

PART IV:

RESOURCE POLICY

This Part sets out the objectives, policies and methods of implementation for eight key issues:

- (a) Recognition of and provision for Maori and their culture and traditions;*
- (b) Water quality management;*
- (c) Discharges;*
- (d) Surface water quantity management;*
- (e) Groundwater management;*
- (f) Use of river and lake beds and development on floodplains;*
- (g) Land management; and*
- (h) Integrated catchment management.*

The objectives and policies provide part of the framework for resource management decision making.

6. RECOGNITION OF AND PROVISION FOR MAORI AND THEIR CULTURE AND TRADITIONS

6.1 INTRODUCTION

To assist with the preparation of this Plan, Te Kotahitanga O Te Taitokerau was commissioned as a consultant to provide input on iwi viewpoints of water and land management.

From these discussions, it is clear that the traditional Maori values and tribal structures still exist today. There is also a continued desire to exercise tribal kaitiakitanga. The provisions of the Act are therefore seen by Maori as both recognition of their unique status in New Zealand society and a potential opportunity to exercise their traditional role as kaitiaki of land and water resources.

The aims of iwi in Northland expressed during consultation on the Regional Policy Statement for Northland and on this Plan have included:

- (a) The recognition of customary tribal authority over land and inland waters which iwi and hapu have traditionally occupied and used; and
- (b) The need for greater Maori involvement in land and water management, including joint management of areas of Maori spiritual and cultural significance; and
- (c) The recognition of Maori spiritual and cultural values when processing applications for resource consents.

The policies and rules within this Plan deal with those particular concerns of Maori about the use, development and protection of natural and physical resources within the Northland region. The most commonly expressed concerns have been the pollution and over-allocation of the water resources and the desecration of waahi tapu, urupa and other sites of significance through land development.

The protection of waahi tapu, urupa and other sites of cultural and spiritual significance is provided for in this Plan insofar as regional council functions allow. That is, they can be protected in regard to soil conservation matters, as well as the maintenance and enhancement of water quality and water quantity. The protection of these sites in their own right is a district council function.

6.2 ISSUES

1. The need to recognise and give appropriate weighting to cultural values and tikanga maori in all aspects of resource management and decision making.
2. The need for tangata whenua to have involvement in the management and monitoring of resource consents, in recognition of their kaitiaki role.
3. The lack of formal recognition of iwi as the traditional kaitiaki (guardians) of the land and water resources within their rohe (traditional territory).
4. The loss of mauri of water bodies and the loss of traditional Maori fisheries from the adverse effects of activities such as sewage discharges and water abstractions.

5. The loss or degradation of waahi tapu and other sites of significance to Maori from the adverse effects of human activities.
6. The need to avoid all discharges of waste to the water whether treated or otherwise. Land based disposal systems are the most acceptable systems for tangata whenua.
7. The lack of resources for iwi authorities to prepare iwi management plans.
8. The effect of poisons on taonga.

Note: Taonga is defined in the definitions section of this Plan.
Poisons means toxic materials, for example 1080.

6.3 OBJECTIVE

1. **The management of the natural and physical resources within the Northland region in a manner that recognises and provides for the traditional and cultural relationships of tangata whenua with the land and water.**

6.4 POLICIES

1. To recognise and, as far as practicable provide for the relationship of Maori and their culture and traditions with respect to the use, development and protection of natural and physical resources in the Northland region.

Explanation: Section 6(e) of the Act requires provision for the relationship of Maori to their ancestral lands, water, sites, waahi tapu and other taonga.

2. To gain an understanding, and as far as practicable, provide for the concerns and cultural perspectives of tangata whenua in regard to the disposal of waste into water.

Explanation: The disposal of waste to water is abhorrent to tangata whenua. To give effect to Section 6(e) of the Act, the relationship of Maori and their culture and traditions with water and other taonga needs to be provided for.

3. To have particular regard for kaitiakitanga and consider options for the involvement of tangata whenua in monitoring the use, development and protection of resources within the Northland region.

Explanation: Tangata whenua involvement in monitoring the use, development and protection of water and land resources is one means by which kaitiakitanga may be provided for. However, the Act requires specific tests to be met before Council functions, powers and duties under the Act can be transferred. Careful consideration of options is therefore required.

4. To provide appropriate technical advice and information to assist iwi authorities in the development of hapu/iwi management plans for natural and physical resources within the area of their rohe.

Explanation: *The Act requires special provision to be made for Maori involvement in resource management. Iwi management plans are one means by which Maori can express their concerns and aspirations about the use, development and protection of land and water resources. This should lead, among other things, to an enhanced understanding by non-Maori of the relationship of iwi to those resources.*

6.5 METHODS OF IMPLEMENTATION

For Policy 1

1. To encourage applicants for resource consents for activities that may have an adverse effect on the taonga of tangata whenua to consult with the tangata whenua prior to their application being processed.

Cross-reference: Appendix 3.3

2. To provide for Maori tikanga and language at pre-hearing meetings and formal hearings and to hold those meetings on marae where appropriate.

For Policy 2

3. Include relevant policies and methods within this Plan for phasing out, where possible, wastewater discharges to water, particularly those containing human sewage. Consideration as to the benefits and costs of alternative wastewater disposal methods will be made before deciding on the most appropriate system for disposal.

For Policy 3

4. In consultation with tangata whenua:
 - (a) Assess the most efficient and effective means of monitoring any adverse effects of resource use and developments, with particular reference to involving tangata whenua.
 - (b) Subject to Section 33 of the Act, consider transfer of powers where iwi represents the appropriate community of interest.

For Policy 4

5. Where requested by an iwi authority, provide appropriate land and water resource information held by the Council.
6. Tangata whenua may be asked to provide information on the cultural effects of certain activities by applicants for resource consents. Guidelines on this process will be developed by the Council for the information of both applicants and tangata whenua.

6.6 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVE, POLICIES AND METHODS

The objective is a matter of national importance under the Act. The principal reason for each policy is incorporated in the explanation. The principal reasons for the methods of implementation are as follows:

Method 6.05.01 allows tangata whenua to advise whether proposed uses and development will affect their relationship to special sites and taonga within the region. Where consultation is considered to be inadequate, the Council will require applicants to undertake further consultation or will seek additional information directly from the tangata whenua. (Refer also Method 7.06.04)

Method 6.05.02 allows for Maori tikanga and language at meetings associated with the resource consent application process.

Method 6.05.03 recognises and provides for the Maori view of discharges of waste to water.

Method 6.05.04 allows for the involvement of Maori by way of consultation on monitoring the uses of land and water resources.

Method 6.05.05 provides for the Council to assist Maori in developing their own Resource Management Plans.

Method 6.05.06 allows tangata whenua to advise whether proposed uses and development will affect their relationship to special sites and taonga within the region.

7. WATER QUALITY MANAGEMENT

7.1 INTRODUCTION

The purpose of this section is to establish the underlying framework for the maintenance and enhancement of Northland's fresh water quality such that it meets the standard required for the desired purposes.

Significant causes of existing or potential fresh water quality degradation in Northland include:

- Runoff from agricultural land,
- Discharges from processing activities,
- Discharges of sewage and animal effluents,
- Stormwater runoff from urban areas and cleared land,
- Discharges of landfill leachates, and
- Major water takes from river resources.

These activities are dealt with separately in Section 8 to Section 10.

The principal water quality management tools which may be used to maintain or enhance water quality are catchment management plans, water quality classification and resource consent decisions and conditions.

Management plans are generally formulated for discrete water bodies such as a lake or river catchment. These specify action to be taken to protect water quality and, where necessary, rectify water quality degradation. They are usually based on the results of detailed water quality investigations. Three of the water management plans that were prepared in Northland prior to the enactment of the *Resource Management Act* 1991 contained water quality standards. These management plans have no statutory basis under the Act.

Water quality classification is essentially a system of zoning waters in accordance with their desired use and applying minimum water quality standards which must be maintained to protect that use. The Third Schedule of the Act contains a number of classes which may be used for this purpose. The Act also allows regional councils to develop other classes in addition to, or instead of, those in the Third Schedule. It is envisaged that the water classification will be established through the development of catchment management plans as provided for in Policy 13.04.01: Integrated Catchment Management.

Resource consents are required for discharges of contaminants into a water body or onto or into land where the contaminant may enter a water body, unless allowed for by a rule in this Plan. Resource consents are also required for taking large quantities of water from a water body. Consents generally specify conditions which must be met in order to maintain water quality or otherwise minimise adverse environmental effects of discharges of contaminants, or large water abstractions. Conditions on resource consents will be worded so as to make explicit the Council's expectations of the consent holder.

7.2 REGIONAL POLICY STATEMENT

The overall objective of the Council in water quality management of Northland's water resources is contained in the Regional Policy Statement and is the objective used in this section.

