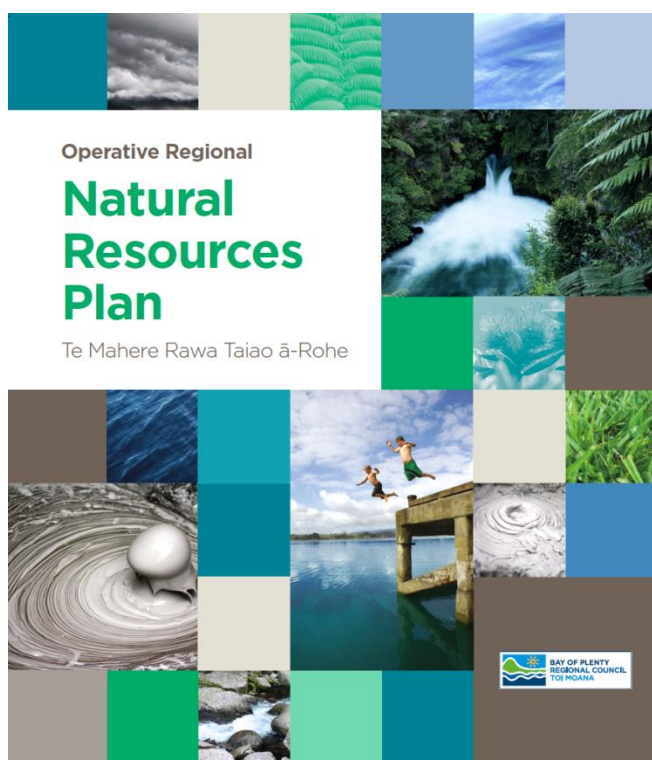




## Consequential changes resulting from Plan Change 10 (Lake Rotorua Nutrient Management) to the Operative Bay of Plenty Regional Natural Resources Plan



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Version 10 Tracked Change Copy - October 2022

Based on Appendix 8b – Plan Change 10 – Consequential amendments to the RWLP – for notification version dated 15 August 2017 – A2670527 (no changes made as a result of Council decisions and resolution of appeals)

Further consequential amendments have been made as a result of reformatted and rehoused Plan Change 10 to insert it into the Regional Natural Resources Plan

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## Consequential Changes to the Operative Regional Natural Resources Plan

The text on this page is explanatory only and is not included as part of the consequential changes.

Notes:

- Consequential changes to the Operative Bay of Plenty Regional Natural Resources Plan are shown here incorporated into the existing plan text.
- Text underlined in red and ~~struck-through in red~~ shows consequential changes made as notified as part of Plan change 10 (no change were made as a result of Council decisions or Environment Court resolved appeals).
- Text underlined in green and ~~struck-through in green~~ shows consequential changes made as a result of rehousing the plan change into the Regional Natural Resources Plan format in as National Planning Standards 2019 compliant manner as possible (within the current structure of the plan)
- Explanatory text within the document that does not form part of the change is shown **[in bold blue with parentheses]**.
- Only pages and sections that have consequential changes are included. If a page or section is not included there are no consequential changes to that page or section.
- Consequential changes will have headers, footers, and page numbers of the pages that they are incorporated into. They are not shown in this document.

# Bay of Plenty Regional Natural Resources Plan (Formerly the Regional Water and Land Plan)

## Update Record

Date	Change/Update	Provisions Affected	Signature
<u>16 November 2022</u>	Plan Change 10 (Lake Rotorua Nutrient Management)	<ul style="list-style-type: none"> <li>• <a href="#"><u>Water Management Area – RL Rotorua Lakes Chapter – LR Lake Rotorua Nutrient Management introductory text, policies, methods, rules and schedules</u></a></li> <li>• <a href="#"><u>Definition of terms – inserted new terms relevant to the Lake Rotorua nutrient management provisions</u></a></li> <li>• <a href="#"><u>Consequential amendments including: new seal page, amendments to the Reader's Guide, List of Abbreviations and Acronyms, Guide to Regional Rules, Conversion Index Provisions, Introduction text, IM I2 (Issue 12), LM I1 (Issue 10), DW I4 (Issue 14), DW R8, DW R19, DW R21, RL Rotorua Lakes and LR Lake Rotorua Nutrient Management contents page, RL rules explanation / intention text including Tables RL 1, RL 2 and RL 3, Rules RL R2 to RL R6 and Flow Diagram RL 1, Appendix 1 – Explanation / Principal Reasons for Provisions</u></a></li> </ul>	
29 March 2021	Plan Change 17 (Awatarariki Fanhead) approved and incorporated	<ul style="list-style-type: none"> <li>• NH Chapter – Management of Debris Flow Hazards on the Awatarariki Fanhead at Matatā – objectives policies and rules</li> <li>• Definition of Terms – meaning of “Residential Activity” and “Property” for Area2</li> </ul>	
	Amendments required by clauses 3.22(1), 3.24(1) and 3.26(1) of the National Policy Statement for Freshwater Management 2020	<ul style="list-style-type: none"> <li>• BW Chapter - New passage of fish objective BW 03A</li> <li>• IM Chapter - New loss of river extent and values policy IM P1A</li> <li>• WL Chapter - New natural inland wetlands policy WL P13</li> </ul>	
	Amendment required by National Policy Statement for Freshwater Management 2014 (as amended in 2017)	<ul style="list-style-type: none"> <li>• DW Chapter - DW P6 (Policy 43A) amended by removing the word 'secondary' and updating the note</li> </ul>	

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# **BAY OF PLENTY REGIONAL NATURAL RESOURCES PLAN**

Formerly the Bay of Plenty Regional Water and Land Plan

**1 December 2008**

Plan Change 8 (Groundwater Bores and Flooding Conditions)  
incorporated on 2 March 2010

Amended 28 June 2011 as required by National Policy Statement for  
Freshwater Management 2011

Amended 8 October 2014 as required by National Policy Statement for  
Freshwater Management 2014

Amended 14 September 2017 for reformatting

Amended 1 May 2018 as required to meet the National Environmental  
Standards for Plantation Forestry Regulations 2017

Plan Change 17 (Awatarariki Fanhead) incorporated on 29 March 2021

Amended 29 March 2021 as directed by the National Policy Statement  
for Freshwater Management 2014 (as amended in 2017), the National  
Policy Statement for Freshwater Management 2020 and the National  
Planning Standards 2019

Plan Change 10 (Lake Rotorua Nutrient Management) incorporated on  
16 November 2022

Bay of Plenty Regional Council

[Insert seal page ahead of Plan Change 17 (Awatarariki Fanhead) seal page]

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# Reader's Guide

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There may be some parts of this regional plan that are of particular interest to the reader. To find these parts, the following guide gives a brief summary of what each chapter is about.

**Guide to Regional Rules:** a list of all the regional rules in this plan.

**Conversion Index for Provisions:** provides a guidance table to convert provision numbers from the system used in previous versions with the alphanumeric system used in the current version.

**Introduction:** names the regional plan; defines its geographical coverage and the resource management issues within its scope; and outlines the purpose of the regional plan.

**Kaitiakitanga:** provisions to address section 6(e), 7(a) and 8 of the Resource Management Act 1991.

**IM Integrated Management of Land and Water:** provisions to address the integrated management of land and water resources in the Bay of Plenty region. Includes surface water and groundwater quality, soil conservation and land management practice issues (including riparian management), and effects of land cover on water quantity.

