



WAIWERA CATCHMENT

**Information sheet
May 2014**

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LOCATION

Located in South Otago, the Waiwera catchment is a tributary of the Clutha River/Mata-Au. Their confluence is approximately 20 km upstream of Balclutha, near where the Pomahaka joins the Clutha/Mata-Au near Clydevale. Figure 1 shows the catchment, which has an area of 209 km². The headwaters are located in the Wisp Range from which it flows north then north east. The two principal tributaries of the Waiwera catchment are the Kuriwao and Awakia Streams.

It is thought that Waiwera is named after Waihero, a Waitaha chief.

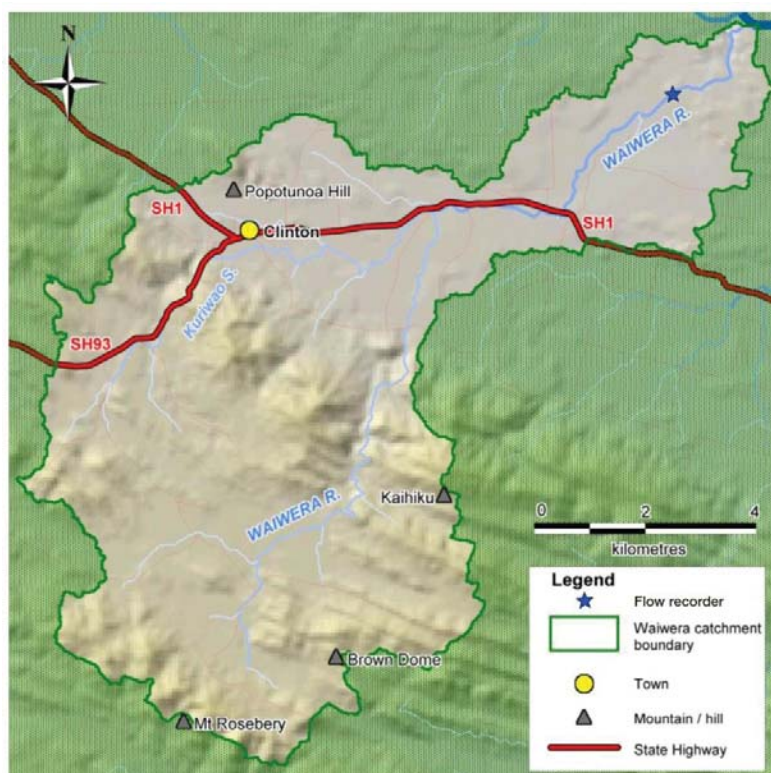


Figure 1. Map of the Waiwera catchment.

NATURAL VALUES

Topography, geology and soils

The Waiwera River rises in the steep valleys and swampy flats of the Southland syncline area, before making its way through rolling hill country and low-lying areas around Clinton.

Soils within the Waiwera catchment, particularly on the river flats and terraces, are considered fertile. Pallic soils dominate the catchment.

Rainfall

The Waiwera catchment's climate is considered mild, with consistent rainfall throughout the year. Annual catchment rainfall varies from around 700 mm in the low lying parts of the catchment through to nearly 1,400 mm in the upper catchment. Rainfall intensities vary greatly throughout the catchment due to a combination of factors including altitude, aspect and topography.

Hydrology and river flow data

Several years of data from various sites within the Waiwera catchment have been analysed to extract information about stream flows within the catchment. The location of the continuously monitored flow recorder is shown in Figure 1, at about 1.4 km upstream of the confluence with the Clutha /Mata-Au.

Before April 2010, all flow data collected were from one-off gaugings. Since 2010 the continuous recorder has provided data, and it is the proposed minimum flow site.

Table 1 outlines the Waiwera hydrological statistics. The mean annual low flow (MALF)¹ is 310 l/s at the proposed flow monitoring site.

Site	Catchment area (km ²)	Lowest flow recorded (l/s)	MALF (l/s)
Proposed minimum flow site	207	183	310

Table 1. Hydrological statistics of the Waiwera catchment.

Significant wetlands

The Water Plan's Schedule 9: Regionally Significant Wetlands lists three wetlands, which are wholly or partly in the Waiwera catchment:

- Three Stones Fen Complex
- Hazeldale Fens
- Kuriwao Saddle Fen.

These significant wetlands, and many others which are not identified within the Water Plan, are an important part of the hydrological functioning within the catchment, modifying downstream

¹MALF is the average of the lowest flows observed for any seven-day period, for each year recorded. If records of flows are not available or are less than adequate, MALF can be estimated by other methods which take account of precipitation and catchment area. It is used in Otago's Water Plan for setting allocation limits.

flood peaks and low flows. Wetlands act to filter water passing through them while providing habitat for a range of bird and aquatic life.

