

6 Water

6.1 Scope and Background

6.1.1 Scope

This chapter addresses the management of fresh water in the ~~Manawatu-Wanganui~~ Region. It covers:

- **Water Management Zones* and Sub-zones* and Values** - the establishment of *Water Management Zones* and Sub-zones** and associated water management Values for each *Sub-zone**, for the purpose of managing water quality, water quantity and activities in the beds of rivers and lakes beds.
- **Surface water quality** - the establishment of water quality standards targets for rivers and lakes, in order to give effect to the Values, together with a policy regime of maintaining water quality in those *Water Management Sub-zones** that meet their water quality standards targets, and improving water quality over time in those *Water Management Sub-zones** that do not.
- **Groundwater quality** - the maintenance of existing groundwater quality and its improvement where it is degraded.
- **Discharges and land use activities affecting water quality** - the management of discharges into surface water, discharges onto or into land, and diffuse run-off and other land use activities affecting surface water and groundwater quality.
- **Surface water quantity and allocation** - the establishment of minimum flows and allocation regimes for rivers, and the management of water takes and other activities affecting surface water quantity.
- **Groundwater quantity and allocation, and bores*** - the establishment of *Groundwater Management Zones* (GWMZ)*, identification of the respective allocable volumes and the active management of groundwater takes.
- **Beds of rivers and lakes** - the management of activities that disturb the beds of rivers and lakes, the management of existing and new structures in the beds of rivers and lakes, and the establishment of sustainable gravel extraction limits for rivers.
- **Land adjacent to the beds of rivers and lakes** - the management of some activities in relation to flood control or drainage purposes.

The effects of hill country erosion on water quality are addressed in Chapter 5. The ecological impacts of takes, diversions, discharges and drainage on *rare habitats**, ~~and~~ *threatened habitats** and *at-risk habitats** are addressed in Chapter 7.

6.1.2 Overview

Water is critical for life to exist. People living in the ~~Manawatu-Wanganui~~ Region enjoy a temperate climate, a large number of rivers, streams and lakes and an extensive groundwater system. The Region does not experience the severity of droughts that impact on some other parts of New Zealand and generally there is enough water to meet everyone's needs. People have grown up with an expectation of access to clean, safe water. But ready access means that water has not always been valued highly. The health of the surface water resource has steadily declined in most catchments as a result.

Despite this decline, there has been a revolution around water in the past few decades. In response to public concerns, significant improvements have been

made to the quality of discharges from towns and industrial *sites**. For example, ~~raw untreated~~ sewage is no longer discharged directly into ~~waterways bodies~~, and rivers no longer ~~run red from the~~ receive blood discharged from freezing works. Many former discharges to water, particularly discharges of dairy shed effluent, are now discharged to land. New large water takes, such as those associated with hydroelectric development, are carefully managed to ensure that the downstream needs of people and ecosystems are catered for. Although there have been substantial improvements in the quality of point source discharges to water, ~~some~~ improvement is still possible and is necessary.

There has been a substantial intensification within the agricultural sector in recent years. This has contributed to a vibrant and booming regional economy but has also increased pressure on ~~our~~ the Region's water resources. There has been a significant increase in irrigation demand and the amount of nutrients leaching to surface water and groundwater. Although the impacts of agricultural intensification are less obvious than those caused by the major point source discharges and abstractions mentioned above, they have increased progressively over time.

As ~~our~~ the Region has grown, we have significantly altered the physical nature of many of ~~our~~ its ~~waterways bodies and their beds~~ with structures, drainage and flood protection works, particularly in the Manawatu Plains. These changes have lead to a poor and declining state of physical health in ~~our~~ the Region's ~~waterways bodies and their beds~~.

The impact of discharges and run-off on water quality and the increasing demand for water abstraction are two of the four most critical issues addressed in this Plan.

6.1.3 Water Quantity

The demand on surface water and groundwater resources is one of the most critical issues addressed in this Plan.

Water from the two main fresh water sources within the Region - surface water (rivers and lakes) and groundwater - is abstracted for a variety of uses, including drinking water supply, stock ~~watering~~ supply, irrigation, electricity generation and industrial use.

The single largest user of water in the Region is the energy sector. Hydroelectric power generation takes are concentrated around Mount Ruapehu and on the Mangahao River. The amount of water used for power generation has not changed significantly in the past decade, although there is potential for more hydroelectricity generation in the future.

In contrast, with the exception of consented water supply abstraction from surface water, other uses have steadily increased over the past few decades in response to ~~towns growing~~, stock numbers increasing, and the establishment of industrial plants. In recent years there has been a dramatic increase in water demand. From 1997 to ~~2004~~ 2009, consented groundwater takes almost doubled and consented surface water takes more than doubled (Table 6.1).

Table 6.1 Change in Consented Water Abstraction Volumes from 1997 to 2004 ~~2009~~, (excluding hydroelectric power generation)

		1997 to 20094 Percentage Change in Consented Water Takes		
Source	Sector	1997 (m ³ /d)	20094 (m ³ /d)	Increase (%)
Groundwater	All Sectors	287,000	425,000	+45%
			537,179	+85%
Surface water	Agriculture	70,668	291,949	+313%
			385,579	+446%
	Industry	38,835	56,003	+44%
			97,782	+152%
Water supply	162,024	219,088	+34%	
		133,259	-18%	
	All Sectors	271,527	567,040	+108%
			616,620	+127%

The greater the amount of water taken from a waterway body, the greater the potential impact on instream life, recreational activities (including fishing and swimming and boating), cultural/spiritual values and the ability of the waterway body and its bed to assimilate waste*. ~~Even more~~ As important than as the volume of water abstracted is the timing of abstraction. Rivers in the Region experience natural low flows during summer, which coincides with the period of greatest demand. The taking of water during ~~winter~~ higher flows generally has little impact, but even small takes during summer low flow conditions can have ~~major impacts~~ adverse effects. Measures which avoid those effects during the more critical summer low flow conditions should be encouraged. Maintaining natural flow variability is important for the habitat requirements of fish species, natural character and water quality. The ever-increasing demand on the Region's ~~our~~ surface water resource means that ~~we must manage~~ it must be to ensure that the water taken is used efficiently, and so that the amount of water allocated for abstraction is therefore available to as many users as possible.

Groundwater monitoring indicates that groundwater levels are stable and research indicates that there is sufficient water for all users at a regional scale. A recent increase in large groundwater takes along the west coast has raised the potential for saltwater intrusion. This occurs when enough water is removed from an aquifer to allow seawater to migrate inland. Groundwater contaminated with saltwater is no longer suitable for irrigation or as stock water. ~~Seawater~~ Saltwater-contaminated groundwater will clear with time, but the timescale is measured in centuries.

The high density of bores* in some areas has caused localised problems. These include:

- (a) impacts on other groundwater users. Allowing too many new users to access the groundwater resource will impact on the amount that is available to existing users and can affect the ability of existing bores* to draw water.
- (b) impacts on groundwater-fed streams, lakes and wetlands. Many of the streams, lakes and wetlands along the west coast of the Region (eg., Lakes Papaitonga and Horowhenua) are dependent upon groundwater. Groundwater is particularly important during summer, as it may be the only source of inflow.

*Bores** are the main means of accessing groundwater resources. They provide the principal way of studying the subsurface environment by enabling sampling of subsurface geology, allowing direct measurement of groundwater levels and quality and allowing testing of aquifer yields. This Plan adopts the NZS 4411:2001 Environmental Standard for Drilling of Soil and Rock in its entirety for the management of *bores** (design, drilling, completion, development, testing, *maintenance**, cleaning/disinfection, record keeping and decommissioning).

6.1.4 Water Quality

There is significant variation in water quality across the Region. ~~Streams and Rivers (including streams)~~ emerging from the mountains or areas that have retained their original vegetation cover tend to have very good water quality. The one exception to this is the Whangaehu River, ~~which~~ ~~that~~ flows from the crater lake on Mt Ruapehu. It is naturally acidic and contains high levels of sulphur and heavy metals.

As ~~waterways~~ rivers flow towards the sea, they pick up sediment and nutrients from the surrounding land. As would be expected, water quality in the lower reaches of rivers and streams is poorer than in the headwaters.

In the past, the biggest threats to water quality were municipal, (eg., sewage), industrial (eg., meat works and fellmongers) and agricultural (dairy shed effluent) discharges. Although considerable improvements have been made to discharges to water, further ~~measures are~~ improvement is still possible and necessary.

The intensification in agriculture during the past 10 to 15 years has been especially marked in the dairy sector. Raising stock numbers increases the quantity of dairy shed effluent requiring disposal, the quantity of stock urine produced (a concentrated source of nutrients), and the opportunities for stock to access ~~waterways~~ bodies and their beds. The agricultural sector is recognising the impact it is having on the nation's ~~waterways~~ bodies and has started to act. The dairy sector was the first to respond, with the Dairying and Clean Streams Accord, (an agreement between Fonterra, the Ministry for the Environment, Regional Councils and others on an approach to enhance water quality). ~~However, the results of these~~ Such ~~voluntary approaches are not being seen are~~ one as way of lowering nutrient or and faecal levels in the Region's water bodies and the Regional Council supports them, although rivers and further improvements are needed.

Groundwater quality within the Region varies according to both depth and location. Generally, deeper groundwater is of higher quality. For example, shallow groundwater within the Horowhenua District near Levin has high concentrations of nitrates, which are believed to be the result of septic tank discharges and *fertiliser** use on market gardens. There have been no significant changes in groundwater quality over the length of the Regional Council's monitoring record (more than 15 years). There is no evidence that groundwater quality is deteriorating.

The overall state of fresh water quality in the ~~Manawatu-Wanganui~~ Region is as follows:

- (a) The middle reaches of many rivers are unsafe to swim in because of bacterial contamination, or are unpleasant to swim in because of slime (periphyton) growth (Figure 6.1). Elevated nitrate and phosphate levels promote slime growth. The slime also impacts on fish and instream invertebrate communities.
- (b) The lower reaches of many rivers have high concentrations of bacteria, nitrates, phosphates and sediments, and these levels are increasing.



- (c) There is minimal contamination of surface water from heavy metals, hydrocarbons and other toxic substances.
- (d) The quality of groundwater in the Region is generally suitable for stock needs and irrigation, with a low sodium hazard and a low-medium salinity hazard.
- (e) Nitrate levels are high in shallow groundwater in parts of the Region, but the levels have not changed during the period of monitoring.
- (f) Groundwater is free of herbicides and pesticides.