7.3 ISSUES

1. The importance of water quality to aquatic ecosystems, water supply, contact recreation, and other significant uses of Northland's fresh water bodies and the consequent need to provide an effective management framework for maintaining and enhancing water quality for the benefit of present and future generations.
2. The current degradation of water quality in some water bodies as a result of direct discharges or the runoff of contaminants from the land and the need to allow time to improve water quality to an appropriate standard.
3. Conflicting uses of water and conflicting expectations from different sectors of the community regarding what is appropriate in terms of water quality standards and the need to take these factors in account when setting water quality standards.
4. The lack of comprehensive baseline information on existing water quality, existing uses and potential uses that is needed to identify the purposes for which specific water bodies, or parts thereof, will be managed.
5. The effects of freshwater quality (rivers, stormwater runoff) on coastal water quality, particularly estuaries and inner harbour areas.

7.4 OBJECTIVE

1. **The maintenance or enhancement of the water quality of natural water bodies in the Northland region to be suitable, in the long-term, and after reasonable mixing of any contaminant with the receiving water and disregarding the effect of any natural events, for such of the purposes listed below as may be appropriate:**

TYPE OF WATER BODY

PURPOSES

Lakes, rivers, streams –

aquatic ecosystems, contact recreation, water supplies, aesthetic and cultural purposes

Freshwater wetlands –

aquatic ecosystems, cultural purposes

Groundwater, potentially usable –

water supply, protection of uses of receiving water body

Other groundwater –

protection of uses of receiving water body

7.5 POLICIES

1. Where the existing water quality of lakes, rivers and streams is the same or higher than the water quality which is suitable for aquatic ecosystems, contact recreation, water supply, aesthetic or cultural purposes, to ensure that the water quality shall not be allowed to be reduced, unless it is consistent with the purpose of the Act to do so.

Explanation: *This policy signals the Council's general intent to exercise its land use, water abstraction and discharge control functions in a manner which at least ensures that existing water quality is not degraded. However, it is acknowledged that there may be circumstances in which it is appropriate that some adverse effects be accepted, for example, where beneficial social, cultural or economic effects outweigh adverse effects on water quality. This is consistent with s.69(3) of the Act and will be given effect through the development of catchment management plans.*

2. Having regard to Policy 7.05.01, the Council will identify specific natural water bodies or parts of natural water bodies within the Northland region to be managed for some of the following purposes as may be appropriate: aquatic ecosystems, contact recreation, water supplies, aesthetic and cultural values.

Explanation: *The policy is aimed at achieving Objective 7.04.01. It amounts to a statement of intent by the Council to prepare a comprehensive classification of Northland's freshwater bodies, once adequate investigations have been undertaken. This will be given effect through the development of catchment management plans. Methods 7.06.03 to 7.06.06 specify how the Council will implement the policy.*

3. Until such time as the classification system referred to in Policy 7.05.02 is introduced, when processing applications for discharge permits, the Council will have regard to:
 - (a) Existing water quality and uses of the subject water body;
 - (b) Community aspirations for future use of the water body (as expressed in submissions on consent applications);
 - (c) Opportunities for enhancement of water quality;
 - (d) Relevant water quality guidelines (refer also Methods 7.06.07 to 7.06.10)

Explanation: *The policy sets out the Council's interim position with respect to the processing of discharge permit applications pending the preparation of a classification for Northland's freshwater bodies. It recognises that notwithstanding the (interim) classifications established by Policies 7.05.02 and 7.05.03, some water bodies will need to be managed for purposes such as contact recreation and water supply, on an ongoing basis.*

4. The Council will not grant a discharge permit which, either on its own or in combination with other lawful discharges, will result in any of the following effects in the receiving water, after reasonable mixing:
 - (a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

- (b) Any conspicuous change in the colour or visual clarity;
- (c) Any emission of objectionable odour;
- (d) The rendering of freshwater unsuitable for consumption by farm animals.

Except where:

- (i) exceptional circumstances justify the granting of a permit; or
- (ii) the discharge is of a temporary nature; or
- (iii) the discharge is associated with necessary maintenance work

Where a discharge is granted in reliance on the exceptions above, the Council may impose conditions requiring the holder of the discharge permit to undertake works in such stages throughout the duration of the permit that will ensure that upon expiry of the permit (or such earlier date as is specified in the conditions) the holder can meet the requirements of Policies 7.05.02 or 7.05.03, whichever is applicable.

Explanation: *The policy allows for control of the cumulative effects of more than one discharge in an area. It refers to the minimum water quality standards contained in ss.107(1) of the Act. The exceptions refer to the exceptions contained in ss.107 (2) of the Act.*

5. When determining what constitutes a reasonable mixing zone, the Council will take into account:
- (a) The characteristics of the discharge and the sensitivity of the receiving water;
 - (b) The assimilative capacity of the receiving water body;
 - (c) The proximity and effects of other discharges;
 - (d) The proximity of, and likely effects on, downstream uses;
 - (e) The desirability of keeping the mixing zone as small as practicable;
 - (f) The availability and cost-effectiveness of current treatment technology.

Explanation: *The policy sets out the criteria which will be used to determine the size and shape of the mixing zone, outside of which receiving water quality standards are expected to be met.*

The expression “assimilative capacity” in (b) includes reference to existing receiving water quality, and the depth, width and flow characteristics of the receiving water, including the nature and extent of dilution and dispersal that occurs.

6. To ensure that water quality is managed appropriately in situations where water bodies possess high ecological values which are dependent on water quality.

Explanation: *In some situations, the standards that relate to aquatic ecosystem maintenance may not be sufficient to adequately safeguard*

particularly high ecological values. The Act provides, in the Third Schedule, for the identification of water to be managed in its natural state. The Council will work with the Department of Conservation, local communities, Kaitiaki and landowners to determine which water bodies or parts of water bodies warrant special protection and the standards which should apply (refer also Methods 7.06.15 and 7.06.16). It is recognised that, in some instances, the effects of activities associated with the adjoining land and the water body itself may need to be managed, taking the values of the ecosystem into account

7. To manage water bodies which are recognised by an iwi authority, or any judicial authority to be a taonga of special significance, having particular regard to those cultural values and traditional uses.

Explanation: *The Act provides, in the Third Schedule, for waters to be managed for cultural purposes.*

A water body will be considered to be a significant taonga where its status is established by an iwi authority or any judicial authority including the Environment Court, Waitangi Tribunal and Maori Land Court.

Identification of these water bodies and if appropriate the creation of rules for their management will need to be undertaken by iwi authorities in consultation with the Regional Council, landowners and district councils.

7.6 METHODS OF IMPLEMENTATION

For Policy 1

1. When preparing catchment management plans, and when considering applications for the discharge of contaminants to water, land or air, the Council will ensure that all practical steps are taken to avoid the degradation of water quality and, where possible, to improve it.
2. To provide information on the water quality and hydrology of the Region's water resources to consent applicants.

For Policy 2

3. The Council will, as part of the process of preparing catchment management plans:
 - (a) Review the existing water quality database for the region; and
 - (b) Undertake appropriate water quality investigations; and
 - (c) Develop and implement a programme of consultation with District Councils, iwi and the community.

With the aim of introducing a comprehensive water classification system (i.e. specific water bodies to be managed for specific purposes, for example, contact recreation and cultural purposes), by way of a variation or change to this Plan. Priorities for investigations into water quality will be determined through the annual planning process.

4. The Council will take into account the knowledge and views of local people when developing and applying water quality standards for specific water bodies.
5. The Council will take into account existing water quality, natural events, existing uses and community aspirations for future use, and opportunities for enhancement of water quality, when developing and applying a water classification system.
6. The Council will use the water classification guidelines set out in the Third Schedule to the Act as a basis to develop standards applying to waters to be managed for specified purposes.

For Policy 3

7. Until such time as a water body is classified and associated water quality standards set in place, the Council will use the following guidelines for the management of waters for aquatic ecosystem purposes:

After reasonable mixing the contaminant either by itself or in combination with other contaminants, is not likely to;

- (a) Cause the natural pH of the water to fall outside the range of 6.5-9.0.
- (b) Cause a change in the natural temperature of the water of greater than 3 degrees Celsius.
- (c) Cause the concentration of dissolved oxygen (daily minimum) to be reduced below 6 g/m³.
- (d) Cause levels of toxic metals to exceed the following, except where caused by natural events:

Total arsenic	50 mg/m ³
Total cadmium	0.2 – 2* mg/m ³
Total chromium	2 mg/m ³
Total copper	2 – 5 mg/m ³
Total lead	1 – 5 mg/m ³
Total zinc	5 – 50* mg/m ³
Total mercury	0.1 mg/m ³

*depending on hardness, see ANZECC guidelines.

