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**Significance of Decision:** Receives Only - No Decisions



**Report To:** Regulation Monitoring & Operations Committee  
**Meeting Date:** 9 June 2010  
**Report From:** Ken Tarboton, Group Manager Rivers and Drainage

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## **Okere Gates and Ohau Weir Control Structures Consent Renewal Update**

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### **Executive Summary**

This report provides an update on the consent application by the Rivers and Drainage Group for placement and operation of the Rotorua and Rotoiti Lake level control structures namely the Ohau Weir and the Okere Radial Gates. This is an update to the 6 May 2009 report to the Māori Committee and the 1 March 2010 report to the Rotorua Te Arawa Lakes Strategy Group. It presents the proposed operational strategies for Lake Rotorua and Lake Rotoiti for the renewal of consents for these structures.

The programme to renew the consents for the above structures that expire on 30 June 2010 was developed by the Rivers and Drainage Group (consent holder) together with Te Arawa Lakes Trust (owner of Lake beds) to meet the statutory requirements of both the Settlement Act and the Resource Management Act. The programme was set up in three stages.

Stage 1 ended in December 2009 with the filing of an initial consent application following considerable community engagement and consultation. Modelling of several different options was considered during this stage and it was decided to request the status quo operational strategy for the Ohau Weir that controls levels in Lake Rotorua. A wide starting point range was initially specified for Lake Rotoiti to allow for further consultation, modelling and refinement of these operations during stage 2.

Stage 2 has involved further consultation and water quality modelling on Lake Rotoiti operations. A proposed operational strategy has been determined for Lake Rotoiti subject to final water quality modelling. The Assessment of Environmental Effects is being revised for notification of the consent by July 2010.

Stage 3 will commence with public notification of the consent and will include receiving submissions, a Commissioner or Environment Court hearing and deliberations ending with a consent decision. Based on submissions the applicant may request direct referral of the final consent application to the Environment Court. It is anticipated that Stage 3 will be completed before the end of 2010.

A power point presentation will be made to the committee.

### **1 Recommendations**

**That the Regulation Monitoring & Operations Committee under its delegated authority:**

**1 Receives the report, Okere Gates and Ohau Weir Control Structures Consent Renewal Update.**

**2 Background**

Lake Rotorua levels are controlled by outflow through the Ohau Weir, down the Ōhau Channel and into Lake Rotoiti. Levels in Lake Rotoiti are controlled by the operation of the Okere radial gates. Environment Bay of Plenty owns both the Ohau Weir and Okere Gates structures which are currently part of the Kaituna Catchment Control Scheme. The structures are operated by the Rivers and Drainage Group who hold the consents for their operation. The Consents for both structures expire in June 2010. In order to keep operating the structures, an application to renew the consents was filed before the end of 2009.

Since issue of the current consents in 1996, Te Arawa Lakes Trust (TALT) has become the owner of the beds of 13 lakes in the Rotorua area under the Deed of Settlement of the Te Arawa Lakes Historical Claims and Remaining Annuity Claims 2004 and Te Arawa Lakes Settlement Act 2006. This ownership includes the beds of Lake Rotorua and Lake Rotoiti but not specifically the land under the Okere Gates and Ohau Weir structures. The Act requires Environment Bay of Plenty to engage with and involve Te Arawa through the TALT on Rotorua Lakes issues.

**3 Process to develop proposed operations**

The process has been divided into three stages.

Stage 1

In stage 1 Te Arawa were involved to develop a process for the consent renewal and assist in determining an initial consent application to be filed by the end of December 2009. Some consultation with other stakeholders and interested parties occurred during this stage. Stage 1 ended with filing the consent application at the end of December 2009.

Stage 2

Stage 2 has involved further consultation and water quality modelling to refine the initial placeholder operational range for Lake Rotoiti to determine a proposed operational strategy. The Assessment of Environmental Effects (AEE) is currently being revised to be used in the notification of the consents by July 2010.

Stage 3

Stage 3 commences with notification of the consent and will include receiving submissions, a commissioner or Environment Court hearing and deliberations ending with a consent decision. Based on submissions the applicant may request direct referral of the final consent application to the Environment Court. It is anticipated that Stage 3 will be completed before the end of 2010.