**LM Land Management:** provisions to manage the adverse effects of disturbance of land and soil by earthworks, cultivation, quarries, harvesting and vegetation clearance.

**DW Discharges to Water and Land:** specific provisions to manage the adverse effects of discharges of contaminants to water and land, discharges of water to water, stormwater discharges, and discharges from existing contaminated sites. This chapter relates to section 15 of the Resource Management Act 1991.

**OSET On-site Effluent Treatment:** no current content.

**WQ Water Quantity and Allocation:** provisions to allocate surface and groundwater, manage the adverse effects of damming and diversion, address the artificial control of lake water levels, and manage flood hazards. This chapter relates to section 14 of the Resource Management Act 1991. Instream minimum flow requirements are established in this chapter.

**BW Beds of Water Bodies:** provisions to manage the effects of activities in, on, under or over the beds of rivers, streams, lakes, and land drainage canals. Covers structures, disturbances of the bed, deposition of substances, reclamation and drainage, introduction or removal of plants, and stock presence in the beds of surface water bodies. This chapter relates to section 13 of the Resource Management Act 1991.

**WL Wetlands:** provisions to protect and maintain wetlands in the region, and encourage the creation of new wetlands in appropriate areas.

**TH Tauranga Harbour:** provisions to manage the Tauranga Harbour.

**KM Kaituna Maketū and Pongakawa:** no current content.

**RL Rotorua Lakes and LR Lake Rotorua Nutrient Management:** provisions to manage the Rotorua Lakes.

~~LR Lake Rotorua Nutrient Management: no current content~~

**TW Tarawera:** no current content.

**RT Rangitāiki:** no current content.

**WT Whakatāne and Tauranga:** no current content.

**OH Ōhiwa Harbour and Waiotahe:** provisions to manage the Ōhiwa Harbour and Waiotahe.

**WO Waioeka and Otara:** no current content.

**EC East Coast:** provisions to manage freshwater in the East Coast.

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# List of Abbreviations and Acronyms

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Act/The Act	Resource Management Act 1991
AEP	Annual Exceedance Probability
CSC	Comprehensive Stormwater Consents
Regional Council	Bay of Plenty Regional Council
<u>GMP</u>	<u>Good management practice</u>
<u>GNS Science</u>	<u>Institute of Geological and Nuclear Sciences Limited, brand name GNS Science</u>
IFIM	Instream Flow Incremental Methodology
IMFR	Instream Minimum Flow Requirement
LTP	Long Term Plan
MALF	Mean Annual Low Flow
<u>NDA</u>	<u>Nitrogen Discharge Allocation</u>
NERMN	Natural Environment Regional Monitoring Network
<u>NPSFM</u>	<u>National Policy Statement for Freshwater Management 2020</u>
<u>NuBalM</u>	<u>Nutrient Balance Model used to predict biomass and nitrogen pools in Pinus radiata forests</u>
NZTA	New Zealand Transport Agency
OSET Plan	On-Site Effluent Treatment Regional Plan
RHYHABSIM	River Hydraulic Habitat simulation
<u>ROTAN</u>	<u>Rotorua and Taupō Nutrient Model. This is a geographic information system based catchment hydrology and water quality model developed to predict nitrogen yields and exports in the catchment under different scenarios.</u>
The/this regional plan	Regional Natural Resources Plan
TLI	Trophic Level Index
WMA	Wetland Management Agreement

# Guide to Regional Rules

Activities under this regional plan are permitted, [controlled](#), [restricted discretionary](#), discretionary, [non-complying](#) or prohibited. A permitted activity is allowed without a resource consent if it complies with all the conditions specified in the rule. [A controlled activity must be granted but Council set conditions as part of the consent.](#) [Restricted discretionary, Discretionary and non-complying activities require a resource consent but the consent can be granted or declined.](#) [A discretionary activity is allowed only if a resource consent is obtained for that activity.](#) A prohibited activity will not be allowed in the region, and no resource consent will be granted in respect of that activity.

Activity	Rule Number
<b>Land and Soil Disturbance Activities</b>	
Coastcare Works	LM R5, LM R6
Cultivation	LM R15, LM R16
Earthworks and Quarries	LM R1, LM R2, LM R3, LM R4
Forest Harvesting and Earthworks by Accredited Operators	LM R11, LM R12
Land and Soil Disturbance by Vegetation Clearance	LM R7, LM R8, LM R9, LM R10
Vegetation Clearance by Burning	LM R13, LM R14
<b>Grazing and Stock in the Beds of Surface Water Bodies</b>	
Controlled Stock Crossings	BW R37
Grazing of Land	LM R17, LM R18
Stock in the Beds of Surface Water Bodies	BW R38, BW R39, BW R40
<b>Discharges of Nitrogen or Phosphorus from Land Use and Discharge Activities in the Rotorua Lakes Catchments</b>	
Land Use Activities in <a href="#">targeted Rotorua Lakes Catchments - Lakes Okareka, Rotoehu, Ōkaro and Rotoiti</a>	RL R1, RL R2, RL R3, RL R4, RL R5, RL R6, RL R7
Land Use Activities in the Lake Rotorua Catchment	<a href="#">RL R1</a> , <a href="#">RL R7</a>
Land Use Activities in Other Rotorua Lakes Catchments - <a href="#">Lakes Rerewhakaaitu, Tarawera, Rotoma, Okataina, Tikitapu, Rotokakahi, and Rotomahana</a>	RL R8, RL R9
<b><a href="#">LR Lake Rotorua Nutrient Management</a></b>	
<a href="#">Land Use Rules</a>	<a href="#">LR R1 to LR R12</a>
<a href="#">Discharge Rules (diffuse and point source)</a>	<a href="#">LR R13, RL R7, DW R8</a>
<b>Discharges to Water and Land</b>	
Agrichemicals - Application to Land	DW R12, DW R8
Aquatic Herbicide for Weed Control - Discharge Over Water	DW R1, DW R8
Bark and Wood Waste - Discharge to Land	DW R18, DW R8



# Conversion Index for Provisions

The table provides a guide to convert provision numbers from the system used in previous versions with the alphanumeric system used in the current version.

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Section	Issue	Previous	Objective	Previous	Policy	Previous	Method	Previous	Rule	Previous
<b>Tauranga Harbour</b>			TH O1	18						
<b>Rotorua Lakes</b>			RL O1	11	RL P1	33	RL M1	41	RL R1	11
			RL O2	12			RL M2	42	RL R2	11A
			RL O3	18			RL M3	43	RL R3	11B
							RL M4	52	RL R4	11C
							RL M5	62	RL R5	11D
							RL M6	63	RL R6	11E
							RL M7	69	RL R7	11F
							RL M8	83	RL R8	12
									RL R9	13
<b>Lake Rotorua Nutrient Management</b>					<u>LR P1</u>		<u>LR M1</u>		<u>LR R1</u>	
					<u>LR P2</u>		<u>LR M2</u>		<u>LR R2</u>	
					<u>LR P3</u>		<u>LR M3</u>		<u>LR R3</u>	
					<u>LR P4</u>		<u>LR M4</u>		<u>LR R4</u>	
					<u>LR P5</u>		<u>LR M5</u>		<u>LR R5</u>	
					<u>LR P6</u>				<u>LR R6</u>	
					<u>LR P7</u>				<u>LR R7</u>	
					<u>LR P8</u>				<u>LR R8</u>	
					<u>LR P9</u>				<u>LR R8A</u>	
					<u>LR P10</u>				<u>LR R9</u>	
					<u>LR P11</u>				<u>LR R10</u>	
					<u>LR P12</u>				<u>LR R11</u>	
					<u>LR P12A</u>				<u>LR R11A</u>	
					<u>LR P13</u>				<u>LR R11B</u>	
					<u>LR P14</u>				<u>LR R11C</u>	
					<u>LR P15</u>				<u>LR R12</u>	
					<u>LR P16</u>				<u>LR R13</u>	
					<u>LR P17</u>					
					<u>LR P18</u>					
				<u>LR P19</u>						
<b>Ōhiwa Harbour and Waioatahe</b>			OH O1	18						