- (e) Cause the four-day average concentration of ammonium to exceed the following:

pH	Ammonium, NH ₄ -N g/m ³				
	10°C	15°C	20°C	25°C	30°C
6.50	1.81	1.81	1.22	0.86	0.60
6.75	1.81	1.81	1.22	0.86	0.60
7.00	1.81	1.81	1.22	0.86	0.61
7.25	1.81	1.81	1.23	0.86	0.61
7.50	1.81	1.81	1.23	0.86	0.61
7.75	1.73	1.64	1.15	0.81	0.58
8.00	1.13	1.09	0.76	0.54	0.39
8.25	0.64	0.62	0.44	0.32	0.23
8.50	0.37	0.36	0.26	0.19	0.14

Note: pH and temperature, where practicable, should be measured in the midday-early afternoon period (noon to 2 p.m. NZ Standard Time).

- (f) Cause the level of nutrients to fall outside the range of:

Dissolved Reactive Phosphorus	50 – 30 mg/m ³
Dissolved Inorganic Nitrogen (NO ₃ -N+NH ₄ -N)	40 – 100 mg/m ³

- (g) Cause the visual clarity of the water, as measured by black disc, to be reduced by more than 20% in waters where visual clarity is an important characteristic of the water body and 40% in other waters, depending on site conditions.

Note: If traditional turbidity measures (NTU) are used, Figure 3A of Davies-Colley and Close (1990) *Water Colour and Clarity of NZ Rivers*, NZ J Mar. FW Res, vol 24, no. 3, should be used to establish a correlation with black disc measures].

Note: For other contaminants, the Council will have regard to the Australia and New Zealand Environment and Conservation Council (ANZECC): November 1992: *Australian Water Quality Guidelines for Fresh and Marine Waters*. The derivation and rationale for these guidelines is contained in Appendix 1.

8. Until such time as a water body is classified and associated water quality standards set in place, the Council will use the following guidelines for management of waters for contact recreation purposes:

After reasonable mixing, the contaminant either by itself or in combination with other contaminants, is not likely to:

- (a) Cause the visual clarity of the water to fall below 1.6 metres as measured by the black disc technique;

Note: If traditional turbidity measures are used, Figure 3A of Davies-Colley and Close (1990) *Water Colour and Clarity of NZ Rivers*, NZ J Mar FW Res, Vol 24 no.3, should be used to establish a correlation with black disc measures.

- (b) Produce conspicuous oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour;
- (c) Render the water unsuitable for bathing by the presence of contaminants.
- (d) Cause the median of samples taken over a bathing season to exceed 126 E coli per 100 millilitres, and no sample to exceed the following upper limit:

Upper Limit per 100 ml	Designated Bathing Area	Moderate Use	Light Use	Infrequent Use
E coli	235	293	410	576

Note: All sampling and analysis to be carried out in accordance with the *Provisional Microbiological Water Quality Guidelines for Recreational and Shellfish-Gathering Waters in New Zealand*, Department of Health, 1992.

Note: For other contaminants, the Council will have regard to the Australia and New Zealand Environment and Conservation Council (ANZECC), November 1992 *Australian Water Quality Guidelines for Fresh and Marine Waters*.

The derivation and rationale for these guidelines is contained in Appendix 1.

9. Until such time as a water body is classified and associated water quality standards set in place, the Council will use the following guidelines for management of waters for fishery purposes:

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants, is not likely to:

- (a) Cause those effects stated in Policy 7.05.04(i)-(iii)
- (b) Cause a change in the natural temperature of the water of greater than 3 degrees Celsius.
- (c) Increase the temperature above 25 degrees Celsius.
- (d) Cause the concentration of dissolved oxygen (daily minimum) to be reduced below 6 g/m³.
- (e) Cause the level of nutrients to fall outside the range of:

Dissolved Reactive Phosphorus 50 – 30 mg/m³

Dissolved Inorganic Nitrogen (NO₃-N+NH₄-N) 0 –100 mg/m³

Note: For other contaminants, the Council will have regard to the Australia and New Zealand Environment and Conservation Council (ANZECC), November 1992 *Australian Water Quality Guidelines for Fresh and Marine Waters*. The derivation and rationale for these guidelines is contained in Appendix 1.

10. Until such time as a water body is classified and associated water quality standards set in place, the Council will use the following guidelines for management of waters for water supply purposes:

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants, is not likely to:

- (a) Cause those effects stated in Policy 7.05.04;
- (b) Cause the natural pH of surface water to fall outside the range of 6.0-9.0;
- (c) Cause the concentration of dissolved oxygen in surface waters to fall below 5 mg/l;
- (d) Taint or contaminate the water so as to make it unpalatable or unsuitable for consumption by humans after treatment (equivalent to coagulation, filtration, and disinfection), or unsuitable for irrigation.

Note: For other contaminants, the Council will have regard to the Australia and New Zealand Environment and Conservation Council (ANZECC), November 1992; *Australian Water Quality Guidelines for Fresh and Marine Waters*. The derivation and rationale for these guidelines is contained in Appendix 1.

11. Until such time as a water body is classified and associated water quality standards set in place, the Council will use the following guidelines for management of waters for stock water and irrigation purposes:

After reasonable mixing, the contaminant, either by itself or in combination with other contaminants, is not likely to:

- (a) Cause levels of toxic metals to exceed the following, except where caused by natural events:

Total arsenic	100 mg/m ³
Total cadmium	10 mg/m ³
Total chromium	1,000 mg/m ³
Total copper	200 mg/m ³
Total lead	100 mg/m ³
Total zinc	2,000 mg/m ³

- (b) Based on no fewer than 5 samples over any 30 day period, cause the following faecal coliform counts to be exceeded:

- Median less than 600/100 millilitres
- 80 percentile less than 2,400/100 millilitres

as measured by the membrane filter technique.

- (c) Cause the level of nutrients to fall outside the range of:

Nitrate (NO ₃ -N)	500 mg/m ³
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- (d) Taint or contaminate the water so as to make it unsuitable for the irrigation of crops growing or likely to be grown in the area to be irrigated.

Note: For other contaminants, the Council will have regard to the Australia and New Zealand Environment and Conservation Council (ANZECC), November 1992. *Australian Water Quality Guidelines for Fresh and Marine Waters*. The derivation and rationale for these guidelines is contained in Appendix 1.

12. When assessing a resource consent application for the discharge of a contaminant or water into a river, lake or wetland, the Council will have regard to:

- (a) Water Quality Guidelines No. 1, June 1992. *Guidelines for the Control of Undesirable Biological Growths in Water*, published by the Ministry for the Environment;
- (b) Water Quality Guidelines No. 2, June 1994. *Guidelines for the Management of Water Colour and Clarity* published by the Ministry for the Environment.

In addition, the Council will have regard to:

- (c) *Provisional Microbiological Water Quality Guidelines for Recreation and Shellfish Gathering in New Zealand* (January 1992) prepared by the Department of Health;

when assessing a resource consent application for the discharge of a contaminant or water into a river, lake or wetland which is used for contact recreation purposes.

For Policy 4

13. Policy 4 will be implemented via the process of deciding on discharge permit applications under s.105 of the Act.

For Policy 5

14. Require specific information to be submitted with resource consent applications for the discharge of contaminants to water to enable assessment of the mixing zone. The information requirements are listed in Section 35.

For Policy 6

15. The Council will consult with the Department of Conservation, District Councils, local communities, tangata whenua and landowners with a view to identifying and recording which water bodies, or parts of water bodies, are of special ecological significance and the water quality standards which should apply to these waters.
16. The policy will be implemented by way of the proposed water classification system (also refer Policy 7.05.02 and Method 7.06.03), provisions of this Plan governing land use activities and discharges, and decisions on resource consent applications.

For Policy 7

17. The Council will consult with iwi authorities with a view to identifying and recording water bodies of cultural or spiritual value to iwi.
18. The Policy will be implemented by way of the proposed water classification system (also refer Policy 7.05.02 and Method 7.06.03), the provisions of this Plan governing land use activities and discharges, and decisions on resource consent applications.
19. Encourage applicants for discharge permits to include information to be supplied with consent applications regarding the effects of any proposed discharge or land use activity on cultural values (as these relate to water quality). Where necessary, the Council will commission a report from the appropriate tangata whenua (as defined in Section 41), on the effects of the activity on their cultural values. The commissioning of such reports shall be subject to prior discussion with the applicant and shall be deemed to be a report within the scope of s.92 of the Act.

Refer also to Methods 6.05.01, 6.05.02 and 6.05.04

7.7 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVE, POLICIES AND METHODS RELATING TO WATER QUALITY MANAGEMENT

The principal reasons for adopting the objectives are set out in the introduction and issues section. The principal reasons for adopting each policy is incorporated in the explanation. The principal reasons for adopting the methods of implementation are as follows:

7.7.1 Water Quality Guidelines

Guidelines for key parameters have been given to indicate the water quality that is expected to be suitable for aquatic ecosystems, contact recreation, fishery, water supply and stock and irrigation purposes. These guidelines provide clarity for applicants for resource consents when assessing the state of the water quality of the water body that may be affected by their proposal.

