of Eltham Road, have a catchment area of 14 km<sup>2</sup>. The catchment's headwaters lie on the upper south-eastern slopes of Mount Taranaki. The river and its tributaries meander through the Egmont National Park and farmland on the ring plain, past Stratford and through Eltham.

The Waingongoro catchment is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. The catchment is highly rated for its recreational, aesthetic and scenic values. It is a highly popular and valued angling river.

## Current consumptive uses

Total consumptive use in the Waingongoro catchment upstream of the Eltham Road gauging site is 99 l/s. Four consents, totalling 79 l/s, have been granted to take surface water from the catchment:

- South Taranaki District Council for Eltham municipal water supply purposes (47 l/s unrestricted, 17 l/s restricted)
- shingle washing purposes (2 l/s)
- South Taranaki District Council for Inaha rural water supply purposes (30 l/s)
- pasture irrigation (in/out system).

In addition, approximately 20 l/s of surface water is taken from the Waingongoro catchment upstream of Eltham Road for permitted uses involving small takes of water.


## Water allocation and minimum flow

The observed median flow (ie, flow that occurs 50% of the time) of the Waingongoro catchment upstream of Eltham Road is 1,765 l/s. The natural mean annual low flow (MALF) for the Waingongoro catchment upstream of Eltham Road is 530 l/s.

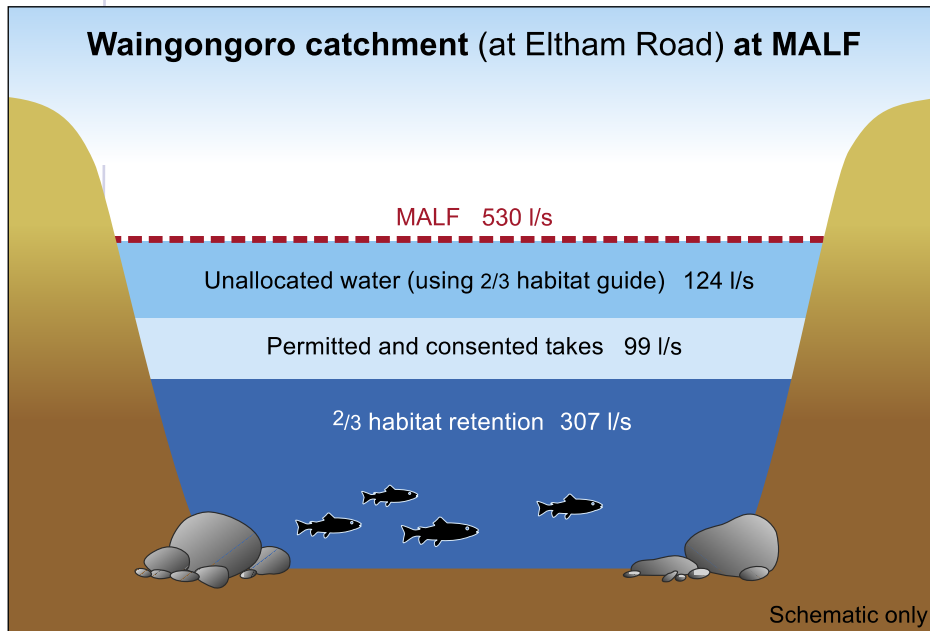
At MALF, if the 2/3 habitat guide is applied to the Waingongoro catchment at Eltham Road, then the quantity of water set aside to maintain instream habitat is 307 l/s (58% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 220 l/s (42% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 99 l/s has been allocated (19% of MALF). This means that 124 l/s (23% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Waingongoro catchment is identified as having regionally significant natural values and already experiences relatively high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Waingongoro catchment.

 **Unallocated water below MALF but further takes to be strictly limited**

Waingongoro catchment (at Eltham Road)				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,765 l/s	530 l/s	307 l/s	99 l/s	124 l/s
% of natural MALF		58%	19%	23%



# Waiongana catchment

**Catchment No: 394 000**

## General description

The Waiongana River and its tributaries have a catchment area of 159 km<sup>2</sup>. The catchment's headwaters drain the north-eastern slopes of Mount Taranaki.

The small river and its tributaries meander through the Egmont National Park and farmland on the ring plain, and enter the Tasman Sea east of Waitara.

The Waiongana catchment is recognised in policies in the *Regional Fresh Water Plan for Taranaki* as having high natural values. The catchment is highly rated for its recreational values (including whitebaiting). It is a highly popular and valued angling river.

## Current consumptive uses

Total consumptive use in the Waiongana catchment is 190 l/s. Eleven consents, totalling 150 l/s, have been granted to take surface water from the catchment:

- New Plymouth District Council for Waitara industrial water supply purposes (110 l/s)
- intermittent speedway track watering (15 l/s)
- golf course irrigation (5 l/s)
- aggregate washing for Winstone Aggregates Ltd (5 l/s)
- horticulture irrigation (x4) (12 l/s total)
- sawmill and timber treatment plant operations (1.1 l/s)
- piggery operation (1 l/s)
- poultry farm watering (0.7 l/s).

In addition, approximately 40 l/s of surface water is taken from the Waiongana catchment for permitted uses involving small takes of water.


## Water allocation and minimum flow

The observed median flow (ie, flow that occurs 50% of the time) of the Waiongana catchment at the river mouth is 4,045 l/s. The natural mean annual low flow (MALF) for the Waiongana catchment at the river mouth is 965 l/s.

At MALF, if the 2/3 habitat guide is applied to the Waiongana catchment at the river mouth, then the quantity of water set aside to maintain instream habitat is 444 l/s (46% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 521 l/s (54% of MALF) that is potentially available for consumptive uses at MALF.