**4 Proposed Operational Strategies**

**4.1 Lake Rotorua**

Lake Rotorua levels, controlled by the Ohau Weir structure, have a relatively natural fluctuation within the currently consented range of 610 mm between 279.50 and 280.11 m (RL Moturiki Datum). Operations consist of the removal and re-insertion of stoplogs in the weir structure allowing some level control. For the most part levels

fluctuate naturally with the stoplogs only removed occasionally – typically once or twice a year during extreme rainfall events. Trigger levels determine when the stoplogs are removed or reinserted. Consultation has indicated that in general lake users and the lakeside community are satisfied with the current control structure and lake levels. Considerable infrastructural investment has been made on and around the Lake Rotorua foreshore by Rotorua District Council and private enterprise based on the current Lake Rotorua operational strategy.

As a result, no operational or structural changes were considered for the Ohau Weir and Lake Rotorua operations. Modelling of a range of possible structural configurations and operations for the Okere Gates have indicated that there is very little effect on Lake Rotorua for changes made to Lake Rotoiti levels.

The proposed operational strategy for Lake Rotorua is to maintain lake levels between the current upper and lower statutory levels. Some flexibility of the guidelines for installation and removal of the stoplogs will be sought, to allow for adaptive management and more flexibility in maintaining downstream Lake Rotoiti levels without significantly impacting Lake Rotorua levels.

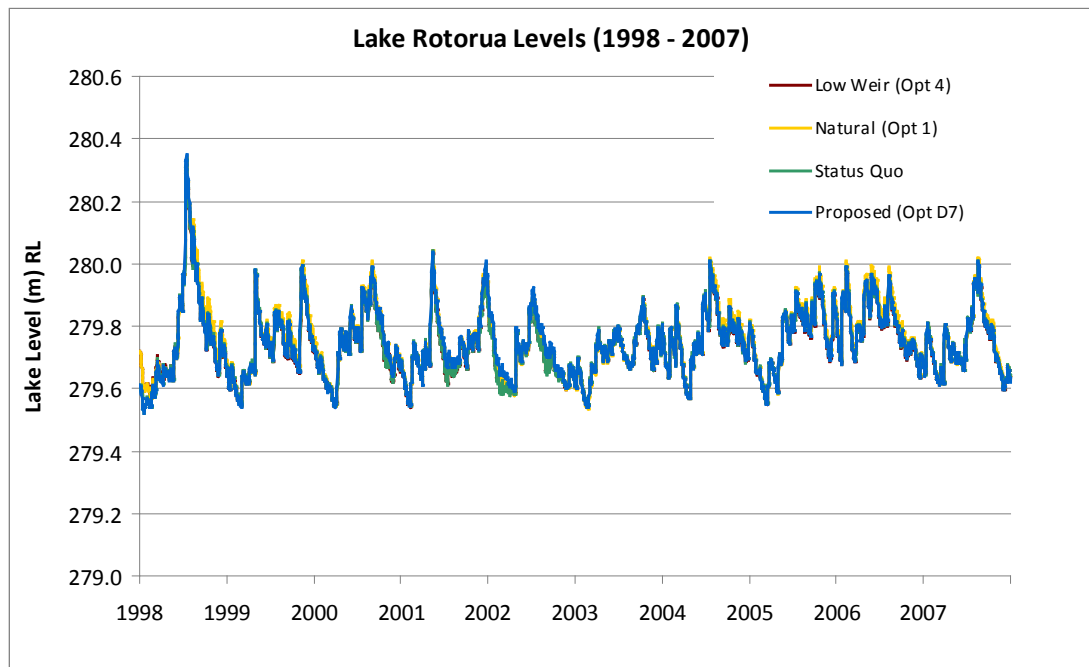


Figure 1. Comparison of Lake Rotorua levels for different operational options at Okere Gates

## 4.2 Lake Rotoiti

### 4.2.1 Options considered

As part of the work to identify the proposed operations for the Okere Gates a number of options have been considered, modelled and discussed with the community. The following four options were identified as representing the wide spectrum of options considered. A consistent 10 year period from 1998 to 2007 with the same measured rainfall and inflows to both Lake Rotorua and Rotoiti was used in the different model simulations.

- Status quo. Measured Rotoiti levels resulting from current consented operations.

- Low Weir. Simulated Rotoiti levels with the Okere gates left completely open or removed without restoring the original rock ledge (removed during construction).
- Natural Levels. Simulated Rotoiti levels with the pre-structure Rotoiti outlet morphology (rock ledge reinstated) and the current 10 year rainfall and inflow.
- Proposed Operations. Model simulated operations to best meet the varied community goals for Rotoiti levels.