The following methods relate to water quality guidelines:

7.06.07 7.06.08 7.06.09 7.06.10 7.06.11

7.7.2 Water Quality Standards

To ensure the existing water quality is maintained or enhanced, conditions may be placed on resource consents which require certain receiving water quality standards to be met. The standards will be determined having regard to the existing water quality in relation to the desired water quality, and the sensitivity of the water body with respect to ecological and cultural values.

The following methods relate to setting water quality standards as conditions of resource consents:

7.06.12 7.06.13 7.06.14

7.7.3 Provision of Information

Numerous reports on Northland's water resources have been prepared over the last 10 to 15 years which contain information on the water quality of the resource. State of the environment monitoring and consent monitoring also provides information on water quality. This information is important to the Council and applicants when assessing the effects of a proposal. Such information gathered by the Council is available.

The following methods relates to provision of information:

7.06.02

7.7.4 Information Requirements

Where adequate existing water quality information is not available to assess environmental effects or avoidance, remedial or mitigation measures, this information will need to be collected and submitted with the application. Adequate and accurate information is essential to enable a comprehensive assessment of the effects of the activity. Information provided should be consistent with the Fourth Schedule of the Act and appropriate to the scale of the activity.

The following methods relate to information required to be submitted with applications:

7.06.14 7.06.19

7.7.5 Research

The preparation of a schedule of water bodies of high ecological values would provide clarity and certainty for possible users of those resources in terms of how the Regional Council may assess any application which may affect the resource. Similarly, a schedule of water bodies of significant cultural values, whether it is available directly to the public, or available only to the Regional Council so it may then advise applicants upon request, would also provide clarity and certainty.

The following methods relate to the process for the development of such schedules:

7.06.15 7.06.17

8. DISCHARGES

8.1 INTRODUCTION

The underlying framework for the maintenance and enhancement of Northland's fresh water quality is established in the previous section. Discharges of contaminants to land and water are the main causes of existing or potential water quality degradation in Northland. This section addresses point source discharges, while non-point source discharges (or diffuse source discharges) will be addressed in the Land Management Section (Section 12). Both types of discharges are managed by the use of Riparian Management methods and Water Quality Guidelines as detailed in Sections 5.06 and Section 7 respectively.

8.2 CONTROLS UNDER THE RESOURCE MANAGEMENT ACT 1991

The rules relating to this section either:

- Allow discharges to occur subject to meeting specified conditions (permitted activities), or
- Require consents subject to meeting specified performance standards, (controlled activities), or
- Require consents with full discretion reserved to the Council, (discretionary activities), or
- Expressly prohibit the activity (prohibited activities).

Under s.70 of the Act, a discharge can only be permitted without a resource consent if the Regional Council is satisfied that none of the following effects are likely to occur after reasonable mixing in the receiving waters:

1. The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
2. Any conspicuous change in the colour or visual clarity;
3. Any emission of objectionable odour;
4. The rendering of freshwater unsuitable for consumption by farm animals;
5. Any significant adverse effects on aquatic life.

These five effects also restrict the granting of discharge permits.

8.3 SUMMARY OF DISCHARGES IN NORTHLAND

8.3.1 Sewage

Approximately 146,600 people live in Northland. Approximately 55% of Northland is served by community-based sewage collection and treatment systems. Most of these systems have oxidation ponds or mechanical treatment plants, and many discharge to wetlands for additional treatment prior to discharging to rivers. The

remaining 45% of Northland residents dispose of their sewage on-site, mainly using septic tanks and soakage trenches or holes.

Approximately 800,000 visitors, who stay the equivalent of 4,000,000 visitor nights each year, add to the peak loading on community and individual sewage treatment systems.

8.3.2 Agricultural Discharges

There are approximately 1,150 dairy farms in Northland, carrying in the order of 250,000 milking cows. Most cow herds are milked twice daily from July through to February, March or April. Waste generated during milking and cleaning from vats is washed out of the cowshed and is generally treated in either oxidation ponds, or barrier ditches, or discharged directly into unmodified ditches before being disposed of into water or onto land, or is disposed of directly onto land via spray irrigation or sacrifice areas.

A report, (*Toward Sustainable Agriculture: Freshwater Quality in New Zealand and the Influence of Agriculture*, 1993) commissioned by the Ministry for the Environment and the Ministry of Agriculture and Fisheries in 1993, using information from various Regional Councils found that water quality of many New Zealand streams in agriculturally developed catchments are in poor condition. Farm dairy discharges make a significant contribution to the total point source loading on rivers due to the number of sheds and widespread distribution along fertile lowland areas (Hickey and Rutherford, 1986).

Other point source discharges of agricultural waste include discharges from piggeries, stock and sale yards, wintering barns, silage pits, offal holes and dead stock burial sites, and sub-surface drains. Non point sources include pasture and stock races, fertiliser and agricultural chemicals.

8.3.3 Industrial Discharges

Most industries, and particularly industries in urban areas, discharge their effluents into community sewage systems which are authorised under separate discharge permits. There are few discharges from industrial plants which discharge to freshwater or land in Northland. These include dairy product manufacturers, abattoirs, and timber treatment plants and in most instances, the effluents are treated prior to discharge either to wetlands, water bodies or land.

The industrial sites which are located on the coast generally discharge their effluent into estuaries and harbours (coastal marine area). The detailed policies, rules and standards for controlling these discharges are contained in the Regional Coastal Plan.

8.3.4 Solid Waste

There are 4 landfills operated by territorial authorities in Northland which receive most of the region's residual solid waste. There are also many dumps which are currently uncontrolled, for example, dumps on private property, closed landfills and former landfills still being discovered, particularly in remote rural areas.

All landfills produce leachate which may contain elevated concentrations of metals and other substances which could potentially contaminate groundwater or surface

waters in the vicinity. Adverse effects on water quality and aquatic life can be avoided by the proper management of the landfill operation and control of leachates.

8.3.5 Stormwater

During dry weather, contaminants such as dirt, oil, grease, and heavy metals tend to accumulate on the streets, footpaths, carparks, roofs and similar hard surfaces within urban areas. When it rains, the stormwater carries the accumulated contaminants with it into stormwater drainage systems which in turn flow directly into nearby streams, rivers or estuaries. Such urban stormwater runoff receives little or no treatment before being discharged into natural water bodies.

Heavy metals have been found in the Upper Whangarei Harbour sediments to exceed the standards recommended for aquatic life. These contaminants will remain in the receiving environment, and will accumulate over time as stormwater discharges continue.

Stormwater discharges are generally authorised by discharge permits based on a stormwater management plan. Stormwater management plans are widely used in terms of the design of the stormwater system. However, these have focused on the capacity of the stormwater system to accept runoff, with little or no attention given to stormwater quality. The plans, however, provide a useful basis upon which to institute quality controls which are available and used both in New Zealand and overseas.

8.3.6 Rural Roads

The regional roading network is a diffuse source of sediment, nutrients, heavy metals, oil and grease which can enter Northland's water bodies. Effluent on roads from stock trucks is another source of contamination. Because of this, many stock trucks have holding tanks.

8.4 TYPES OF CONTAMINANTS

Many of the discharges described in Section 8.03 contain the same type of contaminants and therefore have the same or similar effects on the environment. The range of contaminants includes organic material, nutrients, bacteria, viruses, other pathogens, toxic chemicals, sediments and metals.

Organic matter is the contaminant which is discharged in the largest volume, being present in sewage, animal effluents, leachate from the decomposition of animal and vegetable matter and in dairy and meat processing effluents. The biochemical oxygen demand, which is a measure of the organic content, is considerably higher in leachate from silage pits and fruit and vegetable dumps than it is in sewage or farm dairy effluents. However the volumes from these sources are much smaller.

Nutrients, particularly nitrogen and phosphorus are also present in high concentrations in the above effluent discharges, particularly in sewage, animal effluent and leachates from decomposing vegetation.

Sewage and animal effluents also contain bacteria and viruses (some of which can cause disease) and potentially harmful (toxic) chemicals from some cleaning fluids.

Other contaminants include hydrocarbons, solvents, and metals (trade wastes, contaminated stormwater, landfill leachate); sediment (farm dairy effluent, contaminated urban stormwater and rural runoff), runoff from earthworks and heavy metals (contaminated urban stormwater, timber treatment plants and discharges from closed or operational landfills).

If the effluent containing these contaminants is inadequately treated before being discharged into water, the effects on the receiving environment are likely to be an increase in aquatic plant growth and algae, a depletion in dissolved oxygen levels, the death of fish and other aquatic life, and water unsafe for drinking and swimming. Sediments in water may cause discoloration, smother plants and animals on stream bottoms and clog the gills of fish. Many lowland river reaches and streams are potentially unsafe to swim in because they contain high levels of faecal bacteria. Most surface water bodies would be unsafe to drink from without prior treatment and many may, at times, be unsuitable for stock water. Ammonia in effluent is toxic to fish and invertebrates in low to moderate concentrations. Heavy metals may accumulate in stream sediments and adversely affect freshwater fauna.