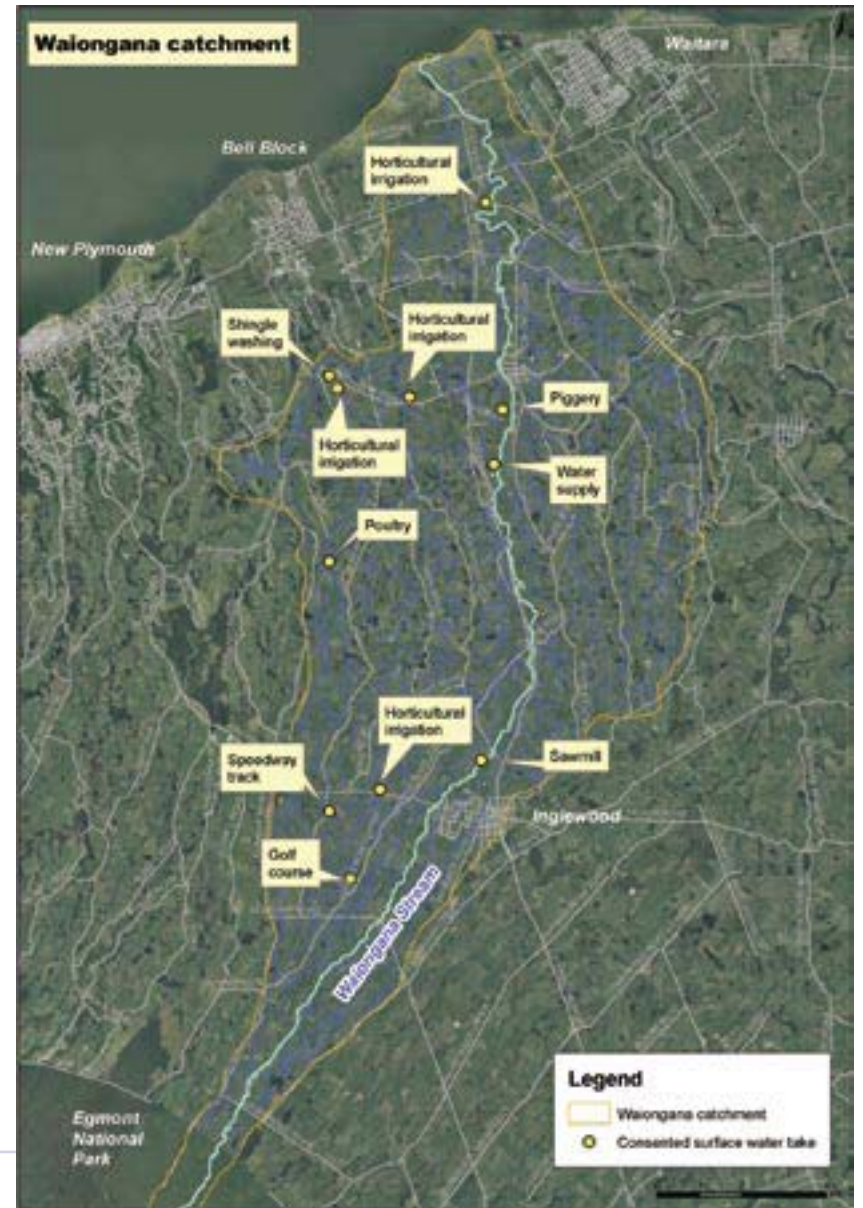
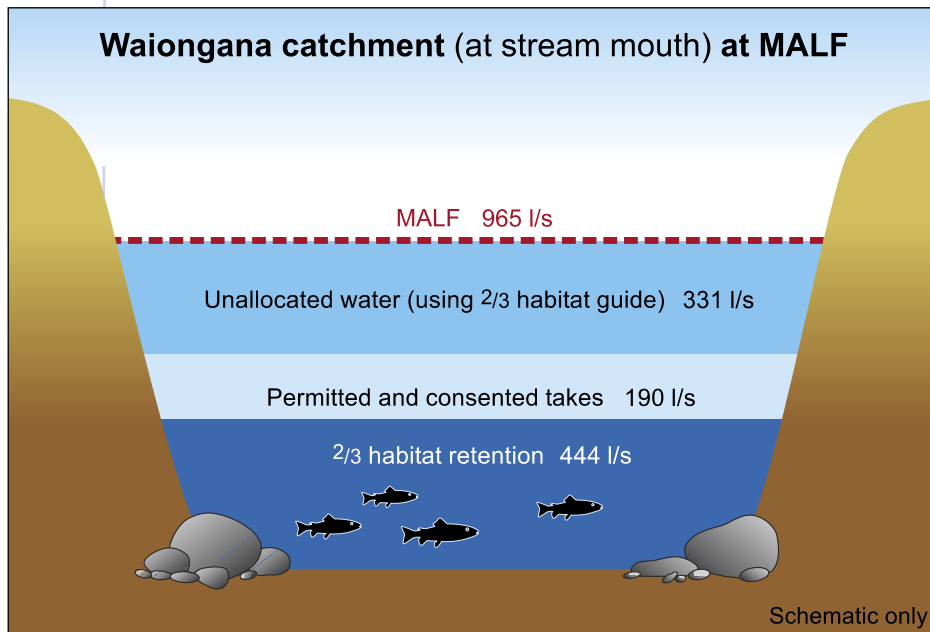
Of the water that is potentially available for consumptive use, 190 l/s has been allocated (20% of MALF). This means that 331 l/s (34% of MALF) of water is unallocated and potentially available for further consumptive uses.

Note: The Waiongana catchment is identified as having regionally significant natural values and already experiences relatively high levels of consumptive use. Existing takes below MALF have been allowed based upon the 2/3 habitat guide. However, additional takes of water are likely to be strictly limited in recognition of the high natural values of the Waiongana catchment.

 **Unallocated water below MALF but further takes to be strictly limited**



Waiongana catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
4,045 l/s	965 l/s	444 l/s	190 l/s	331 l/s
% of natural MALF		46%	20%	34%





# Wairoa catchment

**Catchment No: 340 000**

## General description

The Wairoa Stream and its tributaries have a catchment area of 33 km<sup>2</sup>. The small catchment's headwaters lie south of the Waverley township. It meanders through farmland on the southern coastal marine terraces and enters the Tasman Sea.

## Current consumptive uses

Total consumptive use in the Wairoa catchment is 267 l/s. Two consents, totalling 265 l/s, have been granted to take surface water from the catchment for pasture irrigation purposes.

These consented takes are concentrated in the mid and lower reaches of the catchment.