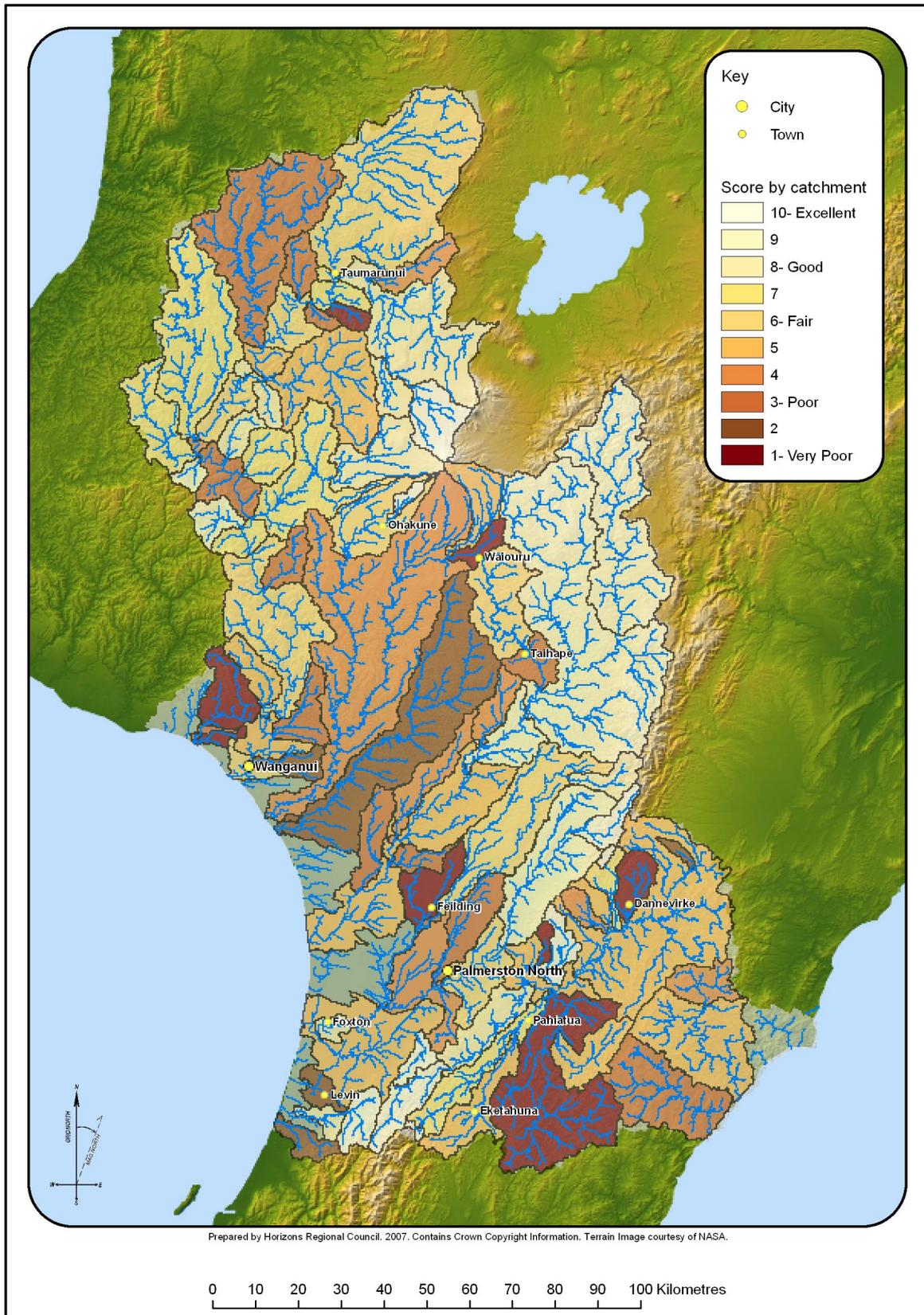


Figure 6.1 Suitability of water quality for contact recreation within the Region



6.1.5 Beds of Rivers and Lakes Beds

People have always been attracted to rivers and lakes to live, work and play. Despite the economic, cultural, social and environmental importance of rivers and lakes, many of the ~~waterways~~ rivers and lakes in the Region have been highly modified over the years. Works to control flooding and erosion, dams, and diversions for hydroelectricity generation can be large scale and have significant effects on the physical nature of ~~our waterways~~ the Region's rivers and lakes. Smaller-scale changes like river crossings and small dams can have negative cumulative impacts. Urban expansion often alters ~~watercourses~~ rivers. Utilisation of the Region's gravel resource provides an economic benefit and there may be flood protection benefits from having it removed from rivers. However, gravel extraction, when not managed well, can lead to increased flooding and erosion risk.

This modification has contributed to the economic growth and wellbeing of ~~our~~ the Region, but it has also negatively altered the character and ecology of most ~~waterways~~ rivers and lakes in the Region, impacting on cultural values attributed to ~~waterways~~ them and leading to the loss or fragmentation of indigenous plant and animal populations.

6.2 Significant Resource Management Issues

Issue 6-1: Water quality

The quality of ~~most~~ many rivers and lakes in the Region has declined to the point that ecological values are compromised and contact recreation such as swimming) is considered unsafe. The principal causes of this degradation are:

- (a) nutrient enrichment caused by run-off and ~~seepage~~ leaching from agricultural land, discharges of treated wastewater, and septic tanks
- (b) high turbidity and sediment loads caused by land erosion, river channel erosion, run-off from agricultural land and discharges of stormwater
- (c) pathogens from agricultural run-off, urban run-off, discharges of sewage, direct stock access to water bodies and their beds and discharges of agricultural and industrial waste*.

Shallow groundwater in areas of intensive rural subdivision and horticulture in the Horowhenua and Tararua Districts has elevated nitrate levels in excess of the New Zealand drinking water standard. However, the quality of groundwater in the Region is generally suitable for stock needs and irrigation, and there has been no evidence of deteriorating groundwater quality during the past 15 years.

Issue 6-2: Water quantity and allocation

The use of both surface water and groundwater has increased dramatically during the last decade. The demand for surface water in the Ohau, Oroua and parts of the upper Manawatu catchments already exceeds supply, and other catchments are experiencing marked increases. This increased demand has the potential to adversely affect both instream values and the natural character of rivers, wetlands and lakes, if not managed. The amount of groundwater is generally capable of meeting demand within the Region, although there is a need to actively manage effects between bores* at a local level, the effects of groundwater takes on surface water, and to be vigilant about the risk of saltwater intrusion along the west coast.

Issue 6-3: Beds of rivers and lakes beds

The demand for flood and erosion control to protect many types of land use has led to significant modification of the Region's waterways rivers and lakes and their margins. Structures required to be located within the beds of rivers and lakes, including bridges, culverts, water intake and discharge pipes and hydroelectricity structures, also affect the natural character of waterways rivers and lakes and their margins. These types of uses and developments, in conjunction with gravel extraction, have modified, and continue to modify the physical characteristics and ecology of many of the Region's waterways rivers and lakes.

6.3

Objectives

Objective 6-1: Water[^] management Values

Surface water bodies[^] and their beds[^] are managed in a manner which sustains their life supporting capacity and recognises and provides for has regard to the Values set out in Schedule D AB¹.

~~Whāinga 6-1: He ūara whakahaere wai~~

~~Ka āta whakahaeretia ngā mata wai i runga i te tikanga tauwhiro hei tiaki oranga, ā, ka whakamanatia, ka taunakitia hoki ngā Ūara kei roto i Schedule D.~~

Whāinga 6-1: He ūara whakahaere wai

Ka āta whakahaeretia ngā mata wai me ngā papa o ērā me te aro atu ki ngā Ūara kei roto i Pukapuka Āpiti AB.

Objective 6-2: Water[^] quality

- (a) Surface water[^] quality is managed to ensure that:
- (i) water[^] quality is maintained in those rivers[^] and lakes[^] where the existing water[^] quality is at a level sufficient to support the Values of the river in Schedule AB
 - (ii) water[^] quality is enhanced in those rivers[^] and lakes[^] where the existing water[^] quality is not at a level sufficient to support the Values of the rivers in Schedule AB
 - (iii) accelerated eutrophication ~~or~~ and sedimentation of lakes[^] in the Region is prevented or minimised
 - (iv) the special values of rivers[^] protected by water conservation orders[^] and ~~local water conservation notices~~ are maintained.
- (b) Groundwater quality is managed to ensure that ~~the~~ existing groundwater quality is maintained, or enhanced where it is degraded.

~~Whāinga 6-2: Te kounga o te wai~~

- ~~(a) Ka whakahaeretia te kounga o te mata wai kia hua ai:~~
- ~~(i) ka tiakina te kounga o te wai kei roto i ngā awa he kaha tonu te kounga o te wai hei hāpai i ngā ūara o te awa~~
 - ~~(ii) ka whakapaingia te kounga o te wai kei roto i ngā awa kāore i te kaha te kounga o te wai hei hāpai i ngā ūara o te awa~~
 - ~~(iii) ka āraia, ka whakaitingia rānei te tere parahanga ā-matū whakamōmona rānei, parataiaotanga rānei o ngā roto o te Rohe, ā~~

¹ Schedule AB is not a component of Part I - the Regional Policy Statement. It is a component of Part II - the Regional Plan.



- (iv) ~~ka whakamarumarutia ngā ūara motuhake o ngā awa e ngā water conservation orders, ā, ka tiakina ngā local water conservation notices.~~
- (b) ~~Ka whakahaeretia te kounga o te waiopapa kia hua ai ka tiakina te kounga o te waiopapa.~~

Whāinga 6-2: Te kounga o te wai

- (a) Ka whakahaeretia te kounga o te mata wai kia hua ai:
- (i) ka tiakina te kounga o te wai kei roto i ngā awa me ngā roto he kaha tonu te kounga o te wai hei hāpai i ngā Ūara kei roto i Pukapuka Āpiti AB
- (ii) ka whakapaingia te kounga o te wai kei roto i ngā awa me ngā roto kāore i te kaha te kounga o te wai hei hāpai i ngā Ūara kei roto i Pukapuka Āpiti AB
- (iii) ka āraia, ka whakaitingia rānei te tere parahanga ā-matū whakamōmona, te parakiwai hoki o ngā roto o te Rohe, ā,
- (iv) ka tiakina ngā ūara motuhake o ngā awa e whakamarumarutia e ngā whakahau whakauka wai, arā, ko ngā water conservation orders.
- (b) Ka whakahaeretia te kounga o te waiopapa kia hua ai ka tiakina – ka whakarākaitia te kounga o te waiopapa i ngā wā kua whakaparungia.