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# Introduction

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## Role of the Bay of Plenty Regional Council under the Act

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Part 3 of the Act describes the duties and restrictions under the Act, which includes section 9 (use of land), section 13 (use of the beds of lakes and rivers), section 14 (restrictions on the use of water), and section 15 (discharges to the environment) that are relevant to this regional plan. Regional Councils can only make rules to avoid, remedy or mitigate adverse effects on the environment related to their core functions (as specified in section 30 of the Act), unless specific powers have been transferred to them by a city or district council under section 33 of the Act. Where a resource consent is required for an activity regulated by a regional rule, the Regional Council considers matters listed in Part 2 of the Act in the following circumstances:

- (a) Non-complying and discretionary activities – all Part 2 matters are considered.
- (b) Restricted discretionary – Part 2 matters are only considered where the Regional Council has specially retained discretion over the matter.
- (c) Controlled - Part 2 matters are only considered where the Regional Council has specially retained control over the matter.

When considering a resource consent application in relation to (a) to (c) above, and Part 2 matters are considered, the Regional Council can impose conditions relating to those matters where the conditions relate to the proposed activity. Noise can be controlled by conditions in a regional consent in accordance with section 16(2) of the Act.

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# IM Integrated Management of Land and Water

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IM I2 (Issue 12) **Water quality in some streams, rivers, lakes, estuaries, harbours and coastal margins in the Bay of Plenty can be adversely affected as a result of use and development activities.**

Adverse effects on water quality may include the following:

- 1 Lowered dissolved oxygen.
- 2 Reduced colour and clarity.
- 3 Increased water temperatures.
- 4 Increased levels of bacteria, sediment, nutrients, heavy metals or other contaminants.
- 5 Changes to in-stream biota composition and abundance to more pollutant tolerant species.

Degraded water quality can:

- (a) Limit the use of the water in downstream areas, including water takes for domestic supply, municipal supply, stock water, irrigation or industrial uses. The opportunity to use water in downstream areas is lost where the assimilative capacity of a water body is overloaded by discharges of contaminants to water. This can adversely affect the ability of the community to gain access to potable water supply.
- (b) Adversely affect aquatic ecosystems.
- (c) Adversely affect natural character, landscape, Maori cultural, and recreational values.
- (d) Adversely affect the mauri of the water body.
- (e) Adversely affect the water quality in estuaries, coastal margins and the open coast.
- (f) Have potential adverse effects on human health (e.g. toxic algal blooms).

The major causes of this issue in the Bay of Plenty are:

- (a) Discharges of contaminants or water to water, or discharges to land where the contaminant may enter water, including spills of hazardous substances, where the discharge does not meet required environmental standards.
- (b) Diffuse discharges resulting from land management practices where the adverse effects are not avoided, remedied or mitigated.
- (c) Increased sedimentation as a result of accelerated erosion on land, and activities in the beds of rivers that discharge contaminants or result in sedimentation (including gravel extraction, and stock access to river and lake beds).
- (d) Reduced water flows due to over-abstraction of water.
- (e) A lack of suitable riparian vegetation to stabilise the margins of surface water bodies and filter surface runoff.
- (f) Natural influences and biological responses, including geothermal metals, algal blooms and foams. Natural variances in water quality are evident throughout the region as a result of underlying geology, soil types and weathering patterns. Rivers flowing through peat lands can be discoloured by organic materials leaching into surface water. Water quality can also naturally vary as a result of

climate, the quality of inflows, and water levels. Wildlife, particularly aquatic birds, can affect water quality.

Areas in the Bay of Plenty where degraded water quality is of particular concern are:

- 1 The Rotorua Lakes and their catchments. Excessive nutrients from diffuse discharges in lake catchments can lead to the eutrophication of lakes and undesirable biological responses. Aquatic weed, algae proliferation and 'foams' have been noted in the Rotorua lakes during periods of warm weather. Algal blooms, water-weed and lake 'foams' can also restrict recreational use and lower aesthetic values.
- 2 Streams and rivers where:
  - (a) There are significant heritage values.
  - (b) There is a high leaching of nutrients from land use activities in the catchment, which enter surface water bodies and have adverse effects on water quality and aquatic ecosystems.
  - (c) The stream or river is in the catchment of Tauranga or Ohiwa Harbour, or Waihi Estuary.
  - (d) Algal growths have been noted during periods of dry weather.
  - (e) The stream or river is a source of municipal water supply. It is recognised that treatment technology is available to ensure the urban community is provided with potable water, while allowing for horticultural and agricultural production. However, there are economic benefits to maintaining potable water quality where required, and it may be cost-effective to manage the effects of activities in these catchments.
- 3 Tauranga and Ohiwa Harbours, and Waihi Estuary. Low energy systems such as estuary and harbour environments accumulate sediment-bound contaminants.

Also refer to IM I1 for the effects of land use on water quality, and the importance of stewardship.

<i>Objective</i>	<i>IM O1, RL O1, RL O2, IM O3, IM O7</i>
<i>Policy</i>	<i>IM P1, LM P1, LM P2, IM P3, IM P4, LM P3, IM P5, LM P4, IM P6, IM P8, RL P1, <u>LR Policies LR P1 to LR P19</u></i>
<i>Method</i>	<i>IM M1, IM M2, IM M3, LM M1, LM M2, LM M3, LM M9, LM M12, LM M13, DW M19, RL M2, LM M14, IM M6, IM M8, LM M15, RL M4, LM M17, LM M18, LM M19, IM M10, LM M22, RL M5, RL M6, RL M7, LM M23, IM M13, IM M14, IM M15, IM M16, IM M17, IM M18, IM M21, IM M22, IM M23, IM M25, IM M26, RL M8, IM M28, <u>Water Quality Classification Map, LR Methods LR M1 to LR M5</u></i>
<i>Rule</i>	<i>Rules in the <u>RL Rotorua Lakes and LR Lake Rotorua Nutrient Management section and Discharges to Water and Land section</u></i>
<i>Schedule</i>	<i>9, <u>Schedules LR One to LR Seven</u></i>

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## Land Management

### *Issues*

LM 11 (Issue 10)

Land use and management practices that are inappropriate to the specific characteristics of the site, (including soil type) may cause adverse effects on the environment.