In addition, approximately 2 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

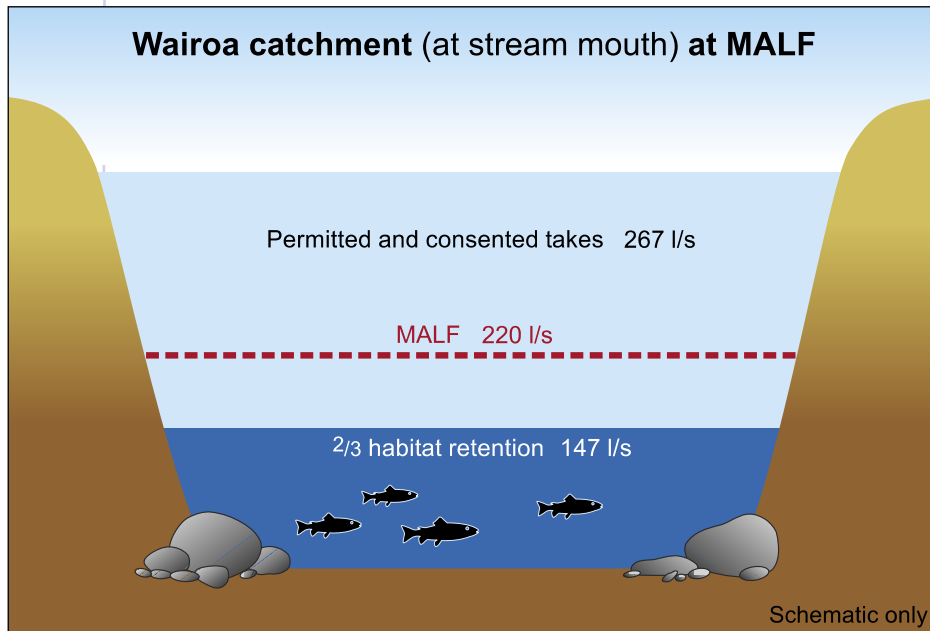
The estimated median flow (ie, flow that occurs 50% of the time) of the Wairoa catchment is 450 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Wairoa catchment is 220 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Wairoa catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 110 and 154 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 147 l/s. This leaves 73 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 267 l/s has been allocated (121% of MALF). This means that theoretically the Wairoa catchment has been over allocated by 194 l/s and does not meet the 2/3 habitat guide. The catchment is affected by two large pasture irrigation systems. Consent restrictions apply that require abstractors to cease taking water in order to maintain a 50 l/s residual flow.

 **Fully allocated at MALF**

Wairoa catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
450 l/s	220 l/s	147 l/s	267 l/s	-194 l/s
% of natural MALF		67%	121%	0%



# Waitara catchment

**Catchment No: 395 000**

## General description

The Waitara River has the second largest catchment area in Taranaki – 1,146 km<sup>2</sup>. The catchment drains the north-eastern slopes of Mount Taranaki and large portions of the eastern hill country.

The river and its tributaries meander through the Egmont National Park and farmland on the ring plain, frontal and inland hill country and the northern coastal marine terraces and enter the Tasman Sea at the Waitara township.

It is the parent catchment of the Manganui River, the Maketawa River and the Ngatoro Stream which are also addressed in this Guide. The Maketawa and Manganui sub-catchments are recognised in the *Regional Fresh Water Plan for Taranaki* as having high natural values for which special rules apply. The Waitara catchment is a very popular and highly valued angling catchment and highly rated for its recreational, aesthetic and scenic values.

## Current consumptive uses

Total consumptive use in the Waitara catchment is 483 l/s. Fifteen consents, totalling 418 l/s, have been granted to take surface water from the catchment:

- Methanex Methanol plant (70 l/s)
- Methanex Motunui plant (130 l/s)
- New Plymouth District Council for Inglewood community water supply purposes (x2) (75 l/s total from the Ngatoro Stream)
- Stratford District Council for Midhirst community water supply purposes (5 l/s from the Te Popo Stream)
- shingle and aggregate washing (x2) (12.8 l/s total)
- Shell Todd Oil Services Ltd – for water flooding and hydrostatic testing purposes (x2) (71 l/s total)

- Waitara Golf Club (3.7 l/s)
- farm reticulation (2 l/s from the Manganui River)
- horticulture irrigation (x2) (4.1 l/s total)
- nursery irrigation (2.3 l/s)
- pasture irrigation (42 l/s from the Manganui River)
- TrustPower hydroelectric generation (in/out system).

Most of the takes are concentrated downstream at or near the coast or in the western parts of the catchment.

In addition, approximately 65 l/s of surface water is taken from the Waitara catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