8.5 ISSUES

8.5.1 General Issues

1. The large number and volumes of point source discharges to water which contain organic matter.
2. Point source and non-point source discharges to land and water can cause contamination of soils and a deterioration of water quality if they are not properly controlled.
3. Degradation of the mauri (life force) and wairua (spirit) of water bodies, and the degradation of habitats for kaimoana (food of the lake or sea) and kaiawa (food of the river) from the discharge of contaminants to water.
4. Saturation of Northland soils for three to four months of the year due to Northland's high rainfall and large areas having poor drainage, and the consequent potential limitations for land disposal of effluent.
5. Reduction in the effectiveness of the treatment system when the collection, treatment and disposal system also receives surface runoff from surrounding land or impermeable surfaces.
6. Accidental or emergency discharges from effluent treatment and disposal systems which may result from equipment breakdown and lack of maintenance.

8.5.2 Issues Relating to Sewage Discharges

1. The direct discharges of relatively low quality effluent to water from older sewage treatment pond systems which service many small towns in Northland. Some of these discharges are meeting receiving water quality standards only because the discharge is into a large river.
2. The seasonal overloading of community sewage treatment and disposal systems, which reduces the quality of effluent being discharged.

3. The adverse effects of on-site sewage system discharges resulting from inappropriate design, incorrect installation or inadequate maintenance.
4. The cumulative effects of septic tank sewage discharges from unsewered settlements on surface water and groundwater, creating potential health risks.
5. The inappropriate design of some sewage treatment and disposal systems in areas subject to environmental constraints such as high water tables, tight clays or free draining soils.
6. The limited additional treatment provided by the method of discharging untreated or primary treated effluent into deep soakage systems (including deep bores and soak holes).

8.5.3 Issues Relating to Agricultural Discharges

1. The inability of a large number of animal effluent treatment and disposal systems to provide effective treatment, due to oxidation ponds being too small in comparison to stock numbers.
2. The lack of maintenance of many treatment systems, resulting in reduced effluent treatment, overflow of solids from ponds to streams, and direct discharges to water from equipment failure (particularly with spray irrigation systems), or pond wall breakdown or collapse.
3. The adverse impact of even well treated effluent on small streams, due to their limited dilution capacity.
4. The leachate generated from the breakdown of plant material in silage pits and waste fruit and vegetable dumps, containing high levels of organic matter, and nutrients such as nitrogen and phosphorus; and the potential to cause significant adverse effects on water quality when located near a water body.
5. The dumping of dead stock and offal into and close to water courses and the associated human and animal health risk, offensive odours and degradation of water quality.
6. The application of fertiliser using methods or in conditions which increase the risk of fertilisers entering water bodies, particularly lakes, and the potential for nuisance weed growth and eutrophication.
7. The use of herbicides to control aquatic weeds and the potential contamination of downstream water supplies if inappropriate chemicals and application rates are used.
8. The potential residual contamination of soils from the use of agrichemicals, including herbicides, pesticides, sewage sludge and animal remedies.

8.5.4 Issues Relating to Industrial Discharges

1. The reliance, by many existing industrial discharges to water, on the significant dilution and assimilative capacity of receiving water to meet acceptable water quality standards, compared with the increased public expectation for better water quality.

8.5.5 Issues Relating to Solid Waste Discharges

1. The adverse environmental effects of landfills including the impacts on the socio-economic well-being of the community, the amenity values of the selected area and the need for comprehensive environmental assessments of all alternatives.
2. The actual and potential long-term effects of many closed and operating landfills that are inappropriately located near the coast, estuarine areas and other water bodies, and the lack of information as to what has been placed in some of these landfills.
3. The need to eliminate or reduce solid waste at its source in order to minimise the number and size of landfills required in Northland.
4. The lack of monitoring and leachate control in past landfill management practices.
5. The potential adverse effects on groundwater and surface water quality resulting from the discharge of landfill leachate.
6. The need to ensure that hazardous wastes can continue to be disposed of at an approved and convenient site.

8.5.6 Issues Relating to Stormwater Discharges

1. The levels of heavy metals, sediments and other contaminants, which are potentially harmful to aquatic life, in stormwater runoff.
2. The past lack of attention to quality controls in stormwater system design.
3. The contribution of runoff from industrial sites to contaminant loadings in urban stormwater, including those from accidental spills.
4. The deliberate or careless disposal of oil and other household and commercial wastes to stormwater systems.

8.6 OBJECTIVES

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| <ol style="list-style-type: none">1. The effective treatment and/or disposal of contaminants from new and existing discharges in ways which avoid, remedy or minimise adverse effects on the environment and on cultural values.2. The reduction and minimisation of the quantities of contaminants entering water bodies, particularly those that are potentially toxic, persistent or bio-accumulative. |
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8.7 POLICIES

1. To require all new discharges of sewage or discharges with a high organic content to be:
 - (a) By land disposal; or
 - (b) To water, if after reasonable mixing:
 - (i) it does not cause a discernible adverse change in the physico-chemical and/or microbiological water quality of the receiving water at the time of discharge; and
 - (ii) it is the best practicable option (as defined by Section 2 of the Act).

Cross-references: 6.04.01, 6.04.02

Explanation: *Discharges of effluent containing high organic matter can be defined as those effluents which, if discharged to water, are likely to change the dissolved oxygen regime of the receiving water. Such changes may lead to the death of aquatic life and/or the production of undesirable growths such as sewage fungus and slimes.*

In Northland, discharges with high organic content include those from human and animal effluents, decomposing vegetable matter, animal and food processing, and leachates from solid wastes.

Direct discharges of contaminants into water, particularly sewage and animal effluent, are offensive to the Northland community. This was made clear during public consultation for the preparation of the Regional Policy Statement. Discharges to water also degrade the traditional, cultural and spiritual values that tangata whenua hold for water and water bodies. It is therefore intended that wherever it is practicable, all discharges will eventually be to land. This is also consistent with policies in the New Zealand Coastal Policy Statement regarding the maintenance and enhancement of water quality in the Coastal Marine Area. Before a new discharge of sewage or discharge with a high organic content to water is allowed, the Council will need to be satisfied that all other options, particularly land disposal have been considered.

The best practicable option approach takes account of the financial implications, and the effects on the environment, of that option when compared with other options, as well as the current state of technical knowledge and the likelihood that the option can be successfully applied.

For the purposes of this policy, a discernible adverse change in physico-chemical and/or microbiological water quality is defined as a change in all or any of the following:

The physical properties or characteristics;

- (b) *The chemical composition; and*
- (c) *The microbiological content of the receiving waters.*

Note: *That applicants for new consents should consult with Regional Council staff regarding appropriate levels of accuracy in testing and measurement methodologies in order to determine whether a discernible adverse change is likely to occur. Note also the requirements of Objectives 7.04 and 9.04 and their associated policies, to maintain and enhance water quality.*

For the purposes of this policy, a new discharge is defined as a discharge:

- (a) *From a treatment and disposal system which did not exist at the time this Plan was proposed (April 1995);*
 - (b) *From a treatment system which replaces or enhances an existing treatment system;*
 - (c) *From the same treatment system to a different receiving water body.*
2. To require by the year 2004 or according to an upgrading programme established as part of the conditions on a discharge permit all existing discharges of sewage or discharges with a high organic content to be:
- (a) By land disposal; or
 - (b) To water, if after reasonable mixing:
 - (i) it does not cause a discernible adverse change in the physico-chemical and/or microbiological water quality of the receiving water at the time of discharge; and
 - (ii) it is the best practicable option (as defined by Section 2 of the Act)

Cross-references: 6.04.01, 6.04.02

Explanation: *The move to land based treatment and disposal will markedly improve the water quality of Northland's water resources.*

Discharges existing before the notification of this document will be required to be upgraded over a period of time as decided by the Council through its Annual Plan process. Criteria for upgrade priorities are given in the methods based on the actual and potential effects of the discharge on the environment.

3. To ensure there are adequate separation distances between water bodies and discharges to land to avoid or mitigate adverse effects on water quality.

Explanation: *There are many other discharges of small volumes containing high concentrations of organic matter and discharges of larger volumes containing low levels of contaminants. The adverse effect of those discharges can be avoided by requiring adequate separation between the discharge point or disposal area and the surface water body or groundwater.*

4. To promote effective effluent treatment and disposal systems which are:
- (a) Low maintenance and low risk;
 - (b) Land based, where the soil types, available disposal areas, back-up facilities and pumping systems are adequate;

- (c) Operated in accordance with approved maintenance and contingency plans; and
- (d) Designed and maintained so as to prevent the collection of catchment runoff.

Explanation: *Low maintenance and low risk systems avoid adverse effects, as do land based systems with adequate back-up facilities. Maintenance and contingency plans will increase the awareness of operators and focus maintenance responsibility on individuals. Avoiding or reducing infiltration of stormwater into reticulated sewerage schemes and preventing runoff to be collected in other effluent treatment and disposal systems, will reduce the volume to be treated and increase the efficiency of the systems.*

- 5. To encourage the effective, efficient and responsible use of agrichemicals so as to minimise any potential effects on the environment.