Catchment ecology

Flora

The upper catchment is dominated by red tussock, with small pockets of podocarp forest. There is some production forestry in the upper catchment. The remainder of the catchment is highly developed with pasture grasses.

Birds

The Waiwera catchment and surrounding environment is a significant breeding ground and juvenile rearing habitat for mallard, shoveler, paradise shelduck and pukeko. The area is also a moulting site for mallard.

Fish

The Waiwera River is a brown trout fishery popular with anglers. Native fish species found in the catchment include both long- and shortfin eel, common bully, upland bully and galaxiids. One species of freshwater crayfish is also present in the catchment.

At least one galaxiid species is present in the catchment (Figure 2) shows a typical Otago galaxiid). The status of any galaxiid in the Waiwera catchment will be Nationally Endangered, due to threat of extinction. The longfin eel is also of conservation significance as its population is listed as being in gradual decline.



Figure 2: Galaxiid (Roundhead)

Schedule 1A natural values

Schedule 1A of the Water Plan identifies the Waiwera River and tributaries as having high natural value. The values identified in Schedule 1A are:

<i>Waiwera River</i>	<i>Ecosystem values</i> Provides access unimpeded by structures such as weirs and culverts; free of aquatic pest plants; significant habitat for trout and salmon spawning and juveniles; riparian vegetation of significance to aquatic habitat; significant presence of trout, eel, and the threatened galaxiid species; a significant range of indigenous invertebrates.
<i>Kuriwao Stream</i>	<i>Ecosystem values</i> Provides access unimpeded by artificial means such as weirs and culverts; significant habitat for trout spawning and juveniles; significant presence of trout and eel.

COMMERCIAL, SOCIAL AND CULTURAL VALUES

Land use

The upper Waiwera catchment is primarily used for extensive sheep and beef grazing. The mid and lower reaches of the catchment are dominated by pastoral farming with smaller farms having higher stocking rates relative to the upper catchment. In recent years, dairy farming has become increasingly common in the lower catchment. There is some production forestry in the upper catchment.

Commercial value

Agriculture is the main economic activity within the catchment. Clinton is a rural service town in the catchment. Clinton is also an excellent base for tourists interested in trout fishing. There is commercial eeling in the lower reaches.

Recreational values

The most significant recreational uses within the Waiwera catchment are angling and game bird hunting. Eeling, BBQs and picnicking are also popular. South Otago is well-used by waterfowl hunters, and the Waiwera catchment is a very popular waterfowl-hunting destination.

The National Angler Survey estimated 120² angler days were spent on the Waiwera River in the 2007/08 season (NIWA, 2009). The Waiwera offers classic small stream fishing. The river is accessed from several road bridges or across farmland. Most of the angling takes place in the middle reaches. More adventurous anglers frequent the upper reaches, while the lower reaches are difficult to fish due to crack willow infestation and a lack of public access.

Iwi values

Water plays a significant role in the spiritual beliefs, values and cultural traditions of iwi, and the health of water bodies and the condition of water are of particular consideration.

The Waiwera River is listed in Schedule 1D in the Water Plan as having significance to Kai Tahu as a source of mahika kai – a place where food is procured or produced. Examples of waterborne mahika kai include eel, whitebait, kokopu (galaxiid species), koura (freshwater crayfish), freshwater mussels, indigenous waterfowl, watercress and raupo.

² There is a wide margin of error in the estimate: (plus or minus 80)

Historic values

In the late 1800s the Otago Acclimatisation Society had one of the largest fish hatcheries (salmon and trout) in New Zealand, located on the Waiwera River. The Waiwera Flour Mill (Figure 3) was established in 1872 by two brothers, Joseph and John Wright on the edge of the Kuriwao Stream, which was used to turn the wheels running the mill machinery. The mill was eventually closed down in 1935 (Source: South Otago Museum).

The local school used the river for swimming and historic Maori ovens are found close by.



Figure 3. Flour Mill at Waiwera. Photo taken after 1885 (Photo courtesy of South Otago Museum).

WATER TAKES WITHIN THE CATCHMENT

Permitted surface water takes

Under the Resource Management Act (RMA) and the Water Plan, water can be taken from the Waiwera River and its tributaries for an individual's reasonable household and animal drinking-water needs, and for fire-fighting purposes. The Water Plan permits small water takes subject to meeting specified conditions. Accordingly, the ORC does not hold information on water taken under permitted activity rules.

Consented surface water takes

In the Waiwera catchment there are currently two surface water permits able to take 126 l/s. These are primary allocation. Two other consents exist, one for groundwater not connected to the river, and the other is to take surplus surface water already taken under a consent, as a "retake". As at April 2014, there is an application to take 23 l/s as primary allocation. Current take consents account for 81% of the primary allocation available for the Waiwera catchment, as specified under Policy 6.4.2 of the Water Plan. The primary allocation limit for the Waiwera River is currently 155 l/s, being the default 50% of 310 l/s (MALF). There is thus some primary allocation still available. Table 2 outlines the consented water takes in the catchment. Figure 4 shows the location of the current surface water takes.