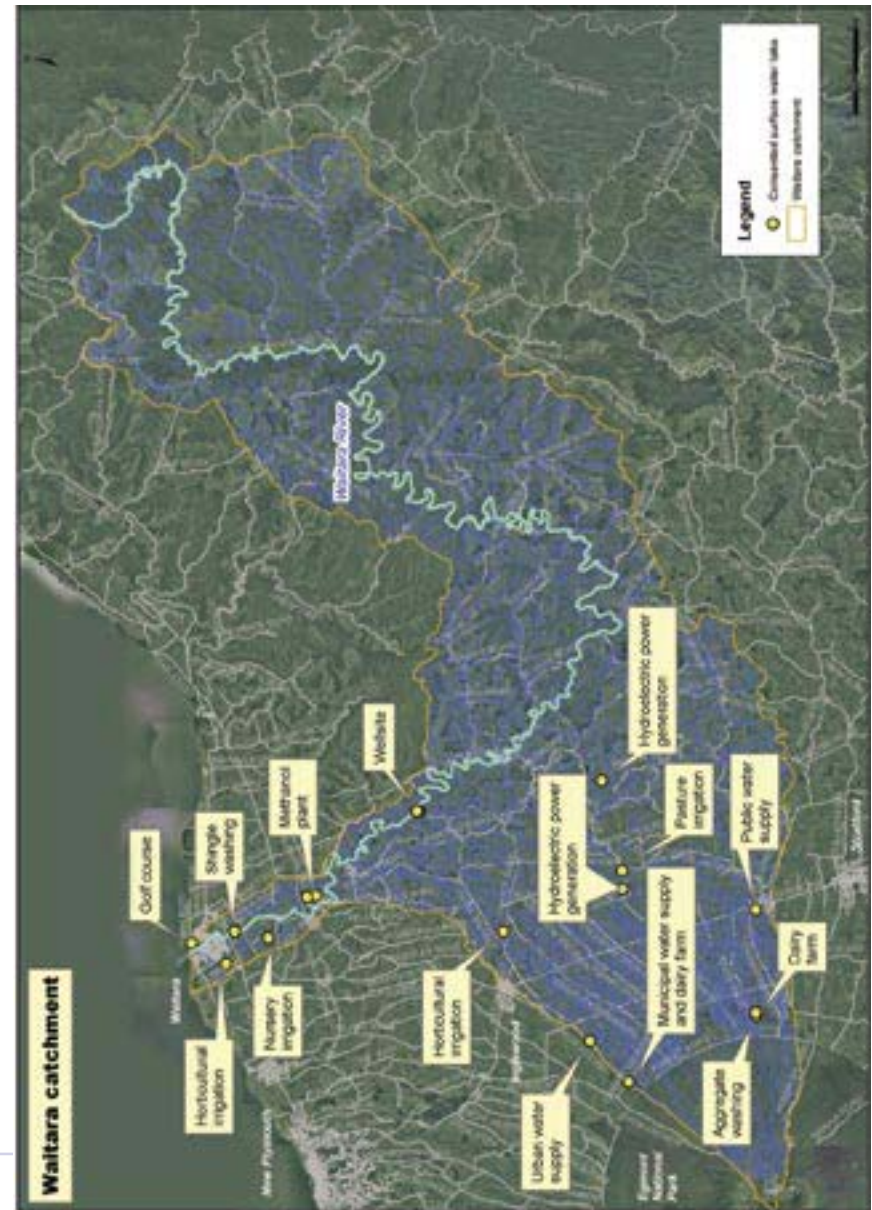
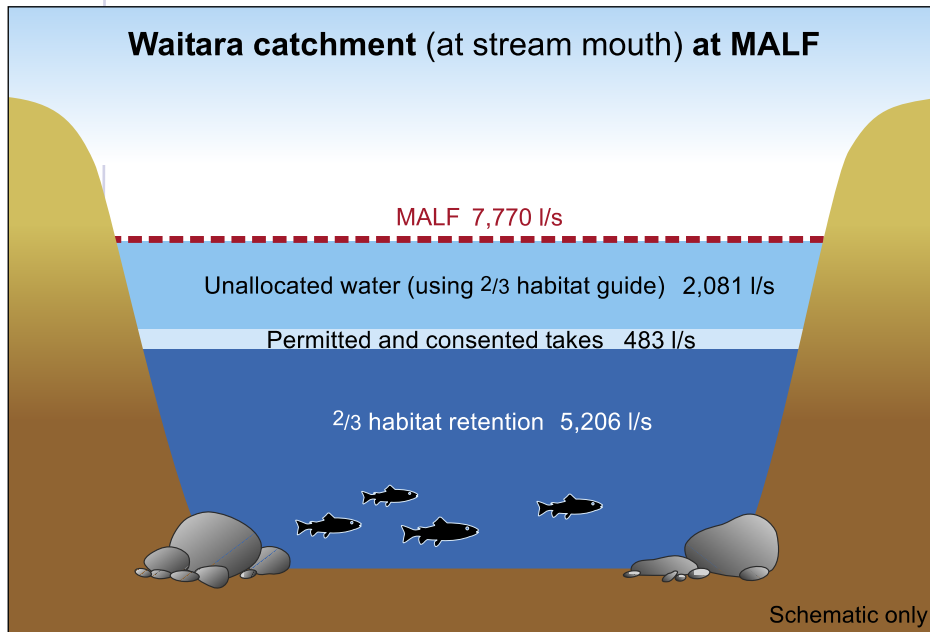
The natural median flow (ie, flow that occurs 50% of the time) of the Waitara catchment at the stream mouth is 32,223 l/s. The natural mean annual low flow (MALF) for the Waitara catchment at stream mouth is 7,770 l/s.

At MALF, if the 2/3 habitat guide is applied to the Waitara catchment at the river mouth, then the quantity of water set aside to maintain instream habitat may vary between 3,885 and 5,439 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 5,206 l/s. This leaves 2,564 l/s (33% of MALF) that is potentially available for consumptive uses at MALF. Of that 2,564 l/s, 483 l/s has been allocated (6% of MALF). This means that 2,081 l/s (27% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Waitara catchment				
Natural median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
32,223 l/s	7,770 l/s	5,206 l/s	483 l/s	2,081 l/s
% of natural MALF		67%	6%	27%



# Waitotara catchment

**Catchment No: 339 000**

## General description

The Waitotara River has the largest catchment area in Taranaki – 1,183 km<sup>2</sup>. The catchment drains large portions of the eastern hill country and the southern coastal marine terraces and enters the Tasman Sea after passing through the Waitotara township.

The Waitotara catchment is highly rated for whitebaiting and the estuary is identified in the *Regional Coastal Plan for Taranaki* as being an area of outstanding coastal value.

## Current consumptive uses

Total consumptive use in the Waitotara catchment is 12 l/s. One consent has been granted for the South Taranaki District Council to take 7 l/s of surface water from the Ohie Stream for the Nukumarū Community Rural Water Supply Scheme.

In addition, approximately 5 l/s of surface water is taken from the Waitotara catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Waitotara catchment at the stream mouth is 16,000 l/s. The natural mean annual low flow (MALF) for the Waitotara catchment at the stream mouth is 6,478 l/s.

At MALF, if the 2/3 habitat guide is applied to the Waitotara catchment at the river mouth, then the quantity of water set aside to maintain instream habitat may vary between 3,239 and 4,535 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 4,340 l/s. This leaves 2,138 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

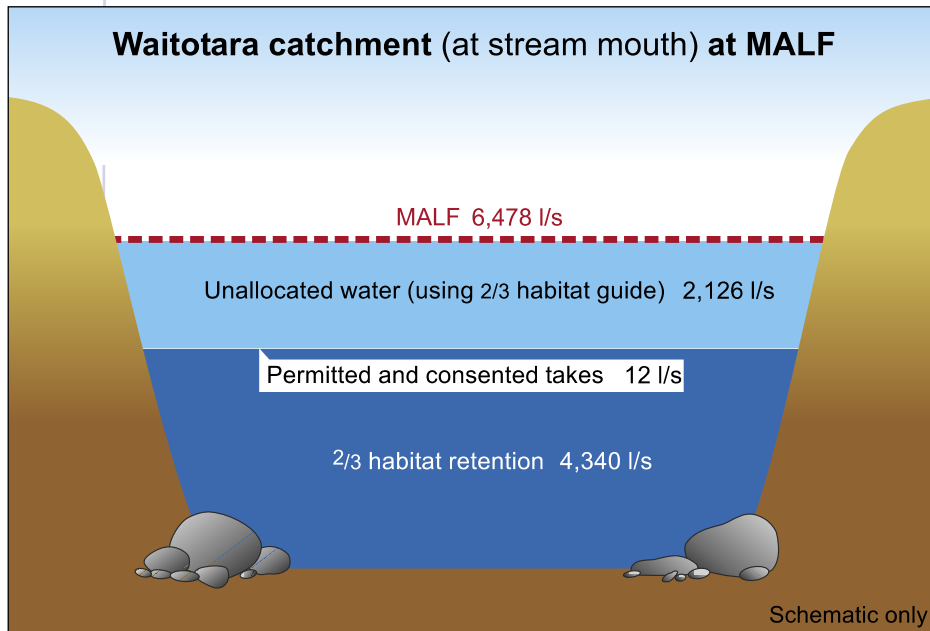
Of the water that is potentially available for consumptive use, 12 l/s has been allocated (0.2% of MALF). This means that 2,126 l/s (33% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**