Objective 6-3: Water[^] quantity and allocation

Water[^] quantity is managed to enable people, industry and agriculture to take and use water[^] to meet their reasonable needs while ensuring that:

- (a) For surface water[^]:
- (i) after allowing for takes for existing hydroelectricity generation, minimum flows and allocation regimes are set for the purpose of maintaining or enhancing the existing life-supporting capacity of rivers[^] and their beds[^] and providing for the other Values of rivers in Schedule AB as necessary appropriate
- (ii) in times of water[^] shortage, takes are restricted to those that are essential to the health or safety of people, and communities, or ~~stock~~ drinking water[^] for animals, and other takes are ceased
- (iii) the amount of water[^] taken from lakes[^] does not compromise their existing life-supporting capacity
- (iv) the requirements of water conservation orders[^] and ~~Local Water Conservation Notices~~ are upheld.
- (b) For groundwater:
- (i) takes do not cause a significant adverse effect[^] on the long-term groundwater yield
- (ii) groundwater takes that are hydrologically connected to rivers[^], ~~lakes or wetlands~~ are managed within the minimum flow and allocation regimes established for rivers[^] ~~those waterbodies, or~~
- (iia) groundwater takes that are hydrologically connected to lakes[^] or wetlands[^] are managed to protect their life-supporting capacity of the lakes[^] or wetlands[^]
- (iii) the significant adverse effects[^] of a groundwater take on other groundwater and surface water[^] takes are ~~managed~~ avoided
- (iv) saltwater intrusion into coastal aquifers, induced by groundwater takes, is avoided.



- (c) In all cases, water[^] is used efficiently.

Whāinga 6-3: Te nui o te wai me tōna tūaritanga

~~Ka whakahaeretia te wai kia āhei ai te tangata, ngā ahumahi, me te hunga ahuwhehua te tango me te whakamahi i te wai hei āhua whakatutuki i ō rātou hiahia, kia hua hoki:~~

~~(a) Mō te mata wai:~~

- ~~(i) ka whakatauria ngā rerenga iti me ngā tikanga whakahaere tūaritanga hei tiaki i te oranga tonutanga o ngā awa, hei taunaki hoki i ngā ūara o ngā awa e tika ana~~
- ~~(ii) i ngā wā kōpaka wai, ka whakatikina te tangohanga wai hāunga hei tiaki i te hauora, te haumaruru rānei o te tangata, ngā hapori, kararehe pāmu rānei, ā, ka katia rawatia te tango mō take kē atu~~
- ~~(iii) e kore e waimoha te oranga tonutanga mā te tango wai ahakoa nui, iti rānei i ngā roto, ā~~
- ~~(iv) ka hāpaitia ngā whakaritenga o ngā water conservation orders me ngā local water conservation notices.~~

~~(b) Mō te waiopapa:~~

- ~~(i) e kore te tangohanga wai e whakapā kaha i te huanga roa o te waiopapa~~
- ~~(ii) ka whakahaeretia ngā tangohanga waiopapa e pā ana ki ngā awa, roto, papa waiwai rānei i runga i ngā tikanga whakahaere rerenga wai iti, tūaritanga hoki kua whakaritea mō aua wai, hei whakamarumaruru rānei i ō rātou oranga tonutanga~~
- ~~(iii) ka whakahaeretia ngā pānga o ngā tangohanga waiopapa ki tangohanga waiopapa kē, ā~~
- ~~(iv) ka parea te urunga o te waitai, nā te tangohanga waiopapa, ki roto i ngā kahupapa takutai moana, ā.~~

~~(c) I ngā wā katoa ka whakamahia te wai i runga i te tikanga whakamau.~~

Whāinga 6-3: Te nui o te wai me tōna tūaritanga

Ka whakahaeretia te wai kia āhei ai te tangata, ngā ahumahi, me te hunga ahuwhehua te tango me te whakamahi i te wai hei whakatutuki i ō rātou hiahia, kia hua ai hoki:

(a) Mō te mata wai:

- (i) whai muri mai i te maumahara mō te tango wai hei mahi hiko ā-wai ka whakatauria ngā rerenga iti me ngā tikanga whakahaere tūaritanga hei tiaki i te oranga tonutanga o ngā awa me ngā papa o ērā hei taunaki hoki i ngā Ūara e tika ana kei roto i Pukapuka Āpiti AB
- (ii) i ngā wā kōpaka wai, ka whakatikina te tango wai hāunga rā hei tiaki i te hauora, te haumaruru rānei o te tangata, ngā hapori, hei wai inu mō ētahi kararehe rānei, ā, ka katia rawatia te tango mō take kē atu
- (iii) e kore e waimoha te oranga tonutanga mā te tango wai i ngā roto
- (iv) ka hāpaitia ngā whakaritenga o ngā tauākī whakauka wai me ngā pānui ā-takiwā mō te whakauka wai, arā, ko ngā local water conservation notices.

(b) Mō te waiopapa:

- (i) e kore te tango wai e pā kaha atu ki te huanga roa o te waiopapa



- (ii) ka whakahaeretia te tango waiopapa e pā ana ki ngā awa i runga i ngā tikanga whakahaere rerenga wai iti, tūaritanga hoki kua whakaritea
- (iia) ka whakahaeretia te tango waiopapa e pā ana ki ngā roto, ngā papa waiwai rānei hei whakamarumarū i te oranga tonutanga o ngā roto, ngā papa waiwai rānei
- (iii) ka parea ngā pānnga kino o te tango waiopapa ki te mahi tango i waiopapa kē, tango mata wai rānei
- (iv) ka parea te urunga o te waitai, nā te tango waiopapa, ki roto i ngā kahupapa takutai moana, ā.
- (c) I ngā wā katoa ka whakamahia te wai i runga i te tikanga whakamau.

Objective 6-4: Beds[^] of rivers[^] and lakes[^] beds

The beds[^] of rivers[^] and lakes[^] and land[^] adjacent to the bed[^] of reaches with a Schedule AB Value of Flood Control and Drainage are managed to enable future use and development, while having regard to All-significant their other Schedule AB Values of river and lake beds are recognised and provided for, including enabling future use and development of river and lake beds, provided other values of the river or lake are not compromised and achieving Objective 7-2(b) and (c).

Whāinga 6-4: Ngā awa me ngā papa roto

Ka whakamanatia, ka pukumaharatia hoki ngā ūara nui o ngā awa me ngā papa roto ehara tonu ko te whakamahi me te whakarerekē awa, papa roto hoki mea ake nei, me kī, ki te kore e waimeha ērā atu ūara o te awa, roto rānei.

Whāinga 6-4: Ngā papa awa me ngā papa roto

Ka whakahaeretia ngā papa awa me ngā papa roto me ngā whenua e pātata ana ki aua papa me te toronga e hāngai ana ki te Whakahaere Waipuke me te Ūara Awakeri – kia hua ai te whakamahi me te whakaahu mea ake nei, me kī, kia aro hoki ki ērā atu o ngā Ūara Pukapuka Āpiti AB, ā, kia tutuki hoki ngā Whāinga 7-2(b) me (c).

6.4 Policies

6.4.1 Water Management Framework Zones and Values

Policy 6-1: Water Management Zones* and Values

For the purposes of managing water[^] quality, water[^] quantity, and activities in the beds[^] of rivers[^] and lakes[^], the rivers[^] and lakes[^] catchments in the Manawatu-Wanganui Region have been divided into the Water Management Zones* and Water Management Sub-zones* shown in Schedule D AA.² Groundwater has been divided into Groundwater Management Zones* in Schedule C.³

The rivers[^] and lakes[^] and their beds[^] shall must be managed in a manner which recognises and provides for has regard to the Schedule AB Values identified in Schedule D for each water management zone when decisions are made on avoiding, remedying or mitigating the adverse effects[^] of activities. The individual Values and their associated purposes management objectives are set out in the Schedule AB Surface Water Management Values Key and repeated in Table 6.2.

² Schedule AA is not a component of Part I - the Regional Policy Statement. It is a component of Part II - the Regional Plan.

³ Schedule C is not a component of Part I - the Regional Policy Statement. It is a component of Part II - the Regional Plan.

Water Management Zones* and Water Management Sub-zones* throughout the Region (and particularly those with good head and flow available) may have potential for hydroelectricity generation. Further site*-specific assessment will be needed to establish the locations where such potential may be realised while having regard to the Schedule AB Values of the relevant water bodies[^] and their beds[^].

Table 6.2 Surface Water[^] Management Values and Purposes Management Objectives

Value Group		Individual Values	Management Objective
Ecosystem Values	NS	Natural State	The <u>waterbody</u> <u>river</u> [^] and its <u>bed</u> [^] is are maintained in its their natural state
	LSC	Life-supporting Capacity	The <u>water body</u> [^] and its <u>bed</u> [^] supports healthy aquatic life / ecosystems
	SOS-A	Sites of Significance - Aquatic	Sites of significance for <u>native indigenous</u> aquatic biodiversity are maintained or <u>improved enhanced</u>
	SOS-R	Sites of Significance - Riparian	Sites of significance for <u>native indigenous</u> riparian biodiversity are maintained or <u>improved enhanced</u>
	NFS IS	<u>Native Fish Inanga</u> Spawning	The <u>water body</u> [^] and its <u>bed</u> [^] sustains healthy <u>native fish inanga</u> spawning and <u> fry egg</u> development
	WM	<u>Whitebait*</u> Migration	The <u>water body</u> [^] and its <u>bed</u> [^] are maintained or enhanced to provide safe passage of inwardly migrating juvenile native fish known collectively as <u>whitebait*</u>
Recreational and Cultural Values	CR	Contact Recreation	The <u>water body</u> [^] and its <u>bed</u> [^] is are suitable for contact recreation
	AM	<u>Amenity</u>	The <u>amenity</u> values of the <u>waterbody</u> and its margins are maintained or improved
	NF	<u>Native Fishery</u>	The <u>waterbody</u> sustains populations of <u>native fish</u> that can be harvested in a sustainable manner
	MAU	<u>Mauri*</u>	The <u>mauri*</u> of the <u>water body</u> [^] and its <u>bed</u> [^] is maintained or improved enhanced
	SG	<u>Shellfish Gathering</u>	The <u>waterbody</u> is suitable for shellfish harvesting
	SOS-C	Sites of Significance - Cultural	Sites of significance for cultural values are maintained
	TF	Trout Fishery	The <u>water body</u> [^] and its <u>bed</u> [^] sustains healthy rainbow and/or brown trout fisheries
	TS	Trout Spawning	The <u>water body</u> [^] and its <u>bed</u> [^] meets the requirements of rainbow and brown trout spawning and larval and fry development
	AE	Aesthetics	The aesthetic values of the <u>water body</u> [^] and its <u>bed</u> [^] and its margins are maintained or improved enhanced
Water[^] Use	WS	<u>Water[^] Supply</u>	The <u>water[^] body</u> is suitable, after treatment, as a <u>raw drinking water[^]</u> source for human consumption
	IA	Industrial Abstraction	The <u>water[^] body</u> is suitable as a <u>water[^]</u> source for industrial abstraction or use, including for hydroelectricity generation
	I	Irrigation	The <u>water[^] body</u> is suitable as a <u>water[^]</u> source for irrigation
	SW	Stockwater	The <u>water[^] body</u> is suitable as a supply of drinking <u>water[^]</u> for livestock
Social/Economic Values	CAP	Capacity to Assimilate Pollution	The capacity of a <u>water body</u> [^] and its <u>bed</u> [^] to assimilate pollution is not exceeded
	FC/D	Flood Control and Drainage	The integrity of existing flood and <u>river</u> [^] bank erosion protection <u>structures</u> [^] and existing drainage <u>structures</u> [^] is not compromised



Value Group	Individual Values	Management Objective
D	Drainage	The integrity of existing drainage structures is not compromised
EI	Existing <i>Infrastructure</i> [^]	The integrity of existing <i>infrastructure</i> [^] is not compromised

6.4.2 Water Quality

6.4.2.1 Surface Water Quality

Policy 6-2: Water[^] quality standards targets

In Schedule D⁴, water[^] quality standards targets relating to the Schedule AB Values described in Policy 6-1 (repeated in Table 6.2) have been developed and identified for each Water Management Sub-Zone*, as shown in Schedule D. Other than where they are incorporated into permitted activity[^] rules as conditions[^] to be met, the water[^] quality standards targets in Schedule D shall must be used to inform for the management of surface water[^] quality in the manner set out in Policies 6-3, 6-4 and 6-5.