Water take	Number of consents	Combined instantaneous take rate (l/s)	Purpose	Water source
Primary surface water permit	2	126	Irrigation, stock water, and dairy shed supply	Waiwera River surface water
Retake	1	-	Retake	Captured excess runoff

Table 2. Consented takes within the Waiwera catchment (as of April 2014)

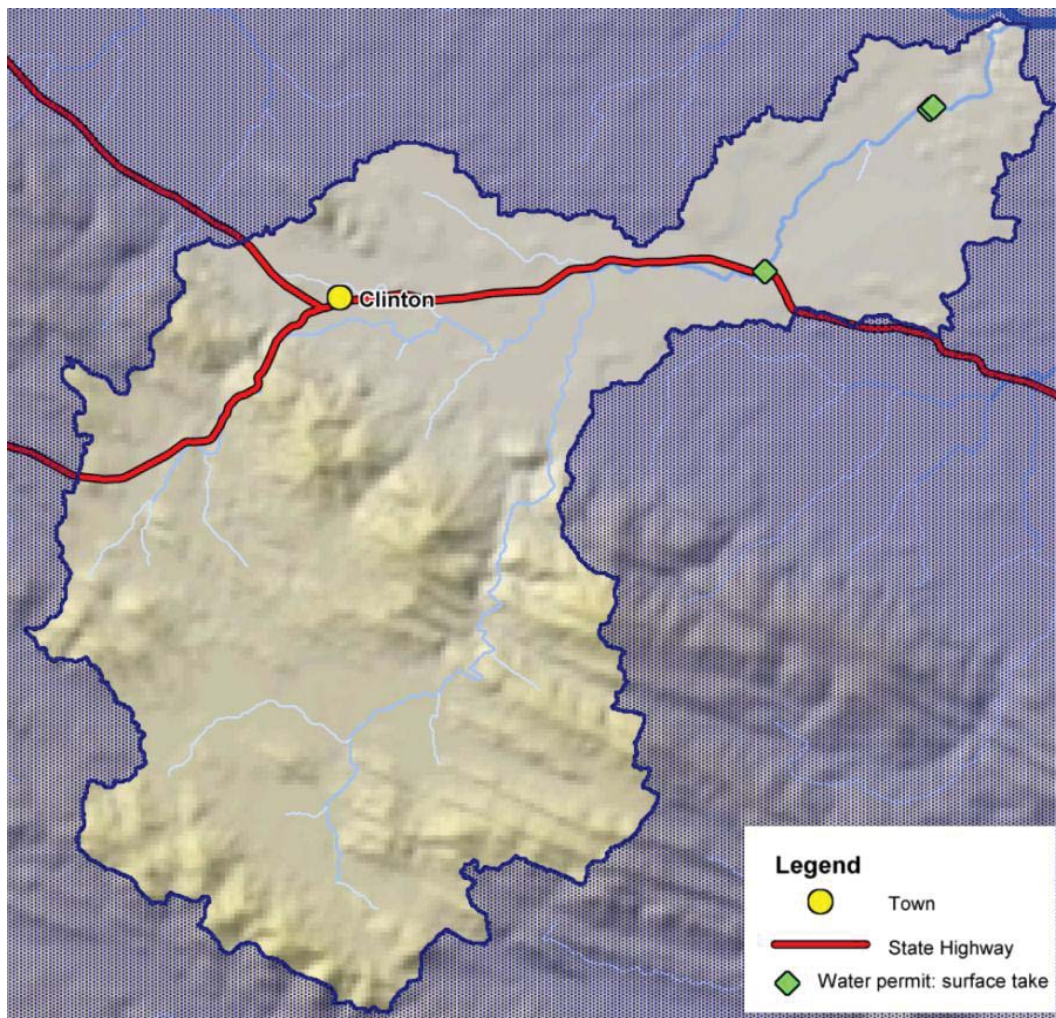


Figure 4. Location of surface water takes within the Waiwera catchment.

FOR FURTHER INFORMATION

Otago Regional Council (2004)	Regional Plan: Water.
Otago Regional Council (2006)	Management Flows for Aquatic Ecosystems in Waiwera River.
Otago Regional Council (2007)	The Water Resources of the Pomahaka and Waiwera Rivers.
NIWA (2009)	Angler usage of lake and river fisheries managed by Fish & Game New Zealand: results from the 2007/08 National Angling Survey.
Department of Conservation (2004)	New Zealand non-migratory galaxiid fishes recovery plan 2003-13. Threatened Species Recovery Plan 53. Wellington.
South Otago Museum	

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