Waitotara catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
16,000 l/s	6,478 l/s	4,340 l/s	12 l/s	2,126 l/s
% of natural MALF		67%	0.2%	33%



# Waiweranui catchment

**Catchment No: 378 000**

## General description

The Waiweranui Stream and its tributaries have a catchment area of 19 km<sup>2</sup>. The small catchment's headwaters drain the western slopes of Mount Taranaki. The stream and its tributaries meander through the Egmont National Park and farmland on the western ring plain and enter the Tasman Sea south of Okato.

The Waiweranui catchment provides valuable habitat for indigenous aquatic species.

## Current consumptive uses

Total consumptive use in the Waiweranui catchment is 155 l/s. One consent has been granted to take 150 l/s of surface water from the catchment for pasture irrigation purposes.

In addition, approximately 5 l/s of surface water is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

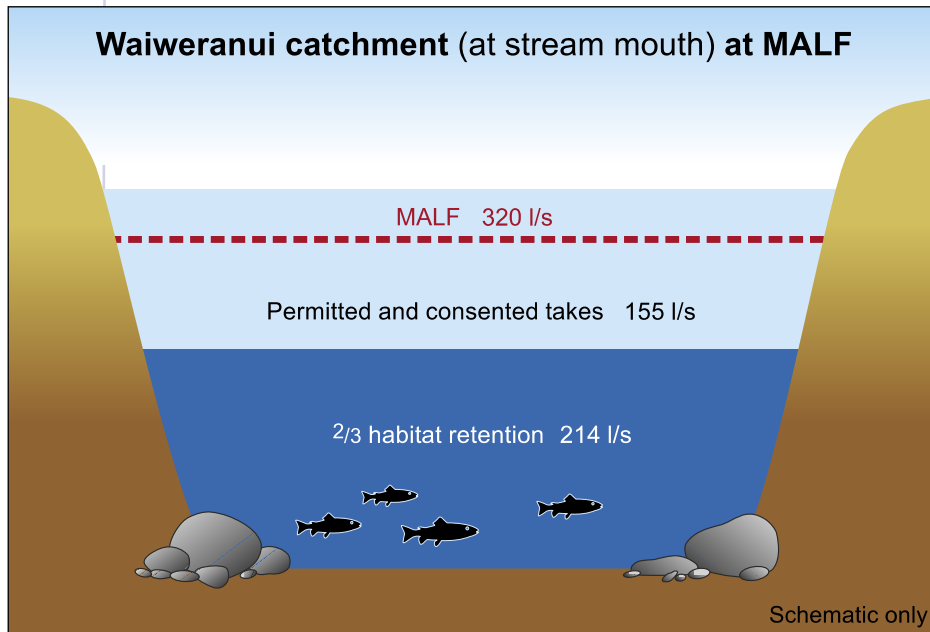
The estimated median flow (ie, flow that occurs 50% of the time) of the Waiweranui catchment is 570 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Waiweranui catchment is 320 l/s at the stream mouth.

At MALF, if the 2/3 habitat guide is applied to the Waiweranui catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 160 and 224 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 214 l/s. This leaves 106 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 155 l/s has been allocated (48% of MALF). This means that theoretically the Waiweranui catchment has been over allocated by 49 l/s and does not meet the 2/3 habitat guide. The catchment is affected by a large pasture irrigation system, which has consent restrictions requiring the abstractor to not take more than 50% of the flow.

 **Fully allocated at MALF**

Waiweranui catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
570 l/s	320 l/s	214 l/s	155 l/s	(-49 l/s)
% of natural MALF		67%	48%	0%



# Waiwhakaiho River

**Catchment No: 392 000**

## General description

The Waiwhakaiho River has a catchment area of 145 km<sup>2</sup>. The catchment's headwaters drain the north-eastern slopes of Mount Taranaki and the Pouakai Ranges. The river meanders through farmland on the northern ring plain, through the New Plymouth urban area and finally enters the Tasman Sea.

The Waiwhakaiho catchment is recognised in the *Regional Fresh Water Plan for Taranaki* as having high natural values. It is a very popular and highly valued angling catchment and highly rated for its other recreational, values. The Waiwhakaiho catchment also provides valuable habitat for native fish species.

## Current consumptive uses

Total consumptive use in the Waiwhakaiho catchment is 7,791 l/s. Four consents, totalling 7,774 l/s have been granted to take surface water from the catchment:

- Mangorei hydroelectricity power generation (7,000 l/s)
- New Plymouth municipal water supply (740 l/s)
- New Plymouth Golf Club (22 l/s).

These consented takes lie in the mid and lower parts of the catchment.

In addition, approximately 17 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated natural median flow (ie, flow that occurs 50% of the time) of the Waiwhakaiho catchment is 6,400 l/s at the stream mouth. The natural mean annual low flow (MALF) for the Waiwhakaiho catchment is 2,896 l/s at the stream mouth.