Policy 6-3: Ongoing compliance where water[^] quality standards targets are met

- (a) In each case where the existing water[^] quality meets the relevant Schedule D water[^] quality standard targets within a Water Management Sub-zone*, as shown in Schedule D, activities shall must be managed in a manner which ensures that the water[^] quality standard targets continues to be met beyond the zone of reasonable mixing.
- (b) For the avoidance of doubt, subsection (a) applies:
 - (i) in circumstances where the existing water[^] quality of a Water Management Sub-zone* meets all of the water[^] quality standards targets for the Sub-zone* (in which case subsection (a) applies to every water[^] quality standard target for the Sub-zone*)
 - (ii) in circumstances where the existing water[^] quality of a Water Management Sub-zone* meets some of the water[^] quality standards targets for the Sub-zone* (in which case subsection (a) applies only to those standards targets met).

Policy 6-4: Enhancement where water[^] quality standards targets are not met

- (a) In each case where the existing water[^] quality does not meet the relevant Schedule D water[^] quality standard targets within a Water Management Sub-zone*, as shown in Schedule D, activities shall must be managed in a manner which, beyond the zone of reasonable mixing, enhances water quality in order to meet the water quality standard for the water management zone* shown in Schedule D.
 - (i) enhances existing water[^] quality where that is reasonably practicable, or otherwise maintains it, and
 - (ii) has regard to the likely effect[^] of the activity on the relevant Schedule AB Value that the water[^] quality target is designed to safeguard.

⁴ Schedule D is not a component of Part I - the Regional Policy Statement. It is a component of Part II - the Regional Plan.

- (b) For the avoidance of doubt, ~~subsection (a) applies:~~
- (i) in circumstances where the existing *water*[^] quality of a *Water Management Sub-zone*^{*} does not meet ~~any~~ all of the *water*[^] quality ~~standards~~ targets for the *Sub-zone*^{*}, ~~(in which case subsection (a) applies to every *water*[^] quality standard target for the *Sub-zone*)~~
 - (ii) in circumstances where the existing *water*[^] quality of a *Water Management Sub-zone*^{*} does not meet ~~all~~ some of the *water*[^] quality ~~standards~~ targets for the *Sub-zone*^{*}, ~~(in which case subsection (a) applies only to those standards targets not met).~~

Policy 6-5: Management of activities in areas where existing *water*[^] quality is unknown

- (a) In each case where there is insufficient data to enable a comparison of the existing *water*[^] quality with the relevant Schedule D *water*[^] quality standard targets ~~as shown in Schedule D~~, activities shall must be managed in a manner which, beyond the zone of reasonable mixing:
- (i) maintains or ~~improves~~ enhances the existing *water*[^] quality
 - (ii) has regard to the likely effect of the activity on the relevant values identified Schedule AB Values that the *water*[^] quality target is designed to safeguard for the relevant water management zone^{*}
 - (iii) has regard to relevant information about the existing *water*[^] quality in upstream or downstream *Water Management Sub-zones*^{*}, where such information exists.
- (b) For the avoidance of doubt, ~~subsection (a) applies:~~
- (i) in circumstances where there is insufficient data to enable a comparison of the existing *water*[^] quality with ~~any~~ all of the *water*[^] quality ~~standards~~ targets for a *Water Management Sub-zone*^{*}, ~~(in which case subsection (a) applies to every *water*[^] quality standard target for the *Sub-zone*^{*}.)~~
 - (ii) in circumstances where there is insufficient data to enable a comparison of the existing *water*[^] quality with ~~all~~ some of the *water*[^] quality ~~standards~~ targets for a *Water Management Sub-zone*^{*}, ~~(in which case subsection (a) applies only to those standards targets with insufficient data).~~

6.4.2.2

Groundwater Quality

Policy 6-6: Maintenance of groundwater quality

- (a) *Discharges*[^] and *land*[^] use activities ~~shall~~ must be managed in a manner which maintains the existing groundwater quality, or enhances it where it is degraded.
- (aa) An exception may be made under (a) where a *discharge*[^] onto or into *land*[^] better meets the purpose of the RMA than a *discharge*[^] to *water*[^], provided that the *best practicable option*[^] is adopted for the treatment and *discharge*[^] system.
- (b) Groundwater takes in the vicinity of the coast ~~shall~~ must be managed in a manner which avoids saltwater intrusion.



6.4.2.3

Discharges and Land use Activities Affecting Water Quality

Policy 6-7: Land[^] use activities affecting groundwater and surface water[^] quality

- (a) **Nutrients**
- (i) ~~Intensive Existing dairy farming* land~~[^] use activities ~~shall must~~ be regulated in ~~targeted specified Water Management Sub-zones*~~ to achieve nutrient management planning, the exclusion of dairy cattle from some surface water bodies[^] and their beds[^] and the provision of dairy cattle crossings over some rivers[^].
- (ia) New dairy farming* land[^] use activities must be regulated throughout the Region so as not to exceed nitrogen leaching rates based on the natural capital* of each LUC* class of land[^], and to achieve nutrient management planning, the exclusion of dairy cattle from some surface water bodies[^] and their beds[^] and the provision of dairy cattle crossings over some rivers[^].
- (ii) For the purposes of ~~subsection (a)(i), targeted specified Water Management Sub-zones*~~ shall be are those Sub-zones* listed in Table 13.1 where, collectively, intensive dairy farming* land[^] use activities ~~are the predominant cause of~~ are significant contributors to elevated nutrient levels in groundwater or surface water[^].
- ~~(iii) Those persons carrying out intensive farming land use activities in the water management zones* targeted in subsection (a)(i) shall be required, amongst other things, to prepare a nutrient management plan for the purposes of:~~
- ~~(1) establishing the measures required to achieve the target contaminant loading rates for the relevant water management zone*, as specified in Schedule D~~
 - ~~(2) identifying best management practices~~
 - ~~(3) establishing programmes for implementing any required changes.~~
- (b) **Faecal contamination**
- ~~(i) Intensive farming land use activities shall be regulated in targeted water management zones*.~~
- ~~(ii) For the purposes of subsection (b)(i), targeted water management zones* shall be those zones where, collectively, intensive farming land use activities are causing elevated faecal contamination levels.~~
- (iii) Those persons carrying out intensive existing dairy farming* land[^] use activities in the Water Management Sub-zones* listed in Table 13.1 or new conversions to dairy farming* anywhere in the Region targeted in subsection (b)(i) shall must be required, amongst other things, to
- (1) prevent stock dairy cattle access to some surface water bodies[^] and their beds[^] waterbodies
 - (2) mitigate against faecal contamination of surface water[^] from other entry points (eg., race run-off)
 - (3) establish programmes for implementing any required changes.
- (c) **Sediment**
- (i) In those Water Management Sub-zones* where agricultural land[^] use activities are the predominant cause of elevated sediment

levels in surface water[^], the Regional Council will promote the preparation of voluntary management plans under the Council's Sustainable Land Use Initiative or Whanganui Catchment Strategy ~~non-regulatory whole farm business plans shall be prepared and implemented~~ for the purpose of reducing the risk of accelerated soil erosion^{*}, as described in Chapter 5.

Policy 6-8: Point source discharges[^] to water[^]

- (a) The management of point source discharges[^] into surface water[^] shall ~~must recognise and provide for~~ have regard to the strategies for surface water[^] quality management set out in Policies 6-3, 6-4 and 6-5 ~~after reasonable mixing~~^{*}, while having regard to:
- (i) the degree to which the activity will adversely affect the Schedule AB Values identified for the relevant Water Management Sub-zone(s)^{*}
 - (ii) whether the discharge[^], in combination with other discharges[^], including non-point source discharges[^], will cause the Schedule D water[^] quality standards targets set in Schedule D to be breached
 - (iii) the extent to which the activity is consistent with contaminant[^] treatment and discharge[^] best management practices
 - (iv) the need to allow reasonable time to achieve any required improvements to the quality of the discharge[^].
- (b) ~~The Regional Council may make an exception to subsection (a) where:~~
- ~~(iva)(i) in the case of discharges, whether the discharge~~[^] is of a temporary nature or is associated with necessary maintenance[^] or upgrade^{*} work and the discharge[^] cannot practicably be avoided
 - ~~(ivb)(ii) whether adverse effects~~[^] resulting from the discharge[^] can be fully offset by way of a financial contribution set in accordance with Chapter 18
 - ~~(ivc)(iii) whether it is appropriate to adopt the best practicable option~~[^].
 - ~~(iv) other exceptional circumstances apply~~
- ~~and it is consistent with the purpose of the RMA to do so.~~

Policy 6-9: Point source discharges[^] to land[^]

Discharges[^] of contaminants[^] onto or into land[^] shall must be managed in a manner which:

- ~~(a) ensures that there is no significant degradation of the existing groundwater quality~~
- (b) does not result in pathogens or other toxic substances accumulating in soil or pasture to levels that would render the soil unsafe for agricultural, or domestic or recreational use
- (c) ~~recognises and provides for~~ has regard to the strategies for surface water[^] quality management set out in Policies 6-3, 6-4 and 6-5, and the strategy for groundwater management set out in Policy 6-6 ~~as necessary~~
- (d) maximises the reuse of nutrients and water[^] contained in the discharge[^] to the extent reasonably practicable
- (e) results in any discharge[^] of liquid to land[^] generally not exceeding the available water[^] storage capacity of the soil (deferred irrigation)
- (f) ensures that adverse effects[^] on rare habitats^{*}, threatened habitats^{*} and at-risk habitats^{*} are avoided, remedied or mitigated.