The ranges for the different options are compared in figure 2 below.

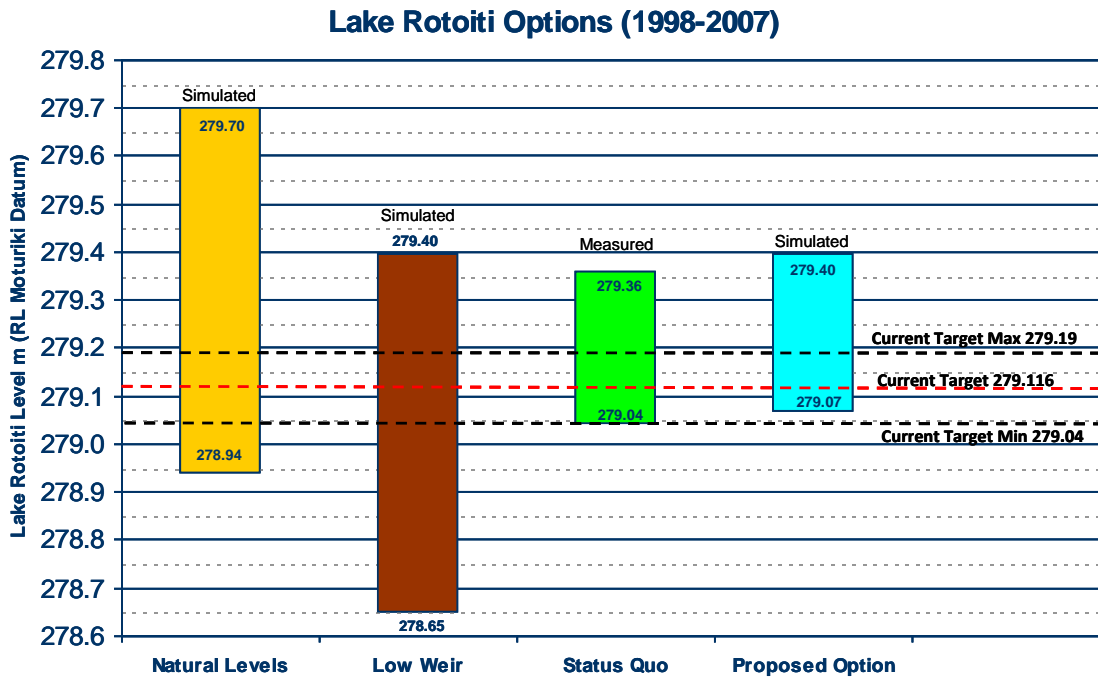


Figure 2: Comparison of simulated ranges for different Lake Rotoiti operational options compared with measured data from 1998 – 2007.

#### 4.2.2 Option Comparison Criteria

To maximise benefits to the wider community, indicators that considered cultural, environmental, social and economic well beings were identified using the Mauri model. Performance measures were derived from these indicators to quantify differences between options. A simplified subset of the performance measures (described in previous reports) was used together with best professional judgement to select the proposed option.

#### 4.2.3 Recent consultation

Several options were presented at the 9 and 11 April Public Open days held in Rotorua. In general there was support for a wider operational range than the status quo, however concerns were expressed about lower than current target Lake Rotoiti levels proposed, particularly in the summer months. As a result of these concerns further modelling and consultation was undertaken to best address the community concerns. The table below shows the extent of the consultation undertaken since the April open days. The object of this consultation was to further refine the proposed

operations with more modelling, result assessment and discussion of the results with a cross-section of community representatives.

Table 1. Community and agency consultation and briefings since April 2010.

<b>Date</b>	<b>Consultation or Briefing</b>
9 and 11 April	Two Public Open days, Lynmore Primary School, Rotorua
19 April	Te Arawa Lakes Trust Briefing, Rotorua
26 April	Rotorua District Council, Te Arawa Lakes Standing Committee, Rotorua
5 May	EBOP Regional Monitoring and Operations Committee, Whakatane
6 May	EBOP Māori Committee, Mataikotare Marae, Rotokawa
6 May	RDC technical staff, Rotorua
7 May	CEO's of RDC, EBOP, TALT with TALT Chairman, Rotorua
11 May	Tapuika Iwi, Te Puke
11 and 18 May	Optimising workshops with Lake Rotoiti Community Association (LRCA) representative, Whakatane
19 May	TALT, EBOP and LRCA, Rotorua
26 May	Kaituna Catchment Control Scheme, Te Puke

#### 4.2.4 Proposed option

Through the above consultation and modelling efforts, the proposed option has been refined. The range of the proposed option is shown in figure 2 and daily Lake Rotoiti levels over the 10 year period (1989-2007) for each option shown in figure 3 (below). The proposed option has a slightly wider and more natural range than the status quo. The proposed option does not have the variability of low weir or natural levels option but better meets other performance criteria.

