

The dams that never were

Otipi Road snakes off from the Motu Coach Road, to the wild Motu River. Today, it's known as a stunning mountain bike adventure ride, but 50 years ago, the road was built to access a proposed hydroelectric power scheme. By Jim Robinson.

You'd be lucky to find a New Zealand road that's more remote. From the coast east of Opotiki, you head inland up the bumpy Motu Coach road, which is famed as a rally driving stage. At Toatoa, where the post office, school and tearooms have long gone, you veer onto the even quieter Takaputahi road, past farmland that's being slowly reclaimed by bush. After 10km, there's a remote Department of Conservation (DoC) camp spot, and a stony ford over the pretty Whitikau stream. That's where Otipi Road begins.

Over the next 19km, the logging-type road twists and turns up through the wilderness, peaking at over 900m altitude — then plunges 700m altitude to the Motu River, where you could fairly say you're miles from nowhere.

Until 2010, Otipi Road had seen no significant maintenance in 30 years. I mountain biked it in 2005 and in places the ruts were chasms. But DoC has cleared slips and reinstalled culverts, and it's now a thrilling, lung-bursting, mountain bike ride that links in to the popular Motu Trails — for those of an adventurous bent. The occasional hunter drives the road, though in places, it must be seat-of-the-pants stuff.

Back in 2005, I was told that Otipi was built for a planned hydroelectric power scheme. After cycling the road again, I was curious to know more, so in late-2012 talked with Buck Alley, who was in charge of Ministry of Works and Development hydroelectric investigations, which took place 1956-1963; and with Colin Cardiff, who was involved in a second round of Ministry of Works investigations from the late-1970s.

“The Ministry of Works and Development was keen [in the mid-1950s] to establish the hydro potential for all of New Zealand. Around the world at that time, countries were establishing their hydro potential and it was part of that.

The Ministry set up hydro investigation parties for the field work," recalled Buck, who now lives in Whakatane.

As well as the Motu, there was assessment of hydroelectric potential of Central North Island rivers such as the Mohaka, Whakatane and Rangitaiki, though as it turned out, the only dam stations built were on the Rangitaiki. Worth noting too, the MWD of the 1950s was "a large construction industry", with a lot of staff based in Opotiki to develop the road round the coast, to Whakatane, and up the Waioeka Gorge.

Buck's investigation team started out with six or eight men. "The initial plan was to get the levels and flow for the whole [Motu] river, to find out what the power potential was." That included exploring the possibility of diverting water from other catchments.

The major challenge was an almost total lack of information. "There were no existing contour maps, just Lands and Survey boundary maps and major triangulation stations, and some aerial photos that had been taken after the war. We had strips of these photos, but there were no [topographical] levels on them. You sometimes couldn't even tell what were ridges and what were valleys. One of the jobs was to establish [surveying] bench marks throughout the catchment so that the photos could be used to plot contour plans."

In June 1957, a helicopter was hired for reconnaissance. The plan was to start at the mouth of the river, 45km east of Opotiki, and head inland, looking for possible dam sites.

"Unfortunately the helicopter was pranged in a tight landing spot at Te Kahika. Looking back, it was quite a tight spot! The tail rotor touched a rock. Fortunately nobody was hurt, but the chopper was a write-off. We were stuck in the bush for a couple of days. A plane dropped us a raft and some food, and we floated out to the Motu bridge. I remember floating down the river under moonlight — we didn't want to stop."

Get a detailed map, and follow the line of the Motu upstream of Mangatutara, and you'll find the crash location: Helicopter Rapid.

"I worked out afterwards that there were only nine helicopters in the country at that time, and seven of them had been involved in incidents. The government would not approve any more helicopter hire for some years," Buck said.

From then on, the investigation team's mode of transport was rather more basic, and considerably more energetic. "We explored the river with rubber dinghies, over a couple of years. They were rescue dinghies from the [English] Royal Air Force. New bottoms were put on them, after much experimentation. We were only the second group to use rubber rafts on the Motu."

Opotiki museum has details of river trips from below Motu Falls to the coast, using wooden dinghies, from as early as 1919. But the first rubber dinghy wasn't

taken down the Motu until 1953, when with the river in flood it took only three days.

Using their reinforced rubber rafts, the hydroelectric investigation team discovered a “magnificent gorge” at Mangaotane. It was the potential for a dam here — and no option of helicopters — that led to the development of the Otipi Road.

“We did a recce and it took three days to get through to the river [by foot]. We didn’t even know what the peak [Otipi] was called until afterwards. The paucity of information was incredible really,” Buck recalled.

A T Monks of Gisborne were contracted and two or three men took about 18 months to build the road. It was “constructed with a heavy bulldozer by excavating a bench and tipping surplus material over the side. Some large slip faces were created but there were no [environmental] protests from anyone at that time.”

Another road was later started from near Rawea Stream, past Tekaputahi. Buck’s team unofficially called this Puketoetoe Road, after the highest peak in the area. But, unlike Otipi, this road was never finished, because the government reapproved the use of choppers.

Ultimately, four sites ended up as realistic prospects for dams: (1) up from the river mouth near Houpoto; (2) Mangaotane Gorge, which is reached by Otipi road; (3) Waitangirua, which is downstream from Motu Falls; and (4) at the confluence with Mangatutara Stream.

Each site had to have contour surveying. There was also drilling, to determine the depth of the shingle, and to confirm there was rock where a tunnel could potentially be needed.

“We established a camp at the Otipi road end. We brought 12 new huts in from Opotiki. We had another camp at Waitangirua, where there was a possibility of a diversion [of water] through a tunnel.”