Policy 6-10: Options for discharges to surface water and land

~~When applying for consents and making decisions on consent applications for discharges of contaminants to water or land, the opportunity to utilise alternative discharge options or a mix of discharge regimes, for the purpose of mitigating adverse effects where practicable, shall be considered, including but not limited to:~~

- ~~(a) discharging contaminants onto land in preference to discharging contaminants into water~~
- ~~(b) withholding from discharging contaminants into surface water at times of low flow~~
- ~~(c) adopting different treatment options for discharges to different receiving environments or at different times (including different flow regimes in surface waterbodies).~~

Policy 6-11: Human sewage *discharges*[^]

~~Notwithstanding targets for water quality and other policies in this chapter:~~

- ~~(a) before entering a surface water body[^] all new *discharges*[^] of treated human sewage shall must be:

 - ~~(i) be applied onto or into *land*[^], or~~
 - ~~(ii) flow overland, or~~
 - ~~(iii) pass through a rock filter, or~~
 - ~~(iv) pass through a wetland[^] treatment system ~~before entering a surface waterbody, or~~~~
 - ~~(v) pass through an alternative system that mitigates the adverse effects[^] on the mauri^{*} of the receiving water body[^], and~~~~
- ~~(b) all existing direct *discharges*[^] of treated human sewage into a surface water body[^] shall must change to a treatment system described under subsection (a) by the year 2020.~~

6.4.3

Water Quantity and Allocation

6.4.3.1

Policies applying to both Surface Water and Groundwater

Policy 6-12: Reasonable and justifiable need for *water*[^]

~~Subject to Policy 6-19, the amount of *water*[^] taken by resource users shall must be reasonable and justifiable for the intended use. In addition, the following specific measures for ensuring reasonable and justifiable use of *water*[^] shall must be taken into account when considering consent applications to take *water*[^] for irrigation, *public water supply*^{*}, *animal drinking water*[^], *dairy shed washdown* or industrial use, and during reviews of consent *conditions*[^] for these activities.~~

- ~~(a) For irrigation, *resource consent*[^] applications shall must be required to meet a reasonable use test in relation to the maximum daily rate of abstraction, the irrigation return period and the seasonal or annual volume of the proposed take. When making decisions on the reasonableness of the rate and volume of take sought, the Regional Council will must:

 - ~~(i) consider *land*[^] use, crop *water*[^] use requirements, on-site physical factors such as soil *water*[^]-holding capacity, and climatic factors such as rainfall variability and potential evapo-transpiration~~
 - ~~(ii) assess applications either on the basis of an irrigation application efficiency of 80% (even if the actual system being used has a lower application efficiency), or on the basis of a higher efficiency~~~~

- where an application is for an irrigation system with a higher efficiency
- (iii) link actual irrigation use to soil moisture measurements or daily soil moisture budgets in consent conditions[^].
- (aa) For domestic use, animal drinking water[^] and dairy shed washdown water[^], reasonable needs must be calculated as:
- (i) up to 300 litres per person per day for domestic needs
- (ii) up to 70 litres per animal per day for drinking water[^]
- (iii) up to 70 litres per animal per day for dairy shed washdown.
- (b) For industrial uses, water[^] allocation shall must be calculated where possible in accordance with best management practices for water[^] efficiency for that particular industry.
- (c) For public water supplies*, the following shall must generally be considered to be reasonable:
- (i) an allocation of 300 litres per person per day for domestic needs, plus
- (ii) an allocation for commercial use equal to 20% of the total allocation for domestic needs, plus
- (iii) an allocation for industrial use calculated, where possible, in accordance with best management practices for water[^] efficiency for that particular industry, plus
- (iiia) an allocation necessary for hospitals, other facilities providing medical treatment, marae, schools or other education facilities, New Zealand Defence Force facilities or correction facilities, plus
- (iiib) an allocation necessary for public amenity and recreational facilities such as gardens, parks, sports fields and swimming pools, plus
- (iv) any allocation necessary to cater for the reasonable needs of livestock animals or agricultural practices uses that are connected to supplied by the public water supply* system, plus
- (v) an allocation necessary to cater for growth, where urban growth of the municipality is zoned provided for in an operative district plan[^] for the area and is reasonably forecast, plus
- (vi) an allocation for leakage equal to 15% of the total of subsections (i) to (v) above.
- (d) When making decisions on consent applications where the existing allocation for a public water supply* exceeds the allocation calculated determined in accordance with subsections (c)(i) to (c)(vi) above:
- (i) the Regional Council will establish, in consultation with the relevant Territorial Authority, consideration must be given to imposing a timeframe within which it is reasonably practicable for by which the existing allocation shall to be reduced to the calculated determined amount, or
- (ii) if (i) is not imposed, an alternative allocation must be determined based on the particular social and economic circumstances of the community serviced by the public water supply* and the actual and potential effects[^] of the abstraction on the relevant Schedule AB Values for the reach of river[^] or its bed[^] affected by the take.



Policy 6-13: Efficient use of water[^]

Water[^] shall ~~must~~ be used efficiently, including by the following measures:

- (a) requiring water[^] audits and water[^] budgets to check for leakages and water[^]-use efficiency as appropriate
- (b) requiring the use of, or progressive *upgrade*^{*} to, *infrastructure*^{^z} for water[^] distribution that minimises ~~use and the~~ loss of water[^] and restricts the use of water[^] to the amounts determined in accordance with Policy 6-12
- (c) enabling the transfer of *water permits*[^]
- (ca) promoting water[^] storage
- (d) raising awareness about water[^] efficiency issues and techniques
- (e) requiring monitoring of water[^] takes, including by installing water[^] metering and telemetry to monitor water use.

Policy 6-14: Consideration of alternative water sources

~~When making decisions on consent applications to take surface water, the opportunity to utilise alternative sources such as groundwater or water storage shall be considered.~~

6.4.3.2

Policies for Surface Water

Policy 6-15: Overall approach for surface water[^] allocation

- (a) The requirements of *water conservation orders*[^] shall must be given effect under this Plan.
- ~~(b) The provisions of this plan will not be inconsistent with the intent of local water conservation notices.~~
- (ba) Takes lawfully established for hydroelectricity generation at the time of Plan notification (31 May 2007) must be provided for prior to implementing (c) and (d) below.
- (c) Core allocations of surface water[^] from *rivers*[^] shall must be determined in accordance with Policies 6-16 and 6-17. Takes that comply with the relevant core allocation, when assessed in combination with all other takes, shall must be allowed.
- (d) Supplementary allocations of surface water[^] from *rivers*[^] shall must be determined in accordance with Policy 6-18.
- (e) Takes from *rivers*[^] shall must be apportioned, restricted or suspended ~~in times of low~~ when river[^] flows are at or below their minimum flows in accordance with the provisions of Policy 6-19.
- (f) Takes of water[^] from *lakes*[^] shall must comply with Policy 6-20.

Policy 6-16: Core water allocations and minimum flows

- (a) The taking of surface water[^] shall from rivers[^] must be managed in accordance with the minimum flows and cumulative core allocations set out ~~for each water management zone*~~ in Schedule B.
- (b) The minimum flows and cumulative core allocations set out in Schedule B shall must be ~~assessed set~~ after excluding any takes lawfully established for hydroelectricity generation at the time of Plan notification (31 May 2007) have been taken. The only exception to this will be the hydro electricity takes from Zone Whau_{3e}.

Policy 6-17: Approach to setting minimum flows and core allocations

- (a) Where good hydrological information, such as a specific *water*[^] resource study or a long-term flow record, is available it ~~shall~~ must be used to set minimum flows and core allocations in Schedule B.
- (b) Where information described in (a) above is not available, the minimum flows and core allocations set out in Schedule B ~~shall~~ must generally be a minimum flow equal to the estimated or calculated one-day mean annual low flow, and a core allocation equal to a percentage of the minimum as specified in Schedule B.
- (c) The use of a revised minimum flow or core allocation that is an alternative to that set under (a) or (b) may be considered on a case-by-case basis where:
 - (i) an applicant for a *water*[^] take consent has proposed a revised minimum flow or core allocation based on new or improved scientific knowledge, and
 - (ii) the adverse *effects*[^] of the revised minimum flow and core allocation on the Schedule AB Values for the *river*[^] or its *bed*[^] at, and downstream of, the point of take are no more than minor.

Policy 6-18: Supplementary *water*[^] allocation

In addition to the core allocations set out in Policy 6-16, a supplementary allocation from *rivers*[^] may be provided:

- (a) in circumstances where *water*[^] is only taken when the *river*[^] flow is greater than the median flow, and the total amount of *water*[^] taken by way of a supplementary allocation does not exceed 10% of the ~~natural~~ actual flow in the *river*[^] at the time of abstraction, and
- (b) in circumstances where it can be shown that the supplementary allocation will not:
 - (i) increase the frequency or duration of ~~low~~ minimum flows
 - (ia) lead to a significant departure from the natural flow regime, including the magnitude of the median flow and the frequency of flushing flows
 - (ii) cause any adverse *effects*[^] that are more than minor on the Schedule AB Values of the *water body*[^] or its *bed*[^] ~~as set out in Schedule D~~
 - (iii) limit the ability of anyone to take *water*[^] under a core allocation
 - (iv) derogate from *water*[^] allocated to hydroelectricity generation.

