



UPPER LAKE



KOURARAU AND THE EASTERN HILLS

Kourarau means many koura. Koura are freshwater crayfish commonly found in the streams and lakes of New Zealand. Being limestone spring fed, the Kourarau stream maintains a permanent flow throughout the year to maintain good populations of Koura and other stream biota. This stream runs from the south some 10 kms before entering Dam No 1.

The eastern hills above Gladstone and Masterton flow out to the wild and beautiful coastline of the Wairarapa. Kourarau is located in the land block of Tupurupuru, named after a famous Maori warrior who defeated the taniwha Ngarara Huarau. It is said that Ngarara Huarau 'had made himself a lair above the Kourarau stream and terrorised the local people'. (Source: NZ Historic Places Trust.) That Trust also records that 'the valley is part of a significant cultural landscape for the Wairarapa hapu of Rangitane and Ngati Kahungunu'.

The Kourarau catchment covers an area of approximately 31 square kms with the 'predominant geological feature... an uplifted limestone cuesta that forms the hills known locally as the Maungaraki Ranges'. (Source: Genesis Energy Resource Consent application.) The main range runs to over 500 metres asl on both its eastern and western catchment boundaries the highest point being Eringa trig at 575m asl.

The average annual rainfall in the upper Kourarau catchment is approximately 900mm, but the prominent landscape often records intensive rainstorms, especially from the south east. Snowfalls can be common but rarely persist more than a few days. There are wide variations from year to year with droughts not uncommon. The upper Kourarau stream is fed by a number of artesian springs which provide a reliable source of water even during dry periods.

KOURARAU HYDROELECTRIC POWER SCHEME



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In March 2011, the assets and operational responsibility of the Scheme returned to community ownership, thus completing a remarkable circle that began in 1923.

What follows summarises the key facts and events over the now almost 90 years the hydro scheme has been operating.

A BEGINNING – EXCEPTIONAL FORESIGHT

One of the first activities of the Wairarapa Electric Power Board after it was established in 1920 was to investigate electric power generation from the surrounding rivers and streams. The possibilities of Kourarau were quickly realised but it was the genius of **Harry Richard Climie** (1884-1961) who had been appointed by the Board as resident engineer in March 1922 which translated the possibilities into reality. That genius is reflected in the often heard comment today of reviewers of the Scheme that were you to design it now, little would be changed.

Climie distinguished himself throughout his career and designed a number of hydroelectric schemes; for example, in Tauranga, Raetihi, Havelock North, Taranaki and Golden Bay.

Sir Walter Buchanan, the then owner of the land on which the scheme was constructed, was a key force in its establishment. Member of Parliament for Wairarapa, a member of the Legislative Council, and a substantial farmer, Sir Walter officially opened and switched on the generation of power on 20 December 1923.



A second power station and generator was added in 1925 to run in tandem with the lower station/generator.

DESCRIPTION OF THE SCHEME

The **top lake**, which covers an area of approximately 15 hectares, and the **bottom lake** (1.4h) were both artificially constructed from (earth) damming of the Kourarau stream. Water from the upper lake is taken through an intake near the western shore at a maximum rate of approximately 290 litres per second, and flows down via a 785 metre long pipeline to the upper power station which is located by the lower reservoir at the confluence of Sailorman creek and the Kourarau stream. Between the pipeline and the penstock is a **surge tower**, which is designed to relieve pressure build up in the system that can result from fluctuating flows and generation patterns. The tower is located near the Te Wharau road and can be easily seen from it.



SURGE TOWER

The upper limit of the top lake is controlled by a fixed concrete lined spillway and an adjacent concrete and boulder lined spillway that allows surplus water during a flood to spill down the natural channel of the Kourarau stream.

The **upper power station** is a 200kw station with a Boving single disc Peleton wheel turbine driving an ASTA 250kw generator.

The **lower lake** is fed from water from the upper power station tailrace, the Kourarau Stream and Sailorman creek, and is controlled by a fixed weir concrete lined spillway. During floods, any water that cannot be used to generate power, flows over the spillway down the natural channel of the Kourarau stream. From the lower lake, water flows through a single 1182 metre pipeline to a **second surge chamber** that has been a feature of the eastern hills skyline for almost a century, and can be seen from a considerable distance. The pipeline at **Windy Point** enters a **tunnel**. At the surge tower, the pipeline splits into two penstocks to carry the water a further 2136 metres down to the **lower power station**.

The lower power station is a 900kw station located next to the Kourarau stream approximately 1km from the Te Kopi road, using a Boving twin disc Peleton wheel turbine driving an electric 700kw generator.

There are also five offtakes from the pipeline providing irrigation, troughs and buildings (houses and sheds) water to neighbouring farms.

The scheme generates at 3.3kv and is connected to the national grid. Power generated is sufficient to service approximately 250 houses.

OWNERSHIP

The Wairarapa Electric Power Board owned the Kourarau Scheme from its establishment in 1923 to the 1990s when it morphed into Wairarapa Electricity Limited. Genesis Energy, a state owned enterprise became the owner in March 1999, as part of the considerable changes that occurred in the energy sector in that decade. In June 2007, 3 local people, Brian Bourke, Shane Atkinson and Keith McClure, met to place a proposal before Genesis that the scheme would best come under local ownership. At that time, major flood damage in August 2004 and March 2005 had made the scheme inoperative and they felt that local ownership would be more efficient and remove some of the difficulties and costs associated with more remote management.

After much work and goodwill by Genesis Energy, all the land and operating assets of the scheme passed into community ownership in March 2011. Tararua Foundation, a local charitable trust formed by the Masterton Licensing Trust in 1985, became the legal owner. While Trust House Limited, the business operating company predominantly owned by the Masterton Licensing Trust, provides management services to the Foundation, the Foundation is a separate organisation with its own board of five Trustees who include the Mayor of Masterton, the Chairman of the Masterton Trust Lands Trust and the President of the Masterton Licensing Trust.

RECREATION ATTRACTIONS

The upper lake has long been an attractive venue for fishermen, canoeists, kayakers and rafters. There is potential to further enhance recreational opportunities through replanting and retirement of the area surrounding the lower lake.

The scheme is currently going through the registration stages of a historic place with the New Zealand Historic Places Trust. There is a keenness too to pursue tourism and walking tracks in a unique area of the Wairarapa.

Restocking the upper lake with rainbow trout – long a feature supported by Wellington Fish and Game – will begin again in the autumn of 2011.