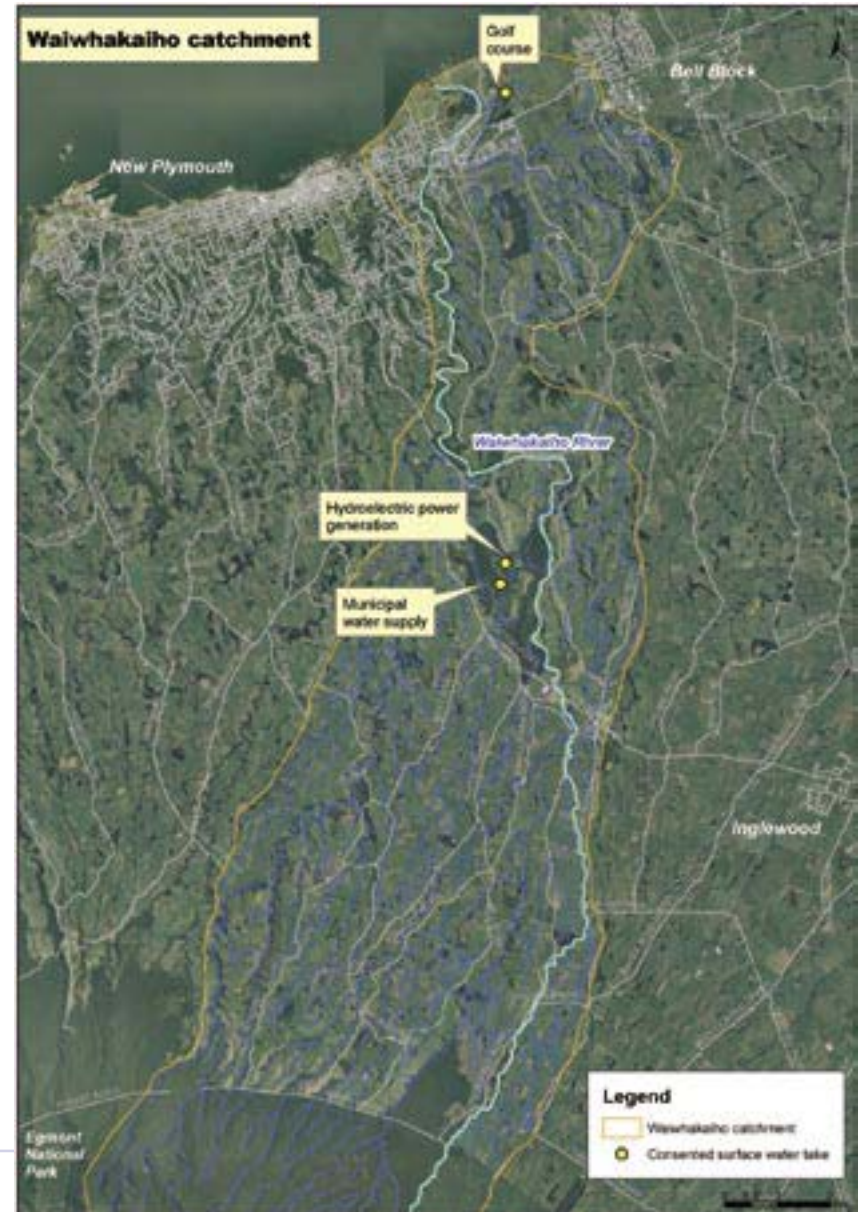
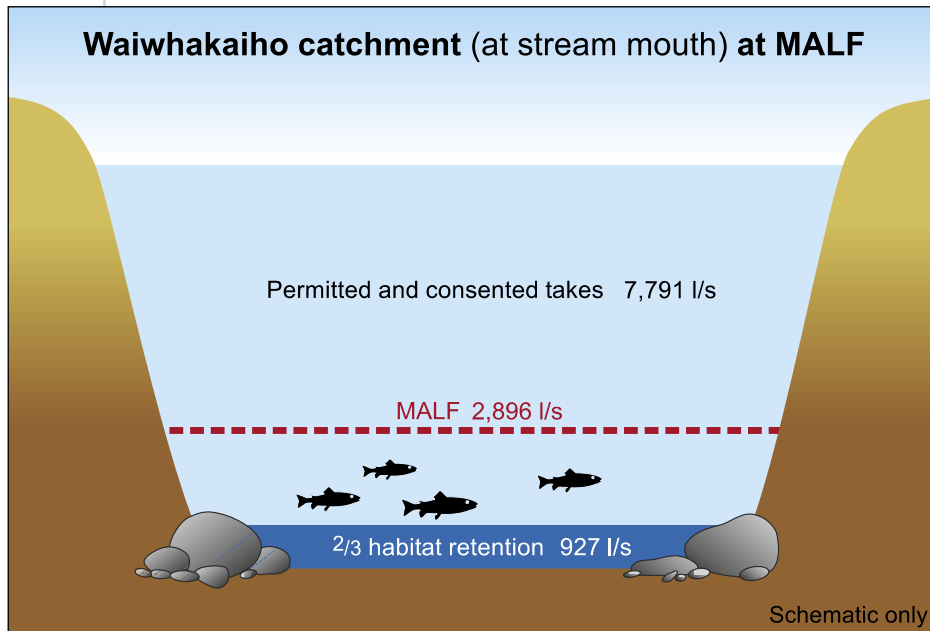
At MALF, if the 2/3 habitat guide is applied to the Waiwhakaiho at the river mouth, then the quantity of water set aside to maintain instream habitat is 927 l/s (32% of MALF). This calculation, which is based upon catchment-specific instream habitat assessment work, leaves 1,969 l/s (68% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 7,791 l/s has been allocated (269% of MALF). This means that theoretically the Waiwhakaiho catchment has been over allocated by 5,822 l/s and does not meet the 2/3 habitat guide. The catchment is affected by the Mangorei Power Scheme, which directs water from the river to Lake Mangamahoe and then back into the river approximately 6km downstream. This longstanding abstraction provides other benefits to the community and is required to maintain a residual flow of at least 400 l/s as part of their consent conditions.

 **Fully allocated at MALF**



Waiwhakaiho catchment				
Estimated Natural median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
6,400 l/s	2,896 l/s	927 l/s	7,791 l/s	(-5,822 l/s)
% of natural MALF		32%	269%	0%





# Warea (Teikaparua) catchment

**Catchment No: 377 000**

## General description

The Warea (Teikaparua) Stream and its tributaries have a catchment area of 32 km<sup>2</sup>. The catchment headwaters drain the upper western slopes of Mount Taranaki. The catchment meanders through the Egmont National Park and farmland on the western ring plain, and enters the Tasman Sea north of the Pungareahu township. The catchment provides important habitat for indigenous fish species.

## Current consumptive uses

Consumptive use in the catchment is confined to 7 l/s, which is taken for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Warea catchment at the stream mouth is 1,050 l/s. The natural mean annual low flow (MALF) for the Warea catchment at the stream mouth is 360 l/s.