Policy 6-19: Apportioning, restricting and suspending takes in times of ~~low~~ minimum flow

~~During times of low flow~~ When the a *river*[^] is at or below its minimum flow, takes from *rivers* it shall must be managed in the following manner:

- (a) **Permitted takes** - Takes that are permitted by this Plan (surface *water*[^] and groundwater takes) or are for fire-fighting purposes ~~shall~~ must be allowed to continue regardless of *river*[^] flow.
- (aa) **Existing hydroelectricity generation takes** - must be allowed to continue subject only to any minimum flow restrictions specified in their consent *conditions*[^]



- (ab) **Supplementary takes** - must cease at a flow specified in their consent conditions[^] and that cessation flow must be higher than the Schedule B minimum flow such that the requirements of Policy 6-18(b)(i) are met
- (b) **Essential takes** - The following core water[^] allocation takes ~~shall be~~ are deemed essential and ~~shall~~ must be managed in the manner described.
- (iv)(i) takes greater than permitted by this Plan (and therefore subject to resource consent[^]) that are required ~~to meet for an individual's~~ reasonable domestic needs, ~~or the reasonable needs of an individual's~~ animals for drinking water[^], and reasonable dairy shed washdown water[^] shall must be allowed to continue regardless of river[^] flow, but must not exceed:
- (A) up to 250 litres per person per day for domestic needs
- (B) up to 70 litres per animal per day for drinking water[^]
- (C) up to 70 litres per animal per day for dairy shed washdown
- (v)(ii) takes required to meet the reasonable needs of hospitals, other facilities providing medical treatment, marae, schools or other education facilities, New Zealand Defence Force facilities or correction facilities shall must be allowed to continue regardless of river[^] flow, but must be required to minimise the amount of water[^] taken to the extent reasonably practicable
- (vi)(iii) takes which were lawfully established at the time of Plan notification (31 May 2007) required for the ~~operation of~~ industries which, if their take were to cease, would significantly compromise a community's ability to provide for its social, economic or cultural wellbeing or for its health or safety (including the hygienic production and processing of perishable food), shall must be allowed to continue regardless of river[^] flow, but shall must be required to minimise the amount of water[^] taken to the extent reasonable reasonably practicable
- (vii)(iv) public water supply^{*} takes shall must be restricted to a total public water[^] consumption calculated as follows:
- (A) an allocation of 250 litres per person per day for domestic needs, plus
- (B) an allocation for commercial use equal to 20% of the total allocation for domestic needs, plus
- (C) an allocation which meets the reasonable needs of those facilities and industries listed under ~~subsections (b)(ii) and (b)(iii)~~ where such facilities and industries are connected to the public water supply^{*} system, plus
- (D) any allocation necessary to cater for the reasonable needs of livestock animals that are ~~connected to~~ supplied by the public water supply^{*} system, plus
- (E) an allocation for leakage equal to 15% of the total of ~~subsections (A) to (D)~~ above.
- (c) **Non-essential takes** - Other core water[^] allocation takes, including irrigation takes but excluding the essential takes described under ~~subsection (b)~~, shall must be managed in the following manner:
- (i) water[^] takes shall must be required to cease when the river[^] ~~drops is at or~~ below its minimum flow, as set out in Policy 6-16
- (ii) water[^] takes shall must be allowed to recommence once the river[^] flow has risen above its minimum flow.
- (d) **Meaning of "core water[^] allocation take"** - For the purposes of this policy, a core water[^] allocation take means a take that has been granted

consent in accordance with a core ~~water~~ allocation made under Policy 6-16, or in accordance with a previous core ~~water~~ allocation regime.

Policy 6-20: Surface ~~water~~[^] allocation - ~~lakes~~[^]

Decisions on *resource consent*[^] applications to take *water*[^] from a *lake*[^] shall ~~shall~~ must ensure that there are no significant adverse *effects*[^] on the Schedule AB Values of the *lake*[^], as shown in Schedule D and have regard to the policies for indigenous *biological diversity*[^] in Chapter 12.

6.4.3.3

Policies for *Bores*^{*} and Groundwater

Policy 6-21: Overall approach for *bore*^{*} management and groundwater allocation

- (a) New *bores*^{*} shall must be constructed and managed in accordance with Policy ~~6-22~~ 15-2A.
- (aa) *Groundwater Management Zones*^{*} are mapped in Schedule C.
- (b) Total groundwater allocations shall must comply with the annual allocable volumes for *Groundwater Management Zones*^{*} set out in Policy 6-23.
- (c) The measured ~~and/or~~ modelled *effects*[^] of a proposed groundwater take on other groundwater users, surface *water bodies*[^] and saltwater intrusion shall must be managed in accordance with Policies ~~6-24, 6-25 and 6-26~~ 15-1, 15-2B, 15-2C and 15-2D.

Policy 6-22: ~~Bore development and management~~

- ~~(a) New *bores*^{*} shall be sited to ensure adequate separation from existing *bores*^{*}, and to avoid an over-concentration of *bores*^{*} in a particular area, wherever practicable.~~
- ~~(b) New *bores*^{*} shall generally be constructed, and *bore*^{*} logs and other records prepared, in accordance with the NZS 4411:2001 Environmental Standard for Drilling of Soil and Rock.~~
- ~~(c) New *bores*^{*} shall be designed to ensure a high degree of efficiency with respect to bore development, *bore*^{*} depth and diameter, and screen depth and length.~~
- ~~(d) New *bores*^{*} shall be sited, constructed and used in a manner that prevents:
 - ~~(i) contaminants from entering the *bore*^{*} from the land surface~~
 - ~~(ii) the wastage of water in artesian conditions.~~~~
- ~~(e) *Bores*^{*} that are no longer required shall be decommissioned in general accordance with the NZS 4411:2001 Environmental Standard for Drilling of Soil and Rock.~~

Policy 6-23: Groundwater Management Zones

The total amount of consented groundwater ~~taken~~ allocated from each *Groundwater Management Zone*^{*} mapped in Schedule C shall must ~~comply with~~ not exceed the annual allocable volume for the *GWMZ*^{*} specified in Schedule C.

**Policy 6-24: Effects of groundwater takes on other groundwater takes**

- (a) ~~Consent applicants wishing to take groundwater shall generally be required to undertake pumping tests and hydrogeological assessments in order to determine likely impact on existing groundwater takes in the vicinity.~~
- (b) ~~Consent conditions restricting the rate and/or duration of pumping shall be imposed on new takes of groundwater where this is necessary to avoid significant drawdown impacts on existing groundwater takes from good quality bores* in the vicinity. A groundwater take is considered to be from a good quality bore* in circumstances where the bore* penetrates the aquifer from which water is being drawn at a depth sufficient to enable water to be drawn all year (ie., the bore* depth is below the range of seasonal fluctuations in groundwater level), the bore* is adequately maintained, the bore* is of sufficient diameter and is screened to reasonably minimise drawdown, and the bore* has a pump capable of drawing water from its base to the land surface.~~
- (c) ~~Consent conditions specifying short-term restrictions on the rate and/or duration of pumping may also be imposed on new takes of groundwater where this is necessary to avoid significant drawdown impacts on existing bores* that are not of a good quality, in order to allow sufficient time for such bores* to be upgraded or replaced.~~
- (d) ~~The Regional Council may encourage consent applicants to consider the option of providing water to neighbouring properties in circumstances where this would be more practical than meeting the requirements of subsections (b) or (c).~~

Policy 6-25: Effects of groundwater takes on surface waterbodies

The effects of groundwater takes on surface waterbodies, including wetlands, shall be managed in the following manner:

- (a) ~~An appropriate scientific method shall be used to calculate the likely degree of connection between the groundwater and surface water at the location of the groundwater take.~~
- (b) ~~To the extent justified by the calculation under subsection (a), the groundwater take shall be assessed and managed as if it were a surface take from the water management zone(s) to which it is connected.~~

Policy 6-26: Saltwater intrusion

Saltwater intrusion along the coastal margins of the Region arising from groundwater takes shall be managed by the following measures:

- (a) ~~Consent applicants wishing to take groundwater within 5 km of the coastal mean high water spring line shall be required to carry out pumping tests and hydrogeological assessments in order to determine the level of drawdown at the coast and the likelihood of inducing saltwater intrusion.~~
- (b) ~~In cases where saltwater intrusion might occur, the consent application may be declined or the amount of water that can be taken shall be limited to an amount that restricts the likelihood of saltwater intrusion.~~
- (c) ~~In addition, consents to take groundwater within 5 km of the coast shall contain conditions relating to the monitoring of electrical conductivity and the restriction or suspension of takes if specified electrical conductivity thresholds are reached or exceeded. These monitoring requirements and electrical conductivity thresholds will be determined on a case by case basis.~~

6.4.4

Beds of Rivers and Lakes Beds

Policy 6-27: General management of the beds[^] of rivers[^] and lakes[^] beds

Activities in, on, under or over the beds[^] of rivers[^] and lakes[^] shall must generally be managed in a manner which:

- (a) ~~recognises and provides for~~ has regard to the Schedule AB Values identified in Schedule D for the Water Management Sub-zone(s)* in which the activity takes place, in the manner described in Policies 6-28, 6-29 and 6-30
- (b) avoids any significant reduction in the ability of a waterbody river[^] and its bed[^] to convey flood flows, or significant impedance to the passage of floating debris
- (c) avoids, remedies or mitigates any significant adverse effects[^] on the stability and function of existing structures[^] including flood and erosion control structures[^]
- (d) avoids, remedies or mitigates any significant reduction in the habitat diversity, including the morphological diversity, of the waterbody river[^] or lake[^] or its bed[^]
- (e) manages effects[^] on natural character and public access in accordance with the relevant policies in Chapter 7. Natural character can include the natural style and dynamic processes of the river[^], such as bed[^] style and width and the quality and quantity of bed[^] habitat
- (f) provides for the safe passage of fish both upstream and downstream
- (g) ensures that the existing nature and extent of navigation of the waterbody river[^] or lake[^] are not obstructed
- (h) ensures that access required for the operation*, maintenance*, and upgrade* of essential works and services infrastructure[^] and other physical resources of regional or national importance is not obstructed.
- (i) provides for continued public access in accordance with Policy 7-9.

Policy 6-28: Activities in waterbodies sites* with a Value of Natural State, Sites of Significance - Cultural, or Sites of Significance - Aquatic

In sites* ~~those water management zones*~~ with a Schedule AB Value of Natural State, Sites of Significance - Cultural, or Sites of Significance - Aquatic, as shown in Schedule D, activities in, on, under or over the beds[^] of rivers[^] and lakes[^] shall must be managed in a manner which:

- (a) avoids adverse effects[^] on these Values as far as reasonably practicable or otherwise remedies or mitigates those effects[^]
- (b) maintains the habitat and spawning requirements of the species identified in Schedule D as being significant within the subject water management zones*.



Policy 6-29: Activities in waterbodies within rivers[^] or lakes[^] and their beds[^] with a Value of a Flood Control or and Drainage scheme

In ~~those water management zones* within a reaches of rivers[^] or lakes[^] and their beds[^] with a Schedule AB Value of Flood Control or and Drainage, scheme as shown in Schedule I,~~ activities in, on, under or over the beds[^] of rivers[^] and lakes[^] and on land[^] adjacent to the bed[^] where the Value is located shall must be managed in a manner which:

- (a) enables the level of flood hazard and erosion control existing at the time of Plan notification of this Plan (31 May 2007) to be maintained or enhanced within river and drainage schemes
- (b) maintains other Schedule AB Values associated with the waterbody river[^] or lake[^] and its bed[^], unless functional constraints make this impractical, in which case adverse effects[^] on other Values shall must be mitigated or offset or compensated by way of a financial contribution in accordance with the policies in Chapter 18.

Policy 6-30: Activities in waterbodies rivers[^] or lakes[^] and their beds[^] with other Schedule AB Values

In ~~those water management zones* sites* with Schedule AB Values other than not valued for Natural State, Sites of Significance - Cultural, Sites of Significance - Aquatic, or within a Flood Control or and Drainage, scheme as shown in Schedule I,~~ activities in, on, under or over the beds[^] of rivers[^] and lakes[^] shall must be managed in a manner which:

- (a) avoids, remedies or mitigates significant adverse effects[^] on these other Values, ~~or~~
- (b) provides consent applicants with the option of making a ~~financial contribution to an offset or to compensate for adverse effects[^]~~
- (c) allows compensation by way of a financial contribution in accordance with the policies in Chapter 18.