The last site to be investigated was Mangatutara, and with helicopters back in the picture, road access was never completed. A 1962 Opotiki News report wrote a colourful account of the camp: “... [the men] have caught three young wild pigs and are busy fattening them up for many a tasty meal.”

Another report enthused that “Motu Advance Camp” had “All home comforts on tap ... A 44 gallon drum set over a fireplace — a pipe connected to it and another to a nearby spring — a tin full of holes two taps and, lo, they have hot and cold running water for showers.”

Basic the bush living conditions may have been, but a newspaper report from July 1959 underlines that the hydroelectric investigation was of national significance: “Present proposals, says an interim report submitted to the

Minister of Works, Mr H. Watt, are to harness the river by a series of dams, perhaps four in number. Of these the largest would be the Houpoto dam ... It is expected that the total installation on the river of between 350,000 and 400,000 kilowatts will be possible on normal load operation.”

This 1959 news report goes on to suggest that the Houpoto dam could be 350 feet (106m) high. Minister Watt (surely, a most appropriate name) declared, “My information is that the Motu catchment is unusually favourable for development. Some 27 miles [43km] of new roading is being constructed to gain access to prospective dam sites.”

However, as the river investigations progressed, the sheer scale of the challenge became clear. A 1961 report quotes the engineer in charge of the survey, Mr R. B. Alley — that’s Buck of course — as saying the territory was like a “miniature Southern Alps”. He went on to describe: “the whole district looks as if it has been taken in a giant fist and crushed as one would crush a sheet of metal foil.”

Roll on 2012, and Buck recalled that in one spot at Houpoto, the gravel was 135 feet (41 metres) deep. Most challenging of all, there was the water flow. Modern records show that near its mouth, the Motu River’s summer water flow is as low as 13 cubic metres a second — yet flood levels soar over 2000 cumecs. “A very large proportion of [dam building] costs would have been in dealing with spillways for the floods,” said Buck.

By 1963, data collection was finished and ready for analysis. A late-1970s Opotiki Centenary book records that “Plans of all dam sites were drawn and correlated. The Houpoto plans alone covered more than seven square metres of paper.” But in August 1965, the government’s Power Planning Committee recommended the abandonment of hydroelectric plans — “at least for some time”.

That recommendation wasn’t the end, however. Into the 1970s, the popularity of recreational rafting and kayaking grew fast and the Motu was seen as a prime place to pursue the fun. Pressure increased on the government to protect rivers from damming, including the Motu. A campaign led by NZ Canoeing Association and FMC (Federated Mountain Clubs) ultimately led to the 1981 Wild and Scenic Rivers legislation. The Motu became New Zealand’s first ‘Wild and Scenic River’.

Another legislative step came in 1984, when the Motu was the first river to gain a National Water Conservation Order (since 1991, the overarching legislation has been the Resource Management Act).

“But before the government made the [Wild Rivers] decision they wanted to make sure they knew what they were giving away,” Buck said. That led to a second round of hydroelectric power investigations, together with landscape and recreation studies, and faunal research. Colin Cardiff was involved in this investigation work on the Motu from 1978 to 1980.

“There was a team of about 10. We cleared the Otipi Road, and cleared the areas for drilling. Nothing had been done to the road since the 1960s,” recalled Colin, who now lives in Ohope. The team had a camp at Mangatutara, with workers also staying in Toatoa. Drilling company Longyear was contracted to take bore samples. They had a crew of about five.

“It used to take me about an hour and a half to drive from Opotiki to the far end of the Otipi road,” Colin said. Today, it’d take far longer.

This second round of investigations confirmed that the economics of harnessing the Motu were questionable. “At the upper [prospective] dams, the lake areas were not great. There wasn’t a lot of area to store the water,” explained Colin. In any dam, unless there’s special construction, all storage below the top three to five metres is ‘dead water’ because it sits below the intake level. “You need a big lake storage area — but the [Motu] gorges are tight.”

Colin also reiterated Buck’s comments about the river flow. “The Motu has huge floods. We had a massive flood in 1979. From memory, a farmer’s rain gauge at Takaputahi recorded 28 inches (over 600mm) over four days.”

With legislation in place, the government’s hydroelectric hopes were well and truly over. Around 1983-4, two huts that had been put in at Mangatutara in the late-1970s were helicoptered to the Te Waiti Valley, south of Opotiki, to replace a NZFS (New Zealand Forest Service) six-bunker that had burnt down. The two huts were placed about three meters apart, with a connecting roof and floor, so two became one. It’s still in service.

The Motu remains one of the North Island’s few true wilderness rivers, its catchment home to a wide range of birds including North Island Brown Kiwi, New Zealand Falcon, Kaka, Parakeet, Blue Duck, and North Island Weka. Recent years have seen Kokako released into a predator-controlled ridge above the lower reaches of the river. Otipi, as I said, is a mountain biking gem. And the raft trip from the end of Otipi to the Motu Bridge is apparently sensational — with no dam in sight.

More: <http://www.outstandingrivers.org.nz/>

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NOTES:

The Motu River was the first New Zealand 'wild and scenic' river to win protection from a Water Conservation Order in 1984.

The major waterway on the eastern side of the North Island rises on the southern side of the Raukumara Range, south of Opotiki, heads east and cuts its way through the range (where it receives important tributaries) and empties into the Bay of Plenty.

The Maori name Motu means cut off, isolated. This refers to the dense forests around the headwaters. This important wilderness river passes through mostly steep, uninhabited hill country with thick native bush. It is used for adventure tourism (jet-boating and white-water rafting). A mid-20th century proposal to dam the river for hydroelectricity was rejected.

The WCO says the river should be preserved as far as possible in its natural state from the Motu Falls to the SH35 bridge.