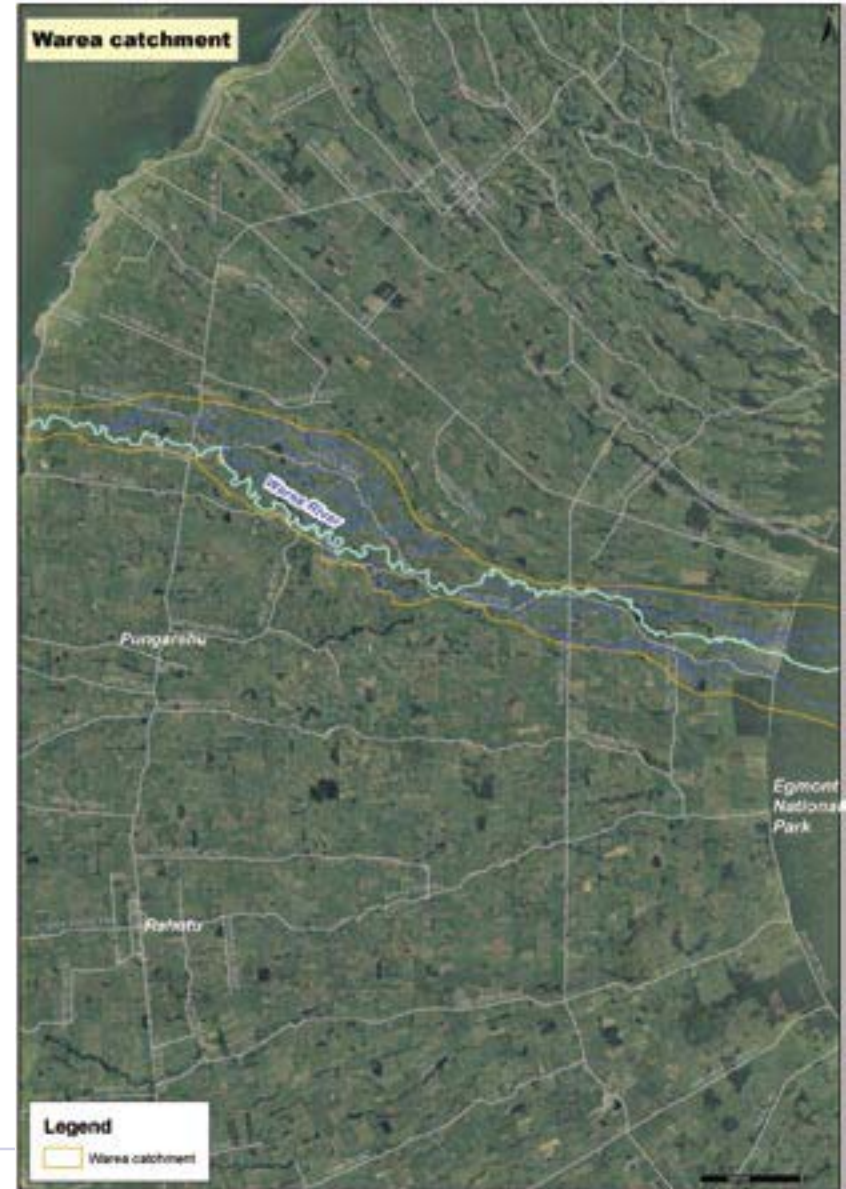
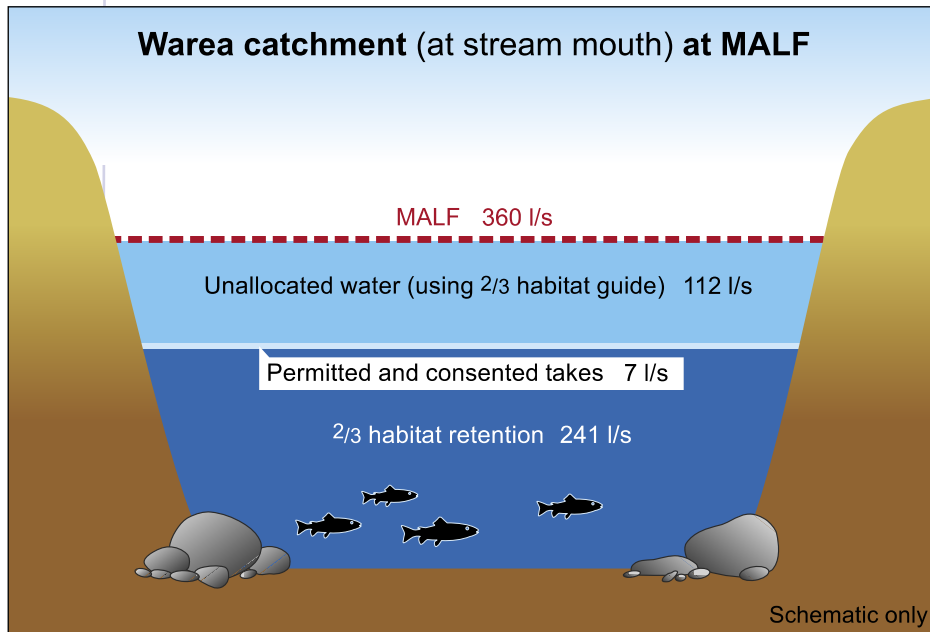
At MALF, if the 2/3 habitat guide is applied to the Warea catchment at the stream mouth, then the quantity of water set aside to maintain instream habitat may vary between 180 and 252 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 241 l/s. This leaves 119 l/s (33% of MALF) that is potentially available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 7 l/s has been allocated (2% of MALF). This means that 112 l/s (31% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Warea catchment				
Estimated median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
1,050 l/s	360 l/s	241 l/s	7 l/s	112 l/s
% of natural MALF		67%	2%	31%



# Whenuakura catchment

**Catchment No: 342 000**

## General description

The Whenuakura River and its tributaries has a catchment area of 469 km<sup>2</sup>. The catchment drains large portions of the eastern hill country and the southern coastal marine terraces and enters the Tasman Sea south of the Patea township.

The Whenuakura catchment is highly rated for whitebaiting and the estuary is identified in the *Regional Coastal Plan for Taranaki* as being an area of outstanding coastal value.

## Current consumptive uses

Total consumptive use in the Whenuakura catchment is 212 l/s. Five consents, totalling 201 l/s have been granted to take surface water from the catchment for pasture irrigation purposes.

These consented takes lie in the mid and lower parts of the catchment.

In addition, approximately 11 l/s of surface water is taken from the catchment for permitted uses involving small takes of water.

## Water allocation and minimum flow

The estimated median flow (ie, flow that occurs 50% of the time) of the Whenuakura catchment at the river mouth is 5,670 l/s. The natural mean annual low flow (MALF) for the Whenuakura catchment at the stream mouth is 2,000 l/s.