Policy 6-31: Essential and beneficial activities

Notwithstanding Policies 6-27 to 6-30, activities in, on, under or over the beds[^] of rivers[^] and lakes[^] that are essential or result in an environmental benefit shall must generally be allowed, including:

- (a) the use, ~~and~~ maintenance* and upgrading* of existing structures, infrastructure[^] and other physical resources of regional or national importance
- (aa) ~~including~~ works designed to maintain or improve the stability and functionality of existing structures[^]
- (b) the removal of derelict, unlawful or non-functional structures[^]
- (c) the restoration or enhancement of natural habitats.

Policy 6-32: Gravel extraction

Subject to Policies 6-27 to 6-31 and the need to ensure that gravel extraction volumes are sustainable, activities that enable gravel extraction will generally be allowed in recognition of the benefit the gravel resource provides for use and development and the flood protection benefit of having it managed.

- (a) The annual volume of gravel available for extraction from those rivers and reaches with certain allocations, listed in Table 6.3, shall be limited to the quantities stated in the table.
- (b) The annual volume of gravel available for extraction from those rivers and reaches with estimated allocations, listed in Table 6.4, shall generally be limited to the quantities stated in the table, unless better information is available.
- (c) In other rivers or reaches, where there is no annual extraction limit, gravel extraction shall not exceed the natural rate of replenishment except where extraction is necessary to decrease the risk of flooding or damage to structures.

Table 6.3 Annual allocable volumes of gravel – certain allocations

River or Reach	Volume (m ³)
Lower Manawatu River	
• Manawatu Gorge to Karere Rd	10,000
• Karere Rd to Hamiltons Line	10,000
• Hamiltons Line to Oroua confluence (Yrs 2007-2009)	200,000
• Hamiltons Line to Oroua confluence (Yrs 2009 onwards)	20,000
Oroua River upstream of Boness Rd	5,000
Oroua River downstream of Boness Rd	50,000
Makino from confluence with Oroua River to the bend 800m upstream of Reids Line	3,000
Mangahao River confluence to Tararua Rd bridge	10,000
Mangatainoka River	55,000
South East Ruahine Streams	
• Mangapapa	2,000
• Mangaatua	5,000
• Raparapawai	15,000
• Oruakeretaki	15,000
• Otmarahu	1,000
• Kumeti	3,000
• Otamaraho	2,000
• Rokaiwhana	15,000
• Tamaki	30,000
• Mangatewaiiti	2,000
• Mangatewainui	6,000
• Mangatera	500
Upper Manawatu River	
• From 1km upstream of Ngawapurua bridge to source	20,000
• 1 km upstream to 2.5 km downstream of Ngawapurua bridge	no extraction
• 2.5 km downstream of Ngawapurua Bridge to Ballance bridge	15,000

Table 6.4 Annual allocable volumes of gravel – estimated allocations

River or Reach	Volume (m ³)
Kawhatau River	35,000
Makuriiti Stream	6,000



River or Reach	Volume (m ³)
Manganuioteao River ● Waimarino River confluence to Whanganui River	5,000
Mangatainoka River	55,000
Ohau River ● Upstream of a point 1 km above SH 1 bridge ● Downstream of a point 1 km above SH 1 bridge	2,000 40,000
Pohangina River	30,000
Rangitikei River ● Makahikatoa Stream to Mangarere Road bridge ● Mangarere Road bridge to Rewa ● Rewa to 7 km downstream of SH 1 bridge ● 7 km downstream of SH 1 bridge to mouth	15,000 25,000 50,000 100,000
Turakina River	3,000
Whangaehu River	8,000
Whanganui River ● Whakapapa Island to Pipiriki ● Pipiriki to mouth	4,000 2,750

6.5

Methods

The taking of surface water and groundwater, discharging contaminants to surface water and to land, and the undertaking of activities that disturb the beds of rivers or lakes, are largely regulatory regulated activities. Part II: Regional Plan contains rules relating to the activities described in this chapter. The key non-regulatory methods the Regional Council will pursue are outlined below.

Project Name <u>Method 6-1</u>	Large Water Abstractors
Project Description	<p>The aim of this <u>project method</u> is to provide assistance to large water abstractors to identify options for improving the water abstraction, distribution and use components of their <u>operations activities</u>. It is expected this <u>project method</u> will reduce the abstraction pressure on the groundwater and surface water resources, while providing abstractors with financial benefits and their business/customers with greater certainty of supply.</p> <p>The emphasis will be on working with large abstractors to identify and implement opportunities for increasing water use efficiency, reducing distribution network leakages, agreeing priority of use within distribution networks, and consideration of alternative water supply and storage options.</p>
Who	Horizons The Regional Council, <u>Territorial Authorities District Councils</u> , industry (including hydroelectricity generators) and large irrigators will work together to develop, fund and implement this programme.
Links to Policy	This <u>project method</u> <u>links to implements</u> Policies 6-12, <u>and</u> 6-13 <u>and</u> 6-14.
Target	All major abstractors in the Region have been contacted and assistance provided where requested by 2016.



Project Name <u>Method 6-2</u>	Sewage Treatment Plant Upgrades
Project Description	<p>The aim of this project method is to work with <u>assist</u> Territorial Authorities to seek central Government funding for sewage treatment plant upgrades, given that <u>the plants make</u> they are a significant contributor of <u>contribution to</u> contaminants to <u>waterways bodies</u> during low flows. Horizons <u>The</u> Regional Council will work with Territorial Authorities to analyse their treatment and disposal options and to develop a package to present to Government with the aim of securing capital works funding to reduce the environmental impact of these discharges.</p> <p>An ongoing project. Horizons Regional Council extended an invitation to all Territorial Authorities to actively engage with the Regional Council as part of this project in 2006.</p>
Who	Horizons Regional Council, <u>Territorial Authorities</u> district councils, Ministry of Health, <u>and</u> local health agencies (eg., MidCentral Health) <u>and</u> iwi authorities.
Links to Policy	This method project links to <u>implements</u> Policies 6-2, <u>6-6,</u> 6-8, 6-10 and 6-11.
Targets	<ul style="list-style-type: none"> Horizons Regional Council to extend an invitation in 2008 to all Territorial Authorities to actively engage with the Regional Council on this matter, and <p>Central Government funding applications completed for upgrade of sewage treatment plants as required.</p>

Project Name <u>Method 6-3</u>	On-site Wastewater System Forum
Project Description	<p>The aim of this project method is to facilitate implementation of the Regional Council's Manual for On-Site Wastewater Systems Design and Management.</p> <p>Horizons <u>The</u> Regional Council will establish a forum to aid understanding and implementation of the manual and will undertake regular reviews of new types of on-site treatment and disposal systems.</p>
Who	The forum will comprise, as a minimum, representatives from the Regional Council, Territorial Authorities, consulting engineers and system installers.
Links to Policy	This project method links to <u>implements</u> Policies 6-2, <u>6-6</u> and 6-9.
Target	Two meetings per year.

Project Name <u>Method 6-4</u>	Human Sewage Discharges to Water
Project Description	<p>The Regional Council will provide assistance to <u>Territorial Authorities</u> district councils to upgrade existing sewage treatment systems that directly discharge treated human sewage to the Region's <u>waterways bodies</u>.</p> <p>Horizons <u>The</u> Regional Council to work with Territorial Authorities to reduce water volume, explore land use disposal <u>application</u> options and assist with funding opportunities.</p>
Who	Horizons Regional Council, <u>and</u> Territorial Authorities <u>and</u> iwi <u>authorities</u> .
Links to Policy	This project method links to <u>implements</u> Policies 6-2 and 6-11.



Project Name <u>Method 6-4</u>	Human Sewage Discharges to Water
Target	To stop direct human sewage discharges to water by 2020.

Project Name <u>Method 6-5</u>	Stormwater System Discharge Upgrades
Project Description	<p>The Regional Council will provide assistance to district councils <u>Territorial Authorities</u> wanting to upgrade the treatment of their existing urban stormwater system discharges, where these are into waterways <u>bodies</u>.</p> <p>Horizons The Regional Council to work with Territorial Authorities to reduce water volume, explore land use disposal options and assist with funding opportunities.</p>
Who	Horizons Regional Council, <u>and</u> Territorial Authorities <u>and</u> <u>iwi authorities</u> .
Links to Policy	This project method <u>links to</u> <u>implements</u> Policies 6-2, <u>6-6</u> , <u>6-8</u> and <u>6-8 & 6-9</u> .
Target	To reduce the number, and improve the quality, of urban stormwater discharges by 2016.

Project Name <u>Method 6-6</u>	Trout and Native Fish Spawning Habitat
Project Description	<p>The Regional Council and other agencies will work with landowners to protect and enhance waterways bodies and their beds and parts of waterways <u>bodies</u> that serve as spawning <u>sites*</u> for brown and rainbow trout <u>and native fish</u>. Resources will be directed towards the most significant <u>sites*</u>.</p> <p>Waterway <u>Landowners</u> will be provided with advice and financial/project management assistance to carry out enhancement and protection measures including fencing, planting, replacement of perched culverts <u>providing fish passage</u> and pest (plant and <u>pest animal</u>) control. The Regional Council will seek funding from third parties to assist with this project method.</p> <p>The effectiveness of the protection and enhancement works will be monitored.</p> <p>The project method will include publicity to increase public awareness about the importance of trout <u>and native fish</u>.</p>
Who	Regional Council, Territorial Authorities, Fish and Game, <u>Department of Conservation, landowners</u> and funding agencies including He Tini Awa Trust.
Links to Policy	This project method <u>links to</u> <u>implements</u> Policies 6-2, 6-27 and 6-30.
Target	The top 30 of the top trout spawning habitat <u>sites*</u> and <u>native fish habitat spawning sites*</u> are actively managed, including protection and/or enhancement measures, within 10 years of this Plan becoming operative.

