

# Lake Taupo Levels

Positioning and Measurement Stream

## New Zealand Vertical Datum 2016

NZVD2016 is New Zealand’s official height system. It allows for the consistent collection and seamless exchange of heights across New Zealand. Heights used in GIS, infrastructure, planning, consents and works can now be nationally standardised.

## Lake Taupo legal definitions

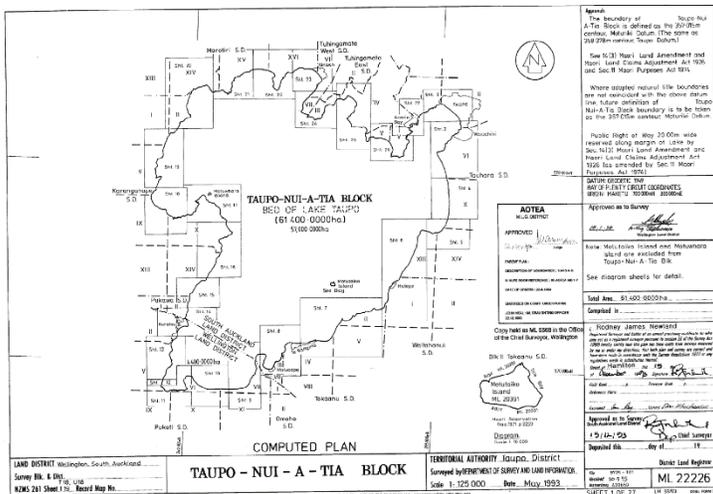
A number of legislations reference archaic level definitions as the legal basis for determining the natural boundary of Lake Taupo. Implications include:

- Land development and use adjacent to the lake.
- Compensation provisions in the event that lake level is not maintained within prescribed thresholds (lake level is artificially managed by means of the Taupo Control Gates structure).

## Taupo-Nui-A-Tia Block

ML 22226 (1993) defines the boundary of Taupo-Nui-A-Tia Block (the natural boundary of the lake bed) as:

“... the 357.015m contour, Moturiki Datum. (The same as 358.378m contour, Taupo Datum).”



[Image source: ML 22226]

## Lake Taupo Compensation Claims Act 1947

“For the purposes of any ordinary claim or any special claim, the level of Lake Taupo shall be determined by reference to the Taupo fundamental benchmark [LINZ GDB code 2217] ...

... which benchmark in the 1956 survey represented a height of 363.269 metres above mean sea level Moturiki datum.”

[Extract, Section 2, Lake Taupo compensation Claims Act 1947]

## Practically impractical ...

Some practical complications of undertaking level surveys in these terms:

- While the current Moturiki Vertical Datum 1953 height for the Taupo Fundamental benchmark is of vertical order “1V” (best available), it was significantly revised after the extensive 1976 EDS precise levelling campaign. Its current height value is 363.135m, a change of -0.134m from that noted in the 1947 Act.
- A 1956 realisation of “Moturiki datum” (i.e. as per the 1947 Act) is not available at all localities around Lake Taupo.
- Volcanic/geothermal related ground deformation around the Taupo region is well documented – with implications at the origin benchmark and around the lake itself.
- The vertical order for the most current Taupo Fundamental benchmark NZVD2016 height is “5V” (effectively “junk” status).

## An elegant solution – NZVD2016

Today it is practically complex to undertake level surveys in the terms prescribed by these legal definitions. But NZVD2016 provides a simple, robust, easily replicated, and therefore more transparent solution.

## Want to know more?

Contact the Survey and Spatial New Zealand Positioning and Measurement Stream:

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