Key benefits of the proposed option are as follows:

- More natural range (with target range rather than fixed target level) with associated cultural and environmental benefits
- Potentially better water quality in Lake Rotoiti and down Kaituna River
- Jetties and navigation unaffected by level range
- Fewer flows greater 40 cumecs down Kaituna River thus reduced erosion and flood risk
- Slight improvement in number of raftable days

- Gentler rate of lake level rises and conducive to Dabchick breeding

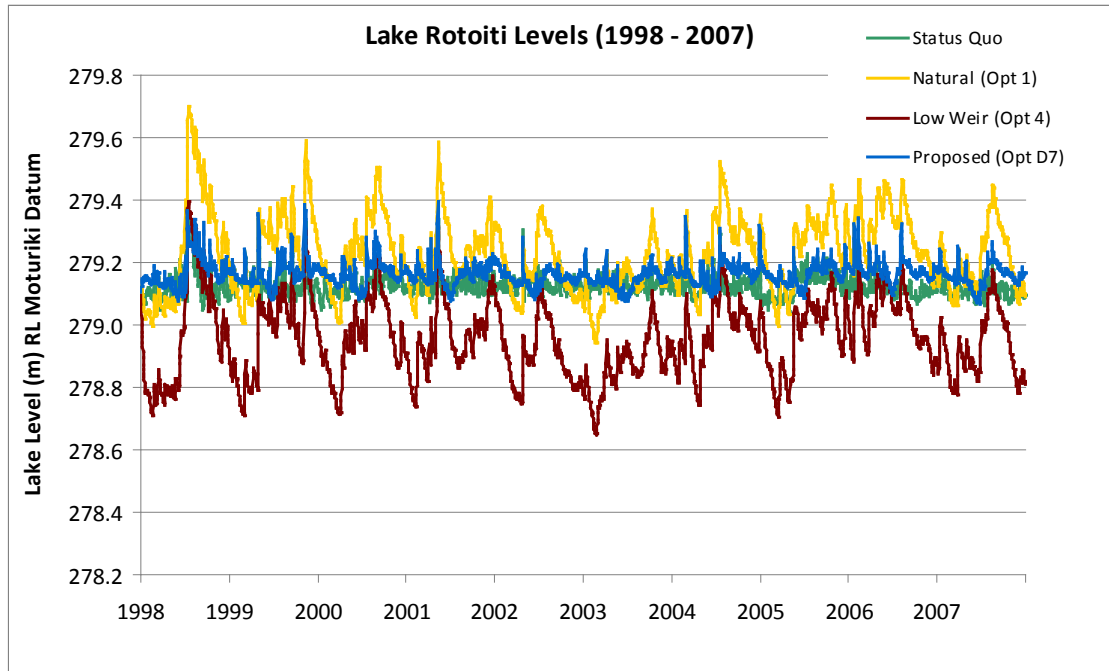


Figure 3. Daily Lake Rotoiti levels over 10 years with different operational options

#### 4.2.5 Proposed Operational Strategy

Based on the proposed option, the operational strategy for Lake Rotoiti controlled by the Okere Gates is proposed as follows:

*Principle:* Improve environmental and cultural outcomes while not adversely affecting social and economic values. This is achieved by allowing for seasonal fluctuation within specified target ranges. This differs from the current consented operations which have a static target level with tight variance around the target level

*Proposed Consented Levels and Ranges* (all levels in m RL Moturiki Datum)

- Maximum consented level of 279.40
- Minimum consented level of 279.00
- 400 mm consented range

(Note that 90% of the simulated Natural Levels are between the proposed maximum and minimum)

*Proposed operational levels and ranges* (all levels in m RL Moturiki Datum)

- Allow operational levels to rise above 279.25 for a maximum of 5% of each year in extreme events
- Target operational range of 200 mm between 279.05 and 279.25 with following target distribution
  - 5 -10% of year between 279.20 and 279.25
  - At least 80% of year between 279.10 and 279.20

- 5 -10% of year between 279.05 and 279.10 in the months of May to July

### Review and Adaptive Management

It is proposed that a regular (every three years) review of this operational strategy is undertaken to allow adaptive management within the above targets.