Adverse effects may include the following:

- (a) Erosion of land and the banks of rivers, streams, lakes, and wetlands.
- (b) Reduction of the life-supporting capacity of soil over time either from a loss of soil, the deposition of erosion detritus down-slope or in down-stream areas, or by reducing soil health.
- (c) Increased sediment levels in rivers, streams, lakes, land drainage canals and wetlands, which may reduce water quality; adversely affect aquatic habitat values; reduce the flood flow capacity of rivers, streams and land drainage canals; lead to unstable river and stream systems; and lead to the infilling of wetlands and coastal estuaries and harbours.
- (d) Increased nutrient levels in waterways, which can reduce water quality, change aquatic ecosystems, decrease recreation and other public amenity values, and may lead to adverse effects on human health due to algal blooms.
- (e) Reduced protective function of coastal sand dune systems.
- (f) Adverse effects on ecological values, cultural values, natural character and landscapes. Such values may be modified, damaged or destroyed by inappropriate use and development activities. High natural character contributes to recreational values. The maintenance or enhancement of terrestrial and aquatic ecological values is important to indigenous biodiversity.
- (g) Increased faecal coliform levels in water as a result of diffuse runoff from land use.
- (h) The degradation of peat soils.

The major land use activities and areas of concern in the Bay of Plenty are:

- 1 Land use and land management practices that are not suited to the characteristics of the site. Site characteristics include soil type, slope, receiving environment, assimilative capacity of the environment, and climatic conditions. There is insufficient information identifying the adverse effects of specific land use and land management practices on soil and water resources in the Bay of Plenty. The effects on light volcanic soils, and steep greywacke hill country is of particular concern.
- 2 Animals grazing adjacent to streams, rivers and lakes can increase the risk of direct or diffuse discharges of nutrients, faecal material and sediment to water, and can increase bank erosion.

- 3 Land disturbance activities that are not undertaken in accordance with standards required to avoid, remedy or mitigate adverse effects on the environment. These include earthworks, vegetation disturbance, and cultivation where there is a discharge of sediment to water. Sediment from land disturbance activities is of concern around Tauranga Harbour (resulting from inappropriate developments and earthworks), and the Ohiwa Harbour (where areas of kaimoana [sea food] are affected).
- 4 The inappropriate use of fire for vegetation clearance, particularly on young soils, steep land, and pumice country. The water and soil related concerns are loss of organic matter and nutrients from soils, and the discharge of potash (resulting from ash) to streams.
- 5 Damage to the protective functions of coastal sand dunes, which increases the risk of erosion and flooding from storm events along the Bay of Plenty coast, in particular from Waihi Beach to Opape.
- 6 Inappropriate use and development in riparian management areas, including soil disturbance, vegetation clearance, and inappropriate grazing practices, that lead to erosion and the discharge of sediment to water.
- 7 Peat soils are being degraded by over-drainage (including sub-surface drainage) and inappropriate cultivation, which dry the soil. As peat dries, it shrinks and cracks, making the soil difficult to re-wet. The depth of topsoil also decreases. Inappropriate cultivation can also damage the fibrous structure of peat soils. While the total area of peat soils in the region is not large, the productive value of that area is significant. The main areas of peat soils in the Bay of Plenty region are the Rangitaiki Plains, and localities around Papamoa, Maketu, Pukehina, and Waiotaha Drainage District area. Such soils are not as apparent as in other regions, as peat is often buried under layers of other soil types, or appear in mixed layers.

*Objective* IM O1, LM O1, LM O3, LM O4, LM O5, IM O7

*Policy* IM P1, LM P1, IM P2, IM P3, IM P4, LM P3, IM P5, IM P8, LR Policies LR P1 to LR P19

*Method* LM M1, IM M1, LM M3, IM M3, LM M4, LM M5, LM M6, LM M7, LM M8, LM M10, IM M5, IM M7, IM M8, LM M16, LM M17, LM M19, IM M10, LM M21, IM M12, IM M15, LM M23, LM M24, LM M25, IM M24, LR Methods LR M1 to LR M5

*Rule* LM R1 to LM R16, LM R17, LM R18, LR Rules LR R1 to LR R12

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# DW Discharges to Water and Land

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## Discharges of Contaminants to Land

### Issues

DW I4 (Issue 14) **Groundwater quality can be adversely affected by some use and development activities.**

Adverse effects on groundwater quality may include the following:

- (a) Increased levels of bacteria, nutrients, heavy metals or other contaminants.
- (b) Cross-contamination of aquifer systems.

The major causes of this issue in the Bay of Plenty are:

- (a) Inappropriate water and land use activities in the recharge areas of aquifer systems. This is of particular concern where groundwater is used for municipal water supply (such in the Rotorua, Kawerau and Opotiki districts), and where groundwater feeds sensitive receiving environments (such as the Rotorua lakes, Tauranga and Ohiwa harbours).
- (b) Poor groundwater bore and well construction and maintenance, which allows contaminants to enter groundwater, and provides a pathway for low quality groundwater to contaminate high quality groundwater.

*Objective* IM O1, IM O5, IM O6, IM O7

*Policy* IM P1, LM P1, IM P4, LM P3, IM P5, IM P8, LR Policies LR P1 to LR P19

*Method* IM M2, IM M3, LM M12, IM M6, LM M17, LM M18, IM M11, LM M20, IM M15, LM M23, IM M19, IM M20, IM M27, LR Methods LR M1 to LR M5

*Rule* DW R9, DW R10, DW R11, DW R12, DW R13, DW R14, DW R15, DW R16, DW R17, DW R18, LR R13

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**DW R8 (Rule 37) Discretionary - Discharges to Water or Land**

Any:

- 1 Discharge of a contaminant to water.
- 2 Discharge of water to water.
- 3 Discharge of a contaminant onto or into land in circumstances which may result in the contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water.
- 4 Discharge of a contaminant from any industrial or trade premises onto or into land.

That is not:

- (a) Permitted by a rule in this regional plan.
- (b) Permitted by a rule in any other Bay of Plenty regional plan.
- (c) Prohibited by a rule in this regional plan.

- (d) Restricted discretionary status by a rule in this regional plan.
- (e) Controlled status by a rule in this regional plan.

Is a discretionary activity.

This activity is also subject to the requirements of the rules in the [RL Rotorua Lakes](#) section of this regional plan. The activity will also be subject to the [LR Lake Rotorua Nutrient Management](#) rules if the discharge activity is within the Lake Rotorua groundwater catchment (see Map LR 1).

All discharges to surface water that are discretionary under this rule will be assessed against the Water Quality Classification of the receiving water body (refer to Schedule 9 and the Water Classification map).

Resource consent applicants who seek to exceed the relevant Water Quality Classification standards must provide evidence in their application to demonstrate how the adverse effects of the proposed activity will be avoided, remedied or mitigated to be consistent with IM O3.

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**Assessment Criteria**

When assessing resource consent applications under this rule, the Regional Council will have particular regard to, but not be limited to, the following provisions as appropriate to the nature of the discharge:

<i>Objective</i>	<i>KT O4, KT O5, KT O6, TH O1, RL O3, OH O1, IM O3, IM O4, IM O5, IM O6, LM O4, DW O1, DW O3, DW O7, DW O4, DW O8, DW O9, DW 10, DW O11, DW O12</i>
<i>Policy</i>	<i>KT P5, KT P11, KT P14, KT P15, KT P17, KT P18, KT P19, KT P20, IM P1, DW P1, DW P5, DW P13, DW P7, DW P9, DW P10, DW P14, DW P15, DW P17, DW P18, DW P19, DW P20, <a href="#">LR Policies LR P1 to LR P19</a></i>
<i>Method</i>	<i>KT M13, KT M17, KT M18, KT M20, KT M21, IM M10, IM M12, IM M23, DW M10, DW M11, DW M12, DW M13, DW M14, DW M15, DW M22, DW M23, DW M24, DW M31, DW M39, DW M42, DW M43, <a href="#">LR Methods LR M1 to LR M5</a>, Water Quality Classification Map,</i>
<i>Schedule</i>	<i>9</i>

**DW R19 (Rule 32) Controlled – Discharges of Dairy Shed or Piggery Effluent to Land**

The discharge of dairy shed or piggery effluent to land where the contaminant may enter water where:

- 1 The discharge is spray irrigation; or
- 2 The discharge is soil injection; or
- 3 The discharge is to land soakage and is not within the catchment of the Rotorua Lakes;

Is a controlled activity.