Project Name <u>Method 6-7</u>	Water Quality Improvement
Project Description	The Regional Council and other agencies will work with landowners to protect and enhance the water quality of the Region's <u>waterways bodies</u> . Landowners in those <u>Water Management Sub-zones*</u> where the nutrient management (non-point source discharge) control



Project Name Method 6-7	Water Quality Improvement
	<p>rules are to be introduced will receive the highest priority for assistance. This project method represents an expansion of Horizons' the Regional Council's existing water quality improvement programme, which focuses almost entirely on dairy farmers as part of the Dairying and Clean Streams Regional Action Plan for Manawatu-Wanganui Region.</p> <p>Waterway Landowners will be provided with advice and financial/project management assistance to carry out enhancement and protection measures including fencing and planting of riparian margins. The Regional Council will seek funding from third parties to assist with this project method.</p> <p>The effectiveness of the protection and enhancement works will be monitored.</p>
Who	Regional Council, Dexcel Dairy NZ , Fonterra, and Territorial Authorities and funding agencies including the He Tini Awa Trust and Nga Whenua Rahui.
Links to Policy	This project method links to <u>implements</u> Policies 6-2, 6-4 and 6-7.
Targets	<ul style="list-style-type: none"> • The targets of the Dairying and Clean Streams Regional Action Plan for Manawatu-Wanganui Region are achieved by the due dates. • Advice and assistance is offered to all landowners affected by the nutrient management (non-point source discharge) control rules. • All landowner requests for advice and assistance regarding water quality improvement are responded to promptly.

Project Name Method 6-8	Education in Schools - Water
Project Description	The aim of this project method is to raise awareness amongst the youth of the Region of the significance of our the water (quantity and quality) resource, the threats to it, and what they can do to protect/restore it. This will be achieved through various environmental education programmes/initiatives - for example, Green RIG, Enviroschools and Trees for Survival.
Who	Horizons Regional Council, and various national and local environmental education providers and the Youth Environment Forum.
Links to Policy	This project method links to <u>implements</u> Policy 6-2.
Targets	The Regional Council develops and delivers a water-related environmental education programme.

Project Name Method 6-9	Water (Fluvial Resources, Quality and Quantity) Research, Monitoring and Reporting
Project Description	The aim of this project method is to develop an integrated research, monitoring and reporting programme. that The focus will be to <u>define the current state of the natural character of the Region's rivers by analysing their habitat and morphological diversity. This may include: planform/ channel morphology classification; fairway width; sinuosity; barforms; percentage of pool, riffle, run, habitat; gravel resources, level of entrenchment, and location and extent of riparian and wetland areas.</u> The method will also seek to measure changes



Project Name <u>Method 6-9</u>	Water (Fluvial Resources, Quality and Quantity) Research, Monitoring and Reporting
	<u>in natural character, including habitat and morphological diversity. The outcomes will link into monitoring undertaken by the River Works Environmental Code of Practice and supports delivery and refinement of existing policies, objectives and methods. The outcomes will also guide implementation planning and allow implementation effectiveness to be assessed.</u>
Who	<u>Predominantly Horizons Regional Council, Department of Conservation, Fish and Game, with assistance from research institutes, universities, and non-Government agencies, and community groups and iwi authorities as required.</u>
Links to Policy	<u>This project method links to implements Policies 6-2, 6-15, 6-17, 6-27, 6-28, 6-29, 6-30, 6-31 and 6-32 and 7-8.</u>
Targets	<u>A research, monitoring and reporting programme that supports delivery and refinement of existing policies and methods and guides and assesses implementation that defines the current state of the natural character of the Region's rivers and measure changes in natural character, including habitat and morphological diversity.</u>

6.6 Anticipated Environmental Results

Anticipated Environmental Result	Link to Policy	Indicator	Data Source
<p>During the life of this Plan, water quality and quantity maintain the Values set in this Plan.</p> <p>In <u>Water Management Sub-zones*</u>:</p> <ul style="list-style-type: none"> where water quality <u>standards targets</u> are met prior to this Plan becoming operative, they continue to be met where water quality <u>standards targets</u> are not met prior to this Plan becoming operative, they are either met or improved from the <u>current state</u> where targeted for action or, where not targeted for action, they are no worse than prior to this Plan becoming operative. 	<p>Water Policies: 6-1, 6-2, 6-3, 6-4, 6-5, 6-7, 6-8, 6-9, 6-10, 6-11, 6-12, 6-13, 6-14, 6-15, 6-16, 6-18, 6-20, 6-21, 6-25, 6-27, 6-28, 6-29, 6-30, and 6-31, 6-32</p> <p>Land Policies: 5-1, 5-2A, 5-3, 5-4 and 5-5</p> <p>Living Heritage Policies: 7-1, 7-2A, 7-3, 7-4, 7-5 and 7-8</p>	<ul style="list-style-type: none"> Measured water quality compared to <u>Water Management Sub-zone* standards targets</u>, especially measures for “muddy waterways”, “safe swimming”, “safe food gathering”, and “aquatic ecosystem health” in priority catchments Incidents where surface water quality is confirmed as unfit for use Measured flows of surface water compared to the <u>allocation and minimum flow regime outlined in this Plan</u> 	<ul style="list-style-type: none"> Horizons' <u>The Regional Council's State of Environment water quality and quantity monitoring programme</u> Horizons' <u>The Regional Council's incidents database</u> Ministry of Health raw water monitoring
<p>By 2017, the natural, physical and cultural qualities of the beds and banks of rivers <u>management zones</u> are suitable for specified <u>Water Management Sub-zones*</u> Values at all times.</p>	<p>Water Policies: 6-1, 6-27, 6-28, 6-29, 6-30, and 6-31, 6-32</p>	<ul style="list-style-type: none"> Confirmed incidents of damage to the beds and banks of rivers <u>management zones</u> Consents granted for activities in <u>beds of rivers and lakes beds</u> 	<ul style="list-style-type: none"> Horizons' <u>The Regional Council's incidents database</u> Horizons' <u>The Regional Council's consents database</u>
<p>By 2017, The amount of groundwater used does not exceed replenishment rates and its quality is the same as or better than that measured prior to this</p>	<p>Water Policies: 6-6, 6-9, 6-12, 6-13, 6-21, 6-22, and 6-23, 6-24 and</p>	<ul style="list-style-type: none"> Groundwater levels Region-wide, but with a focus on Opiki and Himatangi areas 	<ul style="list-style-type: none"> Horizons' <u>The Regional Council's State of</u>

Anticipated Environmental Result	Link to Policy	Indicator	Data Source
Plan becoming operative, other than where discharges to land are a permitted activity or are allowed by resource consent.	6-26	<ul style="list-style-type: none"> Groundwater quality Region-wide, but with a focus on nitrates in Horowhenua and Tararua districts and conductivity along the Foxton-Tangimoana coast Confirmed incidents where groundwater sources become unavailable (ie., dry up) or water quality is unfit for use 	Environment groundwater monitoring programme <ul style="list-style-type: none"> Horizons' The Regional Council's compliance monitoring programme Horizons' The Regional Council's incidents database Ministry of Health raw water monitoring

6.7 Explanations and Principal Reasons

The Horizons Region has been divided into *Water Management Sub-zones** for the purpose of managing water quality and quantity. Water bodies and their beds within these *Water Management Sub-zones** have been assigned Values which represent the ecosystem, recreational, cultural and social and economic values attributes of the water body and its bed (Objective 6-1, Policy 6-1). Standards Targets have been assigned to protect these Values (Policies 6-2 to 6-5).

Discharges to water and land

The water chapter deals with discharges to land and water holistically. This is because discharges to land have the potential to adversely affect groundwater and surface water quality if not managed well. Four Three types of discharges of concern have been identified: point source discharges to land (including *domestic wastewater**), point source discharges to water (including industrial discharges and treated sewage) and non-point source discharges to land (from agricultural land uses). All these types of discharges will be managed to meet the objectives and policies for water quality (Objective 6-1, 6-2, Policies 6-2 - 6-5), including discharges to land (Policy 6-9).

Agricultural land uses contribute to our waterways bodies not meeting our the Region's standards targets for nutrients, faecal contamination and sediment levels. These need to be targeted for control in problem catchments and through our the Regional Council's Sustainable Land Use Initiative (SLUI) and Whanganui Catchment Strategy and the regulation of *dairy farming** (Policy 6-7). Control will centre around using best practice management techniques and requiring *nutrient management plans**.

Point source discharges to water need to be managed to achieve water quality standards targets (Policy 6-8). Sometimes This may mean that it is appropriate to consider alternatives to discharging to water to meet these water quality standards. This may include considering alternative treatment options for all or part of the year, to achieve or move closer to water quality standards targets at critical times of the year (Policy 6-10). In all cases, point source discharges to water of untreated human sewage are culturally unacceptable, and direct discharges of treated human sewage should be changed to involve land treatment application before discharge (Policy 6-11).



Surface Water Quantity

Water will be used and allocated in a way which enables water to be used for the wellbeing of peoples and the community wellbeing, while providing for other ~~Values to be maintained~~ (Objective 6-3, Policy 6-15). Water allocation limits are set for each *Water Management Sub-zone** and water will be managed to maintain these limits (~~Policy Policies 6-16, and 6-17, 6-20~~). When water use needs to be restricted, life sustaining and essential water takes have first priority (Policy 6-19). Water harvesting and alternative sources of water to surface water are also encouraged and provided for (Policy 6-18 ~~and 6-18~~). Efficiency of use is an important consideration, and will ensure that water is available to the maximum number of users and is not wasted (~~Policy Policies 6-12 and 6-13~~).

Groundwater

Groundwater quality and quantity is connected to that of surface water and this is recognised in this chapter, while providing for its management separately. *Bores** will be managed to ensure that they are of good quality properly constructed, efficient and fully functioning and do not lead to contamination of groundwater, wastage of water or unnecessary effects on other *bores** or surface water bodies (Policy ~~6-21 6-22, 6-24, 6-25~~). *Groundwater Management Zones** have been established and sustainable allocations set; groundwater takes will be managed within these allocations (Policy 6-234). Groundwater quality within the Region is generally good and is not declining, but maintaining this good quality will be a consideration when managing discharges (Policy 6-9).

Beds of Rivers and Lakes

The physical nature of ~~our~~ the Region's rivers and lakes and their beds is important to maintaining the Values assigned to them. Management of activities in the beds of rivers and lakes will be undertaken in order to maintain these Values, and other important physical attributes (Objective ~~6-27 6-4~~, Policy Policies ~~6-27 and 6-31~~). Some Values are treated differently. Important aquatic biodiversity *sites**, cultural *sites** and natural state areas would be negatively and potentially permanently harmed by some activities and consequently are given a high level of protection (Policy 6-28). Flood control and drainage schemes have damaged water Values in some areas, but also provide valuable protection services to the community. Maintaining this level of service is important, while ensuring that other Values are not further compromised (Policy 6-29). While recognising the Values, ~~we also need to recognise~~ acknowledgement is also needed that some activities, such as river restoration, are beneficial and should be allowed to occur (Policy 6-31).

Gravel extraction is an important activity in river beds, both for the benefit the gravel resource provides, and the flood protection benefit of having it removed from the river. However, if not well managed, too much extraction, or extraction in an inappropriate manner can damage ~~our~~ river Values. Gravel extraction needs to be managed to ensure that extraction volumes are sustainable (Policy 6-32).