Adaptive management within the operational flexibility of these targets could include initiatives such as rapid drawdown (flushing) to provide short term benefits for water quality if requested and approved by the Te Arawa Rotorua Lakes programme.

A schematic of the proposed operational strategy compared with the current operational strategy is shown in figure 4 below.

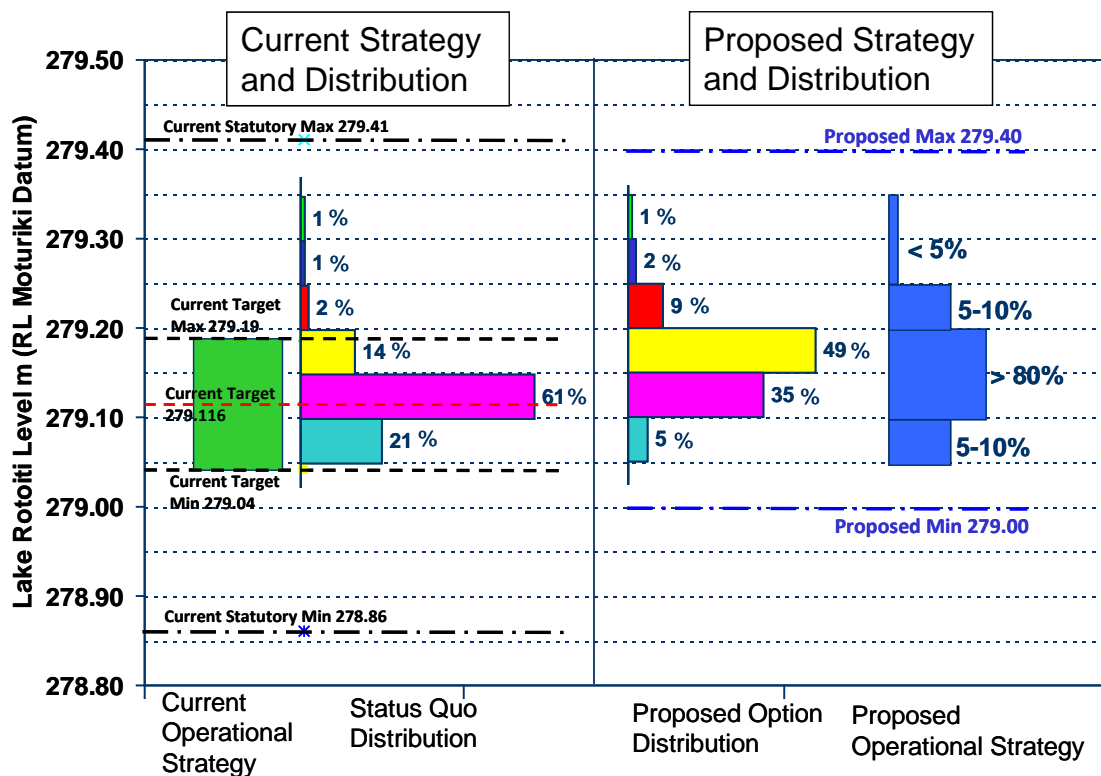


Figure 4. Comparison of current operational strategy and distribution with proposed option distribution and proposed operational strategy.

## 5 Next steps

Water quality modelling is currently underway to confirm the preferred option. A revised AEE will be produced using the preferred option and updated water quality modelling. It is proposed that the revised consent application will be lodged and notified in July 2010.

Following lodgement of the consent, it will be notified, public submissions received, reviewed and responded to and then the consent will be heard either by Commissioners or the Environment Court.

## 6 Financial Implications

### Current Budget

Expenditure on this consent has exceeded budget for the 2009/2010 financial year. This over-expenditure has previously been discussed with Council.

**Future Implications**

There will be ongoing maintenance and operation costs to operate these structures.

**Ten Year / Annual Plan Implications**

Operational and maintenance of structures costs are included in current Ten Year Plan and Annual Plan.

Ken Tarboton  
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**28 May 2010**