This activity is also subject to the requirements of the rules in the [RL Rotorua Lakes and LR Lake Rotorua Nutrient Management](#) section.

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## DW R21 (Rule 30A)

### Restricted Discretionary – Discharge of Stormwater to Surface Water

The discharge of stormwater to surface water, or to land where the discharge enters surface water, where the rate of discharge is greater than 125 litres per second for a 10 minute duration 10% AEP storm event (10 year return period storm) is a restricted discretionary activity subject to the following conditions:

- (a) The suspended solids concentration of the discharge shall not be greater than 150g/m<sup>3</sup>, except where a 10 minute duration 10% AEP storm event (10 year return period storm) is exceeded.
- (b) The discharge shall be substantially free of grease, oil, scums and foam.
- (c) The discharge shall not contain any stormwater from a timber preservation site, timber treatment site, or a site where chemically treated timber is stored.
- (d) The discharge shall not cause or induce erosion to the bed or banks of any surface water body, or to land, where the erosion is persistent or requires active erosion control measures to bring it under control. Erosion includes:
  - (i) Instability of land or the banks of the surface water body.
  - (ii) Scour to the bed of the surface water body.
  - (iii) Damage to the margins or banks of the surface water body.
- (e) The discharge shall not cause nor contribute to flooding or ponding on any land or property owned or occupied by another person.
- (f) The discharge shall not contain hazardous substances, or substances that are toxic to aquatic ecosystems (as measured relative to the ANZECC Guidelines for Fresh and Marine Water Quality, 20001).
- (g) The discharge shall not contain any wastes (including, but not limited to, wastewater or condensates) from a trade or industrial process.
- (h) The discharge shall not cause a conspicuous change in the colour of the receiving waters.
- (i) Where the discharge is to a part of a receiving water body that is classified as Water Supply, the discharge shall not contain any substance that renders the water unsuitable for treatment (equivalent to coagulation, filtration, disinfection and micro-filtration) for human consumption.

This activity is also subject to the requirements of the rules in the [RL Rotorua Lakes and LR Lake Rotorua Nutrient Management](#) section of this regional plan.

The Regional Council restricts its discretion to the following matters:

- (a) Management and maintenance of the stormwater system to achieve the rule conditions.
- (b) Measures to avoid, remedy or mitigate the adverse effects of the stormwater discharge on:
  - (i) Erosion or land instability.
  - (ii) Water quality.
  - (iii) Flooding of land owned or occupied by another person.
  - (iv) Aquatic ecosystems, indigenous flora and fauna, and the migration of fish species.
  - (v) Users of the water body, including recreational use.
  - (vi) Sites of significance to tangata whenua.
- (c) The administrative charges under section 36 of the Act.
- (d) Monitoring requirements.

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<sup>1</sup> Australian and New Zealand Environment and Conservation Council, 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New Zealand.

#### Explanation/Intent of Rule

To provide for discharges of stormwater to water where the volume of discharge is greater than that considered to be minor, as specified in DW R20, but where the adverse effects are known or can be predicted, and can be controlled through appropriate resource consent conditions. Where the discharge of stormwater to surface water does not comply with DW R20, and is not a restricted discretionary activity under DW R21, it is a discretionary activity under DW R8. Refer to Flow Diagram DW 1 to assist reading of this rule.

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# RL Rotorua Lakes

## Rules

### *Discharges of Nitrogen or Phosphorus from Land Use and Discharge Activities in the Rotorua Lakes Catchments*

#### Explanation/Intent of this section

The rules in this section are necessary to achieve RL O1 and IM P1(a). This section should be read in conjunction with RL M1, RL M2, the Lake Water Quality Management Timetable in Appendix 1 and the Explanation/Principal Reasons for Integrated Management of Land and Water section of Appendix 1 for a full understanding of the provisions for lake water quality management in this regional plan. The intent of the rules in this section is to prevent the net increase of the export of nitrogen or phosphorus from the cumulative effects of all activities in the catchments of degraded lakes in order to assist the recovery of lake water quality. It is recognised that past practices have, over 60 years, contributed to the present state of the lakes, and as a result lake sediments contain high levels of nitrogen and phosphorus. It should be noted that the implementation of this section and RL M1 may take decades to return lake water quality to an acceptable state.

All land use activities in the catchments of the Rotorua Lakes contribute nutrients to the environment. To improve lake water quality it is necessary to adopt an integrated catchment management approach and address the effects of all activities in a catchment, including land use activities and point source discharges (e.g. sewage discharges, septic tanks, dairy shed effluent). It is therefore necessary to apply relevant nutrient management rules to all land use activities in the targeted catchments, which is illustrated in Table RL 1.

Table RL 1 Rules in Rotorua Lakes

	Land Use	Applicable Regional Council Rules
(a)	Reticulated urban areas and lakeside settlements	<p>RL R1 – indicates that the effects of reticulated urban areas and lakeside settlements will be addressed through the control of point source discharges.</p> <p>RL R7 and DW R8 – apply to point source discharges of sewage and stormwater, which are managed by Rotorua District Council. RL R7 restricts any increase in nitrogen or phosphorus from a point source discharge. <a href="#">These two rules continue to relate to land use activities within the Lake Rotorua groundwater catchment.</a></p> <p>Sewage – Resource consents limit the allowable nitrogen and phosphorus discharge from sewage treatment plants. Rotorua City's nutrient loading from sewage has been reduced from 130-150 tonnes nitrogen per year and 33.8 tonnes phosphorus per year (prior to land-based discharge in 1988), to less than 30 tonnes nitrogen per year and less than 3 tonnes phosphorus per year (2004). Reticulation of other urban areas and lakeside settlements will reduce the nutrient loading compared to the current outputs from septic tank systems by up to 80%. Refer to the Rotorua District Council Long Term Plan ('LTP') for reticulation dates for other areas in the Rotorua Lakes' catchments, which will be refined in future editions of the LTP or as a result of community decisions.</p> <p>Urban stormwater – resource consents will require the appropriate management and treatment of urban stormwater to ensure no net</p>