Explanation: *Agrichemicals are used in association with many land uses ranging from agriculture and horticulture to quarrying and maintenance of public reserves. Wherever agrichemicals are used, they need to be applied in a safe responsible manner to avoid adverse effects on land, water and people.*

8.8 METHODS OF IMPLEMENTATION

For Policies 1, 2 and 3

- 1. To include rules which permit discharges to land and to water subject to conditions relating to environmental standards.

Cross-references: 15.01.01 – 15.01.05

- 2. Where a permitted activity rule cannot be met, to include rules which require consents for the discharge of contaminants to land and to water, particularly those discharges with a high organic content.

Cross-reference: 15.03.02

- 3. Implement a programme for upgrading those existing discharges to water which must be improved in accordance with Policy 8.07.02. These are to be prioritised according to the sensitivity of the receiving waters, the aspirations of the local community, the existing level of treatment provided and the actual or potential effects in the receiving water after reasonable mixing.

Priority 1: Any discharge of effluent containing sewage or having a high organic content, treated or otherwise, which is a prohibited activity in accordance with rules in this Plan,

Priority 2: Any discharge that results in any of the receiving water guidelines being exceeded.

- 4. The timing of the upgrade programme and any subsequent requirement to apply for a resource consent will be decided annually during the Regional

Council's Annual Plan process following discussions with territorial authorities and other consent holders.

For Policy 4

5. Provide information and advice on effective, low maintenance, low risk effluent treatment and disposal systems, particularly in regard to suitable alternatives to conventional on-site sewage and farm dairy effluent systems. Proposals for relevant investigations will be publicised through the Annual Plan process.
6. Require a maintenance and contingency plan to be submitted as part of a resource consent application for a new discharge or an existing discharge.

For Policy 5

7. Support the New Zealand Agrichemical Education Trust's Growsafe courses and require Council staff to have appropriate training and qualifications.
8. Include rules for the discharge of agrichemicals to land and water.

Cross-reference: Section 18

8.9 SPECIFIC POLICIES FOR SEWAGE DISCHARGES

1. To avoid the cumulative adverse effects of sewage discharges, particularly in areas subject to concentrated development, a high water table, poorly draining soils, very free draining soils, or in areas which are ecologically and/or culturally sensitive.

Explanation: *The cumulative effect of high density on-site sewage disposal systems is a particular problem in coastal settlements which have large increases in population during the holiday season.*

2. To promote the installation of reticulated community sewerage schemes in urban and rural residential areas where on-site disposal systems contribute or are likely to contribute to the contamination of water, including coastal water and groundwater.

Explanation: *There are some rural-residential areas where on-site disposal of sewage is occurring over high groundwater tables. In such situations, conventional land based on-site disposal systems which rely on soakage fields or soakage pits are likely to result in groundwater and/or surface water contamination, particularly where a number of residential properties are clustered together. Increasing the level of treatment or upgrading the design of the existing on-site treatment system in these areas is likely to be expensive and resource consents may still be required for many individual systems. In such cases, a reticulated community sewerage scheme would avoid widespread contamination by providing a suitable level of treatment and an appropriate means of treated effluent disposal, and would allow development to be unhindered by problems with sewage disposal.*

3. To promote alternative methods to reticulated sewage systems and septic tanks for sewage disposal.

***Explanation:** New technologies are being developed which are more appropriate than conventional methods*

8.10 METHODS OF IMPLEMENTATION

For Policies 1 and 2

1. To make submissions on:
 - District Council Annual Plans regarding reticulated sewage treatment and disposal; and
 - District Plan changes and reviews relating to on-site and community sewage effluent discharges.
2. Work with District Councils and health authorities to identify locally appropriate solutions where effects on the environment from on-site domestic sewage discharges are found to be unsustainable.
3. To include rules for the discharge of sewage to land.

8.11 SPECIFIC POLICIES FOR AGRICULTURAL DISCHARGES

1. To encourage farm management practices which maintain and enhance water quality and to facilitate communication between interested groups.

***Explanation:** Adverse effects on water quality can be reduced by changing some farm management practices and implementing new ones. Many sectors use good farm management practices which may be applied to other types of land use.*

2. To require operators of all animal effluent treatment and disposal systems from which the discharge is a permitted activity to produce, at two yearly intervals, documented evidence of continuous compliance, which has been prepared by a person or organisation approved by the Regional Council.

***Explanation:** Farms, particularly dairy farms, change ownership or management quite regularly. As the avoidance of adverse effects on water quality is reliant on good management of the effluent treatment and disposal system, a system to ensure compliance with the conditions of permitted activities is required.*

8.12 METHODS OF IMPLEMENTATION

For Policy 1

1. Facilitate a working group comprising relevant government agencies, industry and environmental groups, and iwi which will:

- (a) Prepare guidelines for the design, operation and maintenance requirements of farm dairy effluent and treatment systems options. This will include a list of other sources of information which may be useful in choosing an appropriate system for different environment conditions.
- (b) Collate existing education/information packages which are available, and prepare new packages where appropriate to target groups such as school children, farmers, farm advisors, contractors and the general public on good farm management practices. Any new packages to be prepared by the Council will be proposed through the Annual Plan Process.
- (c) Encourage and attend on-farm discussion groups as a means of demonstrating, advising and informing pastoral farmers and other industry groups of new technologies and management practices which would benefit them and the environment.
- (d) Liaise with other relevant industry groups for information sharing purposes.

For Policy 2

- 2. Include a standard which requires documented evidence that the activity continues to comply with the permitted activity rule.

Cross-reference: 16.01.02

- 3. Support industry initiatives to develop and implement national codes of practice.

8.13 SPECIFIC POLICIES FOR SOLID WASTE DISCHARGES

- 1. To promote waste minimisation to industries and the community.

***Explanation:** Waste minimisation extends the life of landfills and minimises the land resources required for landfilling. Priority is given to the reduction of waste at source because this is often the most efficient means of reducing waste. Reuse is the second priority which is likely to have energy efficiency benefits over recycling because the resource remains essentially unchanged. Recycling is supported where it is the most practical option for reducing waste. However, careful consideration needs to be given to the energy costs of recycling, and the availability of markets for recycled goods.*

- 2. To educate users of landfills, about the types of wastes that should be disposed of in Northland landfills, and to encourage the safe disposal of hazardous wastes at approved hazardous waste disposal facilities.

***Explanation:** Many of Northland's public landfills are unattended for much of the time and many users are unaware that certain types of wastes should not be disposed of in landfills.*

- 3. To maintain access to existing hazardous waste disposal facilities in Auckland and to promote establishment of suitable long-term disposal facilities available to the region.

Explanation: *It is important that access to hazardous waste disposal facilities is maintained so that existing industries have a reasonably convenient site for disposal and future industrial development in Northland is not compromised by inaccessible or costly disposal facilities.*

4. To require, where appropriate, the pre-treatment of hazardous substances prior to disposal at an approved disposal facility.

Explanation: *Some hazardous substances may not be suitable for direct disposal at an approved disposal facility without an appropriate level of pre-treatment. When considering conditions for resource consents for the disposal of hazardous substances, the Council may require the pre-treatment of hazardous substances to minimise the hazardous character of discharges.*

5. To ensure that all new landfill sites are located having regard to full environmental considerations. Before deciding on the site for a new landfill, a full assessment of environmental effects must be undertaken. Such an assessment must address the factors included in Method 8.14.09.

Explanation: *Before deciding on the site for a new landfill, applicants should assess the need for a new landfill, and the environmental and cultural impacts of a landfill at a number of alternative sites. Environmental considerations encompass social and cultural well-being as defined in the Act.*

6. To require the effects of discharges both into and from landfills to be managed in accordance with site specific landfill management plans so that adverse effects are avoided, minimised or mitigated.

Explanation: *Landfill management plans submitted with resource consent applications will allow the Council and affected parties to determine how the effects of the proposed landfill can be avoided, minimised or mitigated and how the effects will be monitored. Appendix 4 contains the matters to be addressed in a Landfill Management Plan.*

7. To require discharges both into and from closed landfills to be managed in accordance with site specific landfill closure plans so that adverse effects are avoided, remedied or mitigated.

Explanation: *Landfill closure plans submitted with resource consent applications for closed landfills will allow the Council and affected parties to determine how the effects of the closed landfill can be avoided, remedied or mitigated and how the effects will be monitored. Appendix 4A contains the matters that must be addressed in a landfill closure plan.*

8.14 METHODS OF IMPLEMENTATION

For Policy 1

1. Promote waste minimisation by:
 - (a) Producing and circulating available information to educate industries and communities in the region about the advantages and methods of waste minimisation.

- (b) Maintaining liaison with the Cleaner Production Foundation (a group recently established by the Government to promote Cleaner Production) and other groups engaged in Cleaner Production activities.
 - (c) Providing advice on Cleaner Production Demonstration Projects through workshops and audits.
 - (d) Providing advice to organisations and individuals involved in generating or managing waste on ways to implement waste minimisation in relation to their own operations.