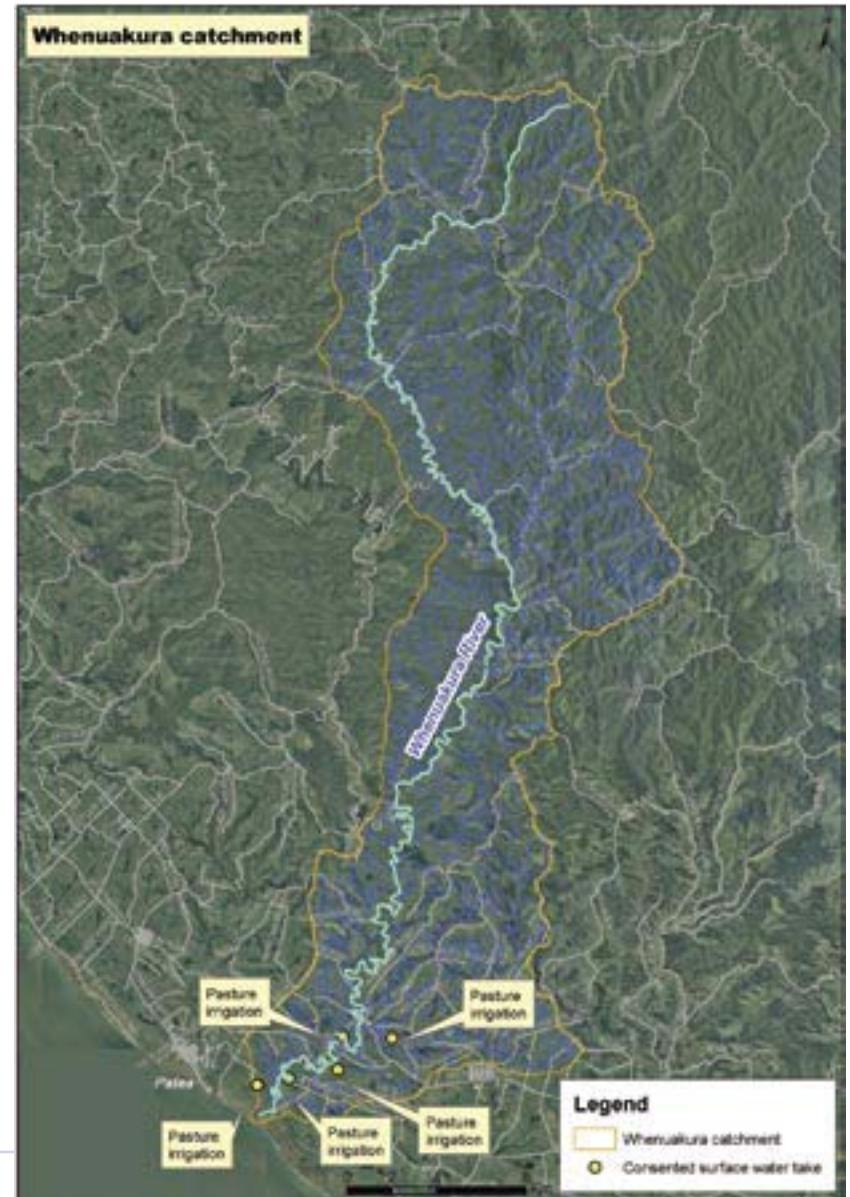
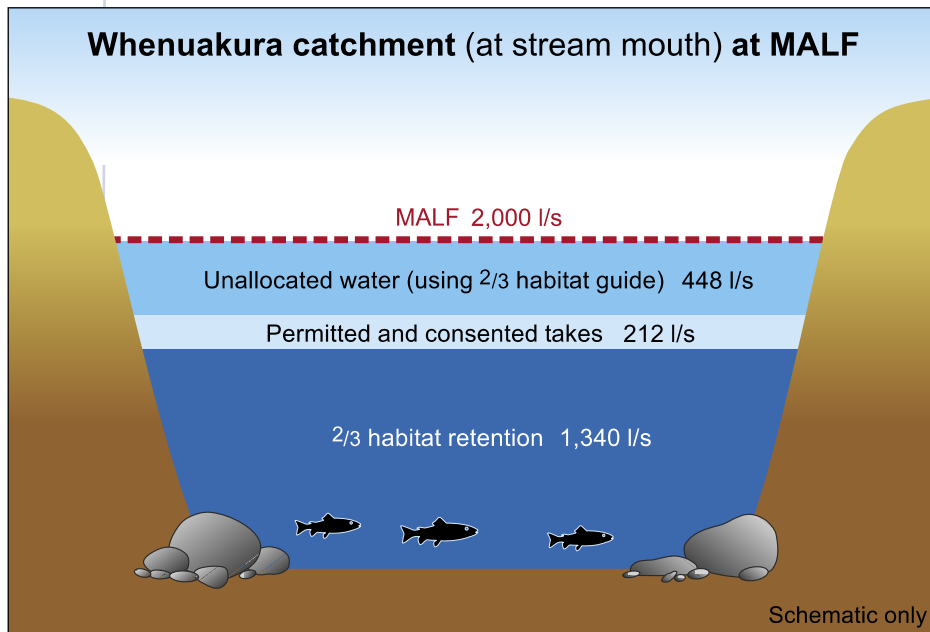
At MALF, if the 2/3 habitat guide is applied to the Whenuakura catchment at the river mouth, then the quantity of water set aside to maintain instream habitat may vary between 1,000 and 1,400 l/s (50-70% of MALF). However, for the purposes of this guide, the 2/3 habitat guide is calculated to be 67% of MALF or 1,340 l/s. This leaves 660 l/s (33% of MALF) that potentially is available for consumptive uses at MALF.

Of the water that is potentially available for consumptive use, 212 l/s has been allocated (or 10% of MALF). This means that 448 l/s (or 22% of MALF) of water is unallocated and potentially available for further consumptive uses.



**Water available  
for allocation  
below MALF**

Whenuakura catchment				
Median flow	Natural MALF	2/3 habitat flow	Permitted & consented takes	Unallocated water at MALF
5,670 l/s	2,000 l/s	1,340 l/s	212 l/s	448 l/s
% of natural MALF		67%	10%	22%







If you are planning to take or use surface water and are unsure how to meet the conditions or other requirements of the *Regional Fresh Water Plan for Taranaki*, please contact the Taranaki Regional Council. Council staff can provide information and assist you to meet any resource consent requirements. Information and initial assistance is provided free of charge.

### **Taranaki Regional Council**

Staff are available to help you and answer your questions.

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