	Land Use	Applicable Regional Council Rules
		increase of nitrogen or phosphorus within the lake catchment from a discharge (refer to the Discharge of Stormwater in the Discharges to Water and Land section of this regional plan).
(b)	Non-reticulated urban areas and lakeside settlements	Septic tank discharges - Refer to the On-Site Effluent Treatment Regional Plan. The rules in that plan require the nutrient loading from septic tank discharges within 200 metres of the lakeshore, or on properties less than 4 hectares within lake catchments, to be substantially reduced from 40-70 grams nitrogen per cubic metre to 15 grams nitrogen per cubic metre. This requires the installation of an advanced treatment system. Some urban areas and lakeside settlements, and small rural properties will be reticulated over time and will then be covered by RL R1. Stormwater discharges – managed as per Reticulated Urban Areas (refer to (a) above).
(c)	Properties <0.4 hectares (4,000 m <sup>2</sup> ) where the nitrogen output from the property is less than 10 kg per hectare per year	RL R2 – permitted providing the nutrient export levels remain below 10 kg per hectare per year (excluding the discharge from on-site effluent treatment systems). <a href="#">This rule does not relate to the Lake Rotorua groundwater catchment as shown Map LR 1.</a> Recognises that low-intensity lifestyle blocks have minimal nutrient exports, while requiring landowners to retain the low intensity land use.
(d)	Other land uses	RL R3, RL R4, RL R5 and RL R6 – establishes a nutrient benchmark that landowners cannot breach. Sets a cap on the level of nutrients from rural land uses within each of the targeted lake catchments. <a href="#">These rules do not relate to the Lake Rotorua groundwater catchment as shown Map LR 1.</a>

The Rules in this section are subject to a ‘mandatory review clause’ to clearly indicate that the Regional Council will review the applicability of the rules to each targeted lake catchment in accordance with RL M2 and the development of Action Plans under RL M1. It is recognised that the current set of rules are ‘first generation’, and that the Action Plan Working Groups may identify and develop more appropriate means of controlling nitrogen and phosphorus losses from land use activities. The wording of the ‘mandatory review clause’ ensures that the existing rules remain enforceable until the new reviewed rules for that lake catchment become operative. However, greater weight will be given to new rules as these progress through submission and appeal processes. The Regional Council is obligated to implement a review of the rules for each of the targeted lake catchments in accordance with the timeframes stated in RL M1. [Specific rules for the groundwater catchment of Lake Rotorua are included in the Part III LR part of this chapter regional plan.](#)

### Advisory Note

- Discharges of nitrogen and phosphorus from on-site effluent treatment systems (including septic tanks) are addressed by provisions in the OSET Plan. Where an on-site effluent treatment system requires a consent under the OSET Plan, the activity will be assessed in accordance with the OSET Plan and RL R7.
- The Rules in this section apply to the activities listed in the table below:

Table RL 2 Rotorua Lakes Activities and Associated Rules

Activity	Catchments of Lakes Okareka, Rotoehu, Okaro, Rotorua and Rotoiti
Urban areas, lakeside settlements and small properties connected to reticulated wastewater systems	RL R1
Small properties (less than 0.4 hectares) not connected to reticulated wastewater systems, and nitrogen export level is less than 10 kg/ha/year <a href="#">(excluding land located within the Lake Rotorua groundwater catchment)</a>	RL R2

Activity	Catchments of Lakes Okareka, Rotoehu, Okaro, Rotorua and Rotoiti
Land use activities that have undergone conversion between 1 July 2001 and 30 June 2004, and subsequent modification ( <u>excluding land located within the Lake Rotorua groundwater catchment</u> )	RL R3, RL R4, RL R5 and RL R6
Land use activities (not conversions) and subsequent modification ( <u>excluding land located within the Lake Rotorua groundwater catchment</u> )	RL R4, RL R5 and RL R6
Existing point source discharges of contaminants	Refer to Rules in the Discharges to Water and Land section
Increases in the discharge of nitrogen or phosphorus from point source discharges	Activity is subject to rules in the Discharges to Water and Land section section and RL R7

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*Increases in Nitrogen and Phosphorus Exports from Non-Point Source Discharges in the Catchments of Lakes ~~Rotorua~~, Rotoiti, Okareka, Rotoehu and Okaro*

This section applies to land use activities, which comprise two components:

- (a) Land use change – the change of land use from one usage to another where the nutrient export from the property is changed. For example, the
- conversion of forestry to grazing, the conversion of dry stock to dairying, the conversion of pastoral grazing to horticulture, or the subdivision of land for lifestyle blocks or residential development.
- (b) Land management practices – different practices within a land use type, including but not limited to, intensification of an existing land use, using a feed pad, fertiliser application rates and timing, riparian retirement, or stock management practices.

RL R2, RL R3, RL R4, RL R5 and RL R6 do not apply to land use activities in the specified lake catchments where reviewed rules for the lake catchment are operative. The mandatory review dates for the rules in the affected lake catchments (including the dates for public notification of reviewed rules) are specified in (a) to (d) below. RL R1 will remain in place as it is intended that lakeside properties, lake settlements, and other small rural properties (where appropriate), will be connected to reticulated sewage systems.

Table RL 3 Rule RL R2 – RL R6 Mandatory Review Clause

	Lake Catchments	Mandatory Review Clause for Rules RL R2 – RL R6
(a)	Lake Okareka	A plan review must be initiated in January 2005 (refer to RL M2), and a plan change will be publicly notified by 1 July 2006.
(b)	Lake Okaro	A plan review must be initiated in January 2006 (refer to RL M2), and a plan change will be publicly notified by 31 December 2007.
(c)	Lake Rotoehu	A plan review must be initiated in January 2006 (refer to RL M2), and a plan change will be publicly notified by 31 December 2007.
(d)	Lakes <del>Rotorua</del> and Rotoiti	A plan review must be initiated in January 2006 (refer to RL M2), and a plan change will be publicly notified by 31 December 2007.

	Lake Catchments	Mandatory Review Clause for Rules RL R2 – RL R6
(e)	<u>Lake Rotorua</u>	<u>A plan change for the Lake Rotorua groundwater catchment was approved on 2 August 2017 and is included in the <del>Part LR</del> part of this chapter regional plan.</u>

For administrative efficiency the rules in this section will be applied in accordance with (a) ~~and~~ (b) and (c) where properties cross lake catchment boundaries:

- (a) Where a property lies within two of the following lake catchments; Lakes ~~Rotorua~~, Rotoiti, Rotoehu, Okareka and Okaro, information will be split to show the nutrient information for those parts of the property within each of the lake catchments.
- (b) Where a property lies partly within the catchment of Lake ~~Rotorua~~, Rotoiti, Rotoehu, Okareka or Okaro, and partly in another catchment, the rules apply only to that part of the property that is within the catchment of a specified lake, unless the area within the targeted lake catchment is less than 4,000 m<sup>2</sup> (0.4 hectares). In situations where the affected area is less than 4,000 m<sup>2</sup> (0.4 hectares), that area is exempt from the rules in this section. (Note, refer to (c) if the catchment that the property extends into is Lake Rotorua groundwater catchment (see Map LR 1)).
- (c) Where a property lies partly within the catchment of Lake Rotoiti or Okareka and partly within the catchment of Lake Rotorua, the relevant LR rules in Part LR will apply to the part of the property that is in the Lake Rotorua groundwater catchment, and the RL rules in Section 9.4.1 will apply to the part of the property in the Lake Rotoiti or Okareka catchment.

The Regional Council has functions under the Act to undertake audits of resource use activities when necessary to assess compliance with rules and consents. This includes, but is not limited to, activities permitted under RL R2, RL R3, and RL R4 and activities consented under RL R5, RL R6, RL R7.