The Council's education programmes for Waste Minimisation will be publicised through the Annual Plan Process.
 - (e) Encourage the use of waste audit procedures to identify and implement waste minimisation opportunities.
2. Investigate the possibility of a rural collection of hazardous waste containers, plastic, and silage wrapping on a regular basis.

For Policy 2

- 3. Ensure pamphlets on various types of hazardous wastes and appropriate methods of disposal are distributed to the Northland community via Regional Council offices, field days, school visits and directly to resource users.
- 4. Maintain liaison with District Councils and other landfill operators which have resource consents for landfills which do not specifically exclude the disposal of hazardous wastes, in order to encourage proper disposal of any hazardous wastes that may be brought to the landfill.
- 5. Require landfill operators to erect adequate and consistent signage for disposal of wastes, particularly in respect of hazardous wastes.
- 6. Provide an advice service for direction on the disposal of wastes.

For Policies 3 and 4

- 7. Initiate an investigation, in conjunction with the District Councils, into options for disposal of Northland's hazardous waste beyond the current means of disposal, particularly purpose-built co-disposal sites.
- 8. Consider jointly with other Regional Councils in the Upper North Island, possible alternatives to disposing of the region's hazardous wastes at Greenmount and possible options for the treatment of hazardous wastes.

For Policy 5

- 9. Require a full assessment of environmental effects of operational and new landfills to be included as part of resource consent applications, and in addition, for new landfills, to include an assessment of any alternative locations and methods having regard to:
 - (a) Groundwater usage in the immediate or surrounding area; and

- (b) Cultural sites of interest; and
- (c) Waterways and protection of water resources; and
- (d) Minimising visual effects of landfills; and
- (e) Avoidance of landfills in coastal areas; and
- (f) Requirements to line the site; and
- (g) Leachate collection and treatment; and
- (h) Separation distance from residential dwellings.

Cross-references: 35.01, Appendix 4

For Policy 6

10. Require a Landfill Management Plan to be included as part of a resource consent application.

Cross-references: 35.01, Appendix 4

For Policy 7

11. Include rules for the discharge of contaminants from closed landfills.
12. Require a Landfill Closure Plan to be included as part of a resource consent application.

8.15 SPECIFIC POLICIES FOR INDUSTRIAL OR TRADE DISCHARGES

1. To enable industries to monitor the effects of their discharges while maintaining an audit role.

Explanation: *Many industries have suitable in-house expertise and facilities that will allow the industry to monitor the effects of its discharges. While the Council will maintain an audit role, industry self monitoring can make more efficient use of Council resources. Self monitoring can also result in an increased awareness by the industry of its effects.*

2. To promote industrial waste minimisation programmes and the use of environmental management systems which effectively avoid, minimise or reduce adverse environmental effects of industrial contaminants generated by industry.

Explanation: *Industries can reduce the quantities of the contaminants they discharge into water and other receiving environments by implementing waste management or minimisation programmes.*

The Council continues to support the preparation and implementation of environmental management systems as a means of environmental quality control. Many industries have already taken the initial steps towards the preparation of environmental management systems.

8.16 METHODS OF IMPLEMENTATION

For Policy 1

1. Establish suitable industry based monitoring programmes, where the Regional Council is satisfied that the industry has the resources to undertake self monitoring. These will comprise the industry carrying out regular sampling, combined with a number of duplicate sampling runs to be undertaken from time to time by the Regional Council. The monitoring programme will be established as part of the resource consent process and will be reviewed as required upon assessment of the results.

For Policy 2

1. Consult with industries and any relevant liaison groups on environmental issues such as pollution control and environmental monitoring, and seek input to environmental management systems developed by industries.

Refer also Method 8.14.01

8.17 SPECIFIC POLICIES FOR STORMWATER DIVERSIONS AND DISCHARGES

1. To manage the diversion and discharge of stormwater in a way that provides safeguards against flooding and maintains or enhances water quality.

Explanation: *Stormwater management systems need to address the stormwater capacity of the total catchment in terms of its potential development and to provide appropriate treatment of the stormwater to avoid or minimise contamination. Stormwater management plans are a suitable mechanism to provide for these requirements.*

2. To require the inclusion of water quality controls as far as practicable in existing stormwater management systems that are known to be causing concentrations of contaminants within the receiving environment that are in excess of applicable water quality and/or sediment quality guidelines.

Explanation: *Many existing stormwater reticulation systems were constructed purely for stormwater collection, with little regard for treatment of the discharge. Appropriate water quality controls such as sedimentation ponds and marshes, other types of sediment traps, oil separators, vegetative filter strips and the use of grass swales instead of kerbing and channelling may be required to be incorporated into new stormwater reticulation systems. Incorporating water quality controls into existing reticulation systems may be difficult and is likely to take time. Stormwater management plans will need to be prepared for those areas which have the potential to contribute significant quantities of pollutants, particularly where the discharge is to the Coastal Marine Area.*

3. To manage the diversion and discharge of stormwater in urban areas through long duration resource consents that are supported by comprehensive stormwater management plans.

Explanation: *The intention is that comprehensive stormwater management plans will be developed for urban areas. These plans will identify issues such as the design standards, discharge standards, requirements for inclusion within the stormwater management plan coverage area and any maintenance requirements.*

The Council will consider granting a long duration consent where the stormwater management plan appropriately addresses stormwater issues and potential effects likely to arise in the long-term. Where a comprehensive stormwater management plan is still to be, or is being developed, a shorter duration consent will be considered. These resource consents will provide for all diversion and discharge of stormwater within the area covered by the stormwater management plan that is either existing or anticipated in the long-term.

4. To promote best practice for stormwater management design, including low impact options.

Explanation: *Best practice will ensure adverse effects are minimised and will assist plan users in addressing this Plan's performance standards.*

5. To promote stormwater management practices that avoid or minimise the discharge of contaminants from industrial and trade premises into stormwater drainage systems.

Explanation: *There are a number of measures which can be implemented on industrial or trade premises to avoid or minimise contaminants, stored or spilled on site, from entering the stormwater systems. These measures may include oil separators, grease traps, settling ponds or bunding around the area where chemicals are used or mixed. When developing land, or changing its land use, these measures should be considered.*

6. To encourage activities to operate in accordance with industry standards and/or environmental guidelines where these are intended to avoid, remedy or mitigate the adverse effects of stormwater contamination.

Explanation: *The Council will use industry standards and environmental guidelines or codes of practice prepared for the purpose of avoiding, remedying or mitigating any potential adverse effects relating to the storage of hazardous substances or the management of industrial or trade premises when interpreting the provisions of the permitted and controlled activity rules to determine whether appropriate interceptor or bunding facilities have been installed. These standards and guidelines may have been produced by the industries themselves, and consideration will be given to whether they represent industry best practice. The Council will encourage owners and operators of hazardous substance storage areas and industrial and trade premises to comply with industry best practice standards.*

7. To permit the discharge of stormwater from hazardous substance storage areas and industrial or trade premises if sufficient safeguards are adopted to avoid, remedy or mitigate the potential adverse effects associated with stormwater contamination.

Explanation: This policy stormwater that the use of appropriately designed measures such as containment areas, bunding and interceptor systems for hazardous substance storage sites or industrial or trade premises can minimise the risk of contamination.

8. To promote public awareness of the adverse effects of stormwater discharges on natural waters, including awareness of the adverse effects of household waste introduced into stormwater systems.

Explanation: Many householders are not aware of where the stormwater ends up or may mistakenly think that disposing of unwanted household cleaners or washing paintbrushes into the stormwater grate has few adverse environmental effects. Increased public awareness is needed to avoid wastes being discharged into the stormwater systems.

8.18 METHODS OF IMPLEMENTATION

For Policies 1 and 2

1. Include rules for the discharge of stormwater to land and water.
2. Review the stormwater rules with regard to reasonable mixing within two years of this Plan becoming operative.

For Policies 3 and 4

3. Make submissions on:
 - District council annual plans regarding the need to prepare stormwater management plans for existing urban catchments.
 - District plan changes and reviews regarding the need to prepare stormwater management plans for future urban development.
 - Applications for subdivision consents where there is no stormwater management plan.
 - Stormwater management plans and district council road maintenance programmes to ensure that they provide for upgrading of sediment discharges.
4. Require stormwater management plans to be prepared by the relevant district council for urban catchment areas, where necessary, as part of the resource consent process. (Matters that should be addressed in a stormwater management plan are given in Appendix 5.)

For Policy 5

5. Provide information and advice on best practice stormwater management design, including low impact options.

Refer also Method 8.14.01

For Policies 6 and 7

6. Require, as information to be submitted with an application for a resource consent for an existing stormwater discharge (i.e. a new application upon expiry), a stormwater management plan which incorporates stormwater quality controls, and a programme for installing them, where the stormwater management system is known to be causing pollution.