The Regional Council will supply information to Rotorua District Council for inclusion on Land Information Memorandum for properties subject to rules in this section to clearly identify the following, where applicable:

- (a) What lake catchment or catchments the property lies within.
- (b) The part of the property that is exempt from the rules, if the part of the property within a targeted lake catchment is less than 4,000 m<sup>2</sup> (0.4 hectares).
- (c) The rules in this section applicable to the property. Landowners are advised to contact the Regional Council for further information.

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**RL R2 (Rule 11A) Permitted – Small-scale, low nutrient Land Use Activities in the Catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti**

Any land use activity in the catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ or Rotoiti, where:

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**RL R3 (Rule 11B) Permitted – Land Uses on Converted Properties, in the Catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti**

Any land use activity in the catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ or Rotoiti, where:

.....

**Explanation/Intent of Rule**

To allow land use activities in the catchments of those Rotorua Lakes (excluding the Lake Rotorua groundwater catchment (see Map LR 1)) where water quality exceeds the TLI in RL O1, where the effect of the activity does not increase the discharge of nitrogen or phosphorus beyond an established baseline level. Refer to Flow Diagram RL 1 to assist reading of this rule.

**RL R4 (Rule 11C) Permitted – Land Use Activities in the Catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ or Rotoiti – properties where land use change (conversion) has not occurred**

Any land use activity in the catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ or Rotoiti, where the land use activity is not otherwise permitted by RL R1, RL R2 or RL R3; is a permitted activity subject to the following conditions:

.....  
**Explanation/Intent of Rule**

To allow land use activities in the catchments of those Rotorua Lakes (excluding the Lake Rotorua groundwater catchment (see Map LR 1)) where water quality exceeds the TLI in RL O1, where the effect of the activity does not increase the discharge of nitrogen or phosphorus beyond an established nutrient benchmark level (+ or - 10%), or increases can be offset on the property. Refer to Flow Diagram RL 1 to assist reading of this rule.

**RL R5 (Rule 11D) Controlled – Land Use Activities in the Catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti, where the increase in nitrogen or phosphorus exports is fully offset on land within the same lake catchment**

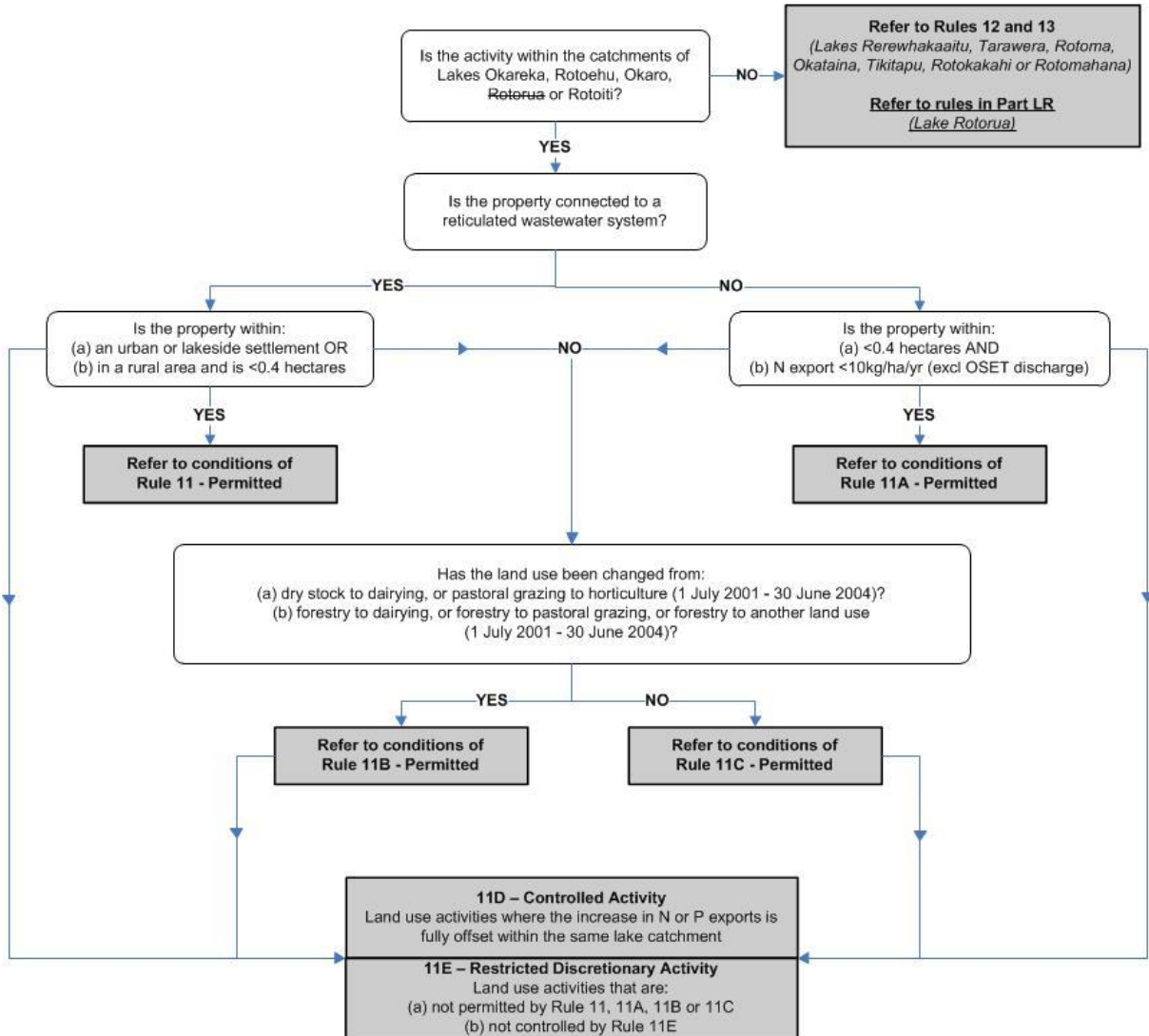
The increase in the discharge of nitrogen or phosphorus from a land use activity in the catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti, where:

**RL R6 (Rule 11E) Restricted Discretionary – Land Use Activities in the Catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti**

The discharge of nitrogen or phosphorus from a land use activity in the catchments of Lakes Okareka, Rotoehu, Okaro, ~~Rotorua~~ and Rotoiti, that is;



# Flow Diagram RL 1 – Discharges and Land Use Activities in the Rotorua Lakes Catchments



# LR Lake Rotorua Nutrient Management

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[Plan change 10 operative text inserted here]

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# Definition of Terms

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[Plan change 10 operative tracked changed inserted here in alphabetic order]



## Appendix 1 – Explanation/Principal Reasons for Provisions

This appendix outlines the explanation and principal reasons for provisions in this regional plan. The contents of this appendix were previously included in previous versions of the regional plan in the relevant chapters.

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### RL Rotorua Lakes

IM O1 to IM O7 and LM O1 to LM O5 provide minimum environmental goals, which the policies and methods seek to achieve. Table A1 55 shows the trophic level indices from RL O1 (which have been established in relation to Burns, 2001<sup>2</sup>, and current levels as at 2007. IM P1 is the main guidance mechanism used in this section of the regional plan which links the management of water and land resources. Water Quality Classifications have been established for all rivers, streams and lakes in the region to achieve the aims of the regional plan as described in the Introduction of this regional plan. RL O1 will primarily be achieved through IM P1, LM P1, LM P2, LM P3, LR Policies LR P1 to LR P19, RL M1, ~~and~~ RL M4, LR Methods LR M1 to LR M5 and rules in the RL Rotorua Lakes and LR Lake Rotorua Nutrient Management section of this regional plan. Non-regulatory methods (e.g. LM M1) will be used to maintain water quality in lakes that meet their TLI. The priority areas for the promotion of sustainable land management practices, as identified in LM M1, are the Rotorua Lakes (and in particular the lakes that do not meet their TLI), and Tauranga and Ohiwa Harbours. These areas were identified in Bay of Plenty Regional Soil Conservation Assessment (Wilson and Ngapo, February 1993<sup>3</sup>).

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The package of methods to improve lake water quality is shown in Table A1 7 below, and the implementation of those methods is illustrated in Figure A1 1. It is important to note that a range of methods will be used to maintain or improve lake water quality, including regulation where necessary. Many methods will be implemented from 2003, or are already being implemented. The Action Plans are the major method used to improve lake water quality, along with the regional rules, in the RL Rotorua Lakes section includes rules being a mechanism to ensure nitrogen and phosphorus levels do not increase further, while the LR rules require managed reduction of nitrogen loss on specific properties in the Lake Rotorua groundwater catchment so that individual properties Nitrogen Discharge Allowance (NDA) may be reached by 2032. It is intended that in time, the rules in the RL Rotorua Lakes section will may be replaced by rules developed specifically for other Rotorua lakes with mechanisms that are appropriate to specific catchments. RL M1 states that there will be an Action Plan developed for each of the Rotorua Lakes over time. Action Plans have so far been developed for Lakes Ōkaro, Ōkataina, Ōkāreka, Rotoehu, Rotomā, Rotorua, Rotoiti and Tikitapu. Initial work has focused on the five lakes where water quality exceeds the TLI set in RL O1. A risk assessment will be carried out for the remaining lakes to determine the risk of the lake exceeding the TLI set in RL O1, after which the development of further Action Plans will be prioritised. Should it be necessary to include any other methods (either regulatory and/or non-regulatory) in this regional plan for other Rotorua Lakes, this will be achieved via a publicly notified plan change process in accordance with the requirements of the Act (refer to Figure A1 1).

The rules in the RL Rotorua Lakes section of this regional plan uses effects-based regulations for land use activities in the Rotorua Lakes' catchments, which target the export of nitrogen and phosphorus (excluding the Lake Rotorua groundwater catchment which has specific policies, methods and rules in the LR section). Both the RL and LR sections ~~It does~~ not preclude specific land uses from lakes' catchments, prescribe how a land use must be carried out, or require land retirement within a catchment.

<sup>2</sup> Burns, N., 2001. Trophic Level Index Baselines and Trends for 12 Rotorua District Lakes, 1990 to 2000. Report by Lakes Consultancy prepared for Environment Bay of Plenty.

<sup>3</sup> Wilson, A., and Ngapo, N., 1993. Bay of Plenty Regional Soil Conservation Assessment. Bay of Plenty Regional Council unpublished report.

Regulations in the Rotorua Lakes section of this regional plan set a nutrient cap for each property in the lake catchment, within which landowners can make their own decisions about the type of land use activity and land management practices implemented on the property. Over time it is likely that technology and innovation will reduce nutrient losses, so it is not appropriate to either prohibit or require a specific land use. Integrating land use planning and regulations in regional council and district council plans under RL M3 will be implemented by applying the water quality objectives in this regional plan, and outcomes from Action Plans developed under RL M1. Under the Act, district plan provisions must not be inconsistent with a regional plan. It is also anticipated that regional plans and district plans may be amended in accordance with catchment requirements identified in Action Plans, which the Regional Council will work in conjunction with Rotorua District Council to achieve. The land use regulations in the Rotorua Lakes section of this regional plan currently apply to Lakes ~~Rotorua~~, Rotoiti, Ōkāreka, Rotoehu and Ōkaro. Where any of the other Rotorua Lakes meets the requirements of RL M4(1) or (2), an action plan for that lake will be developed in accordance with RL M1, and appropriate land use regulations developed.

Table A1 7 Methods to Manage Lake Water Quality

Method	All Lakes	Degraded Lakes
<b>Non-Regulatory Methods</b>		
Riparian Retirement (LM M1)	✓	✓
Action Plans (RL M1)	✓	✓
Review of Rules in the Rotorua Lakes section (RL M2)		✓
Education on nutrient management (IM M1, IM M3, IM M17)	✓	✓
Best Nutrient Management Practices document (IM M17)	✓	✓
Regional Council Environmental Programmes (IM M8)	✓	✓
Ongoing monitoring and research (IM 15, RL M7, LM M26, LM M27, IM M18)	✓	✓
<b>Regulatory Methods</b>		
Rules in <u>RL</u> Rotorua Lakes section	✓ (All lakes, excluding Lake <del>Rotorua</del> rules for other lakes will be added via a plan change process)	✓
<u>Rules in LR Lake Rotorua Nutrient Management section</u>	<u>Lake Rotorua groundwater catchment (as shown on Map LR 1)</u>	
Other discharges in the catchment	✓	✓

Blue-green algae (cyanobacteria) are a group of bacteria, rather than true algae, that have acquired chlorophyll to capture light and behave like plants. Some cyanobacteria produce toxins that can cause a range of health problems, such as skin irritations, nervous system disorders, or cause liver problems, where people are exposed to acute or chronic toxicity levels. Surface blooms occur in the Rotorua Lakes when buoyant Anabaena or Microcystis species accumulate in surface water by using elevated light and nutrient to proliferate and form surface blooms. High numbers of blue-green algae can accumulate in bays due to wind drift where they can form surface scums. RL O2 and IM P1(c) are necessary to reduce the occurrence and intensity of cyanobacteria blooms in the Rotorua Lakes. Lowering the high levels of both nitrogen and phosphorus in the Rotorua Lakes is the key to reducing the frequency of such blooms. The possibility of solely targeting phosphorus to change the dominant algal species in a lake from blue-green to green has been raised. However, lake scientists have clearly stated that the high concentrations of nitrogen and phosphorus are the critical matters in the Rotorua Lakes, not just the N:P (Nitrogen to Phosphorus) ratio. Different algal species may utilise different nutrients at different times of the year, so reducing just one nutrient may do little more than change the dominant species. Implementation of RL O2 and IM P1(c) are linked to IM P1(a), RL M1, IM M21, and regulatory mechanisms in the RL Rotorua Lakes and LR Lake Rotorua Nutrient Management sections. Regular algal monitoring is carried out to help ensure that recreational users of the Rotorua Lakes receive adequate warning when the lakes are not safe for swimming, and other recreational activities. Health warnings are occasionally issued for

lakes or bays alerting lake users of potential health risk from using water affected by high levels of cyanobacteria. Algal species and algal numbers (blooms) are monitored as part of the NERMN programme (refer to IM M15 and the Explanation/Principal Reasons for Integrated Management of Land and Water section in this appendix).

In relation to IM P1(a), the levels of nitrogen and phosphorus in lakes is managed to prevent a net increase in either nutrient. If nitrogen levels decrease, this will not allow for an allowable increase in phosphorus. Note: The LR Lake Rotorua Nutrient Management section contains policies, methods and rules which relate to the management of nitrogen and phosphorus in the Lake Rotorua groundwater catchment (see Map LR 1)