Cross-references: 35.01

7. Provide information and advice to industries, District Councils and roading contractors on ways to avoid, remedy or mitigate the adverse effects of stormwater discharges.

Refer also Method 8.14.01

8. Require a maintenance and contingency plan to be submitted as part of a resource consent application for a new or existing discharge.

Cross-references: 35.01

For Policy 8

9. Prepare and distribute appropriate educational material to schools and community organisations and with rating notices.

8.19 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVES, POLICIES AND METHODS RELATING TO DISCHARGES

The principal reasons for adopting the objectives are set out in the introductory sections and issues section. The principal reasons for adopting each policy are incorporated in the explanation. The principal reasons for adopting the methods of implementation are as follows:

8.19.1 Rules and Environmental Standards

Rules and environmental standards are used to provide an efficient and effective means of managing Northland's discharges and water quality. Permitted activities allow activities to be undertaken without a resource consent. Controlled activities give certainty to the applicant as to the aspects of the activity that the Council will be controlling through conditions on the consent. Discretionary activities allow for site specific assessment of the discharge and its effect on the receiving environment. Listed information requirements and assessment criteria provide clarity for the applicants by specifying how the application will be assessed and therefore why the information is required. These also ensure a consistent approach to decision making. Prohibited activities are those activities which this Plan expressly prohibits and describes as an activity for which no resource consents shall be granted.

To have no rules would mean that all discharges of water to water, and discharges of contaminants to land or water, would be non-complying activities and would require resource consents. This is considered to be an inefficient and costly method of achieving the objectives and policies.

The following methods relate to rules, environmental standards, information requirements and assessment criteria:

8.08.01	8.08.02	8.08.03	8.08.04	8.08.05
8.08.06	8.08.07	8.08.10	8.14.05	8.14.09
8.14.10	8.14.11	8.14.12	8.18.01	8.18.02
8.18.03	8.18.05			

8.19.2 Education, Provision of Information and Advice

The majority of the discharges to land or water that occur in Northland are sewage and farm dairy effluent discharges from individual properties, and are generally managed by individuals.

With good management, the effects of discharges to land can be minor and for this reason, many are permitted subject to environmental standards. However to ensure good management, the dischargers and the community need to be supported with knowledge via education, up-to-date information and general advice.

The volume of the discharge may be able to be reduced at its source and thus waste minimisation advice is also important.

The following methods relate to education, provision of information and advice:

8.08.05	8.08.07	8.12.01	8.14.01	8.14.03
8.14.06	8.18.06	8.18.07	8.18.08	

8.19.3 Monitoring

Monitoring of the individual and cumulative effects of discharges within catchments is required to be able to assess whether the objectives are being achieved. The permitted activities will be monitored through the State of the Environment monitoring programme. Where the management of the permitted discharges is particularly important, such as with land disposal of farm dairy effluent, continued compliance will be monitored through the provision of a report prepared by a suitably qualified person. Specific monitoring programmes for resource consents will be prepared.

To make efficient use of Council resources and to reduce some of the costs for consent holders, industries which have relevant expertise and resources will be able to carry out regular monitoring with the Council auditing the monitoring through duplicate samples.

Monitoring of rules and resource consents is required by Section 35 of the Act, and therefore, in general, it has not been stated as a method. However, the following methods relate to specific aspects of monitoring:

8.12.02	8.16.01	8.16.02
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8.19.4 Co-ordination

The cumulative effects of discharges, particularly on-site sewage discharges, can be caused by, and solved by land use controls. The effects of the use, development and protection of land is principally controlled by the District Councils.

Disposal of solid waste, including hazardous wastes is an issue for both regional and District Councils. Liaison and co-ordination of efforts between the Councils is required to achieve the objectives.

The following methods relate to co-ordination and liaison:

8.10.01 8.14.04 8.14.07 8.14.08

9. SURFACE WATER QUANTITY MANAGEMENT

9.1 INTRODUCTION

Northland's river resource is small. By comparison with many other parts of New Zealand, the water available from surface water resources is limited, particularly during "dry" periods. Roofwater collection and the storage of rainfall runoff in ponds is an important source of water in Northland, particularly for domestic, stock and farm water supplies. Other major uses of water include horticultural and pastoral irrigation, public and industrial water supplies. There is heavy demand for water in some areas, and some rivers have little or no potential for further water draw-offs.

Research on Northland rivers and elsewhere in New Zealand has provided an increased understanding of flow related water quality and habitat effects and an appreciation of the potential importance of these effects on aquatic ecosystems. This research continues and it provides insight into the environmental bottom lines that need to be protected in order to maintain the life supporting capacity of the ecosystem and to achieve the sustainable use of the resource. This research has emphasised the need to maintain minimum flows that protect the functioning and non-extractive uses of rivers. These functions include the life supporting capacity and waste assimilation potential of the water bodies and also meeting the needs of recreational, amenity and cultural uses. Importantly this research has shown that in some situations, minimum flows that protect water quality need to be higher than the flows required to protect the physical habitat. Therefore there is an ongoing need to also indicate on a river by river basis and often also on a seasonal basis, the current and likely future competing demands for the surface water resource. Decisions over the allocation of surface water need to integrate this information. Providing for both the extractive and non-extractive uses is essential to the social and economic well-being of the region.

Research has also highlighted the fact that in some rivers, water takes may need to be reduced from their present levels in order to restore flows that will maintain water quality sufficient to avoid adverse effects on aquatic life. For example, one investigation of the relationship of dissolved oxygen, temperature and flow in a Northland stream has shown that at critical times a minimum flow of almost 200% of the 1 in 5 year return period 7 day low was required to maintain adequate levels of oxygenation.

Where river water is inadequate to meet demand, alternative water sources such as dams and reservoirs may have to be developed. More effective ways of utilising existing water sources will need to be considered, including strategies to harvest water at high river flows for use during periods of high demand and low availability. Avoiding wastage will also be an important consideration.

The community must have confidence that domestic and stock drinking water needs, whether provided via an individual or community water supply system, will be a priority use that must neither adversely affect the water body nor be adversely affected by other users of water.

There will be catchment specific situations where a broader, integrated management approach is required in order to take into account the inter-relationships between different activities, for example water takes, discharges and land use. In such cases, regional plans for individual catchments may be required in order to integrate management objectives and achieve an efficient and sustainable use of the resource

that best reflects the expectations of individuals and communities. Timeframes, priorities and the criteria for the preparation of regional plans are covered in Section 13 of this Plan.

The maintenance of water levels in Northland's lakes and wetlands is also an important focus of water management. Its significance is emphasised by the small size and shallow depth of most of the region's lakes and the importance of avoiding adverse effects on the much diminished resource of valuable natural wetlands.

For the purpose of this Plan, surface water includes all water, flowing or not, that is above the ground but does not include water while in pipes, tanks or cisterns, nor water located within the coastal marine area. It therefore includes water in permanently or intermittently flowing rivers, streams, artificial watercourses, lakes and wetlands, and water impounded by structures such as dams or weirs.

9.2 CONTROLS UNDER THE RESOURCE MANAGEMENT ACT 1991

Section 14 of the Act contains restrictions relating to the use of water. Under s.14, all activities relating to water (other than taking water for an individual's reasonable domestic or stock drinking water needs) are prohibited unless it is either; permitted through a regional plan, or a resource consent is obtained or it is an existing use in terms of s.20A of the Act.

Under Section 14 of the Act a person is not prohibited from taking or using fresh water for an individual's reasonable domestic needs or for the reasonable needs of an individual's animals for drinking water provided that the taking or use does not, or is not likely to have an adverse effect on the environment. An advice note is included in Section 24 of this Plan to this effect.

Section 14 states:

Restrictions relating to water –

- (1) *No person may take, use, dam, or divert any-*
 - (a) *Water (other than open coastal water); or*
 - (b) *Heat or energy from water (other than open coastal water); or*
 - (c) *Heat or energy from the material surrounding any geothermal water – unless the taking, use, damming, or diversion is allowed by subsection (3).*
- (2) *No person may –*
 - (a) *Take, use, dam, or divert any open coastal water; or*
 - (b) *Take or use any heat or energy from any open coastal water, - in a manner that contravenes a rule in a Regional Plan or a Proposed Regional Plan unless expressly allowed by a resource consent or allowed by Section 20A (certain existing lawful activities allowed).*
- (3) *A person is not prohibited by subsection (1) from taking, using, damming, or diverting any water, heat, or energy if –*

- (a) *The taking, use, damming, or diversion is expressly allowed by a rule in a Regional Plan [and in any relevant Proposed Regional Plan] or a resource consent; or*
- (b) *In the case of fresh water, the water, heat, or energy is required to be taken or used for-*
 - (i) *an individual’s reasonable domestic needs; or*
 - (ii) *the reasonable needs of an individual’s animals for drinking water-*
and the taking or use does not, or is not likely to, have an adverse effect on the environment; or
- (c) *In the case of geothermal water, the water, heat, or energy is taken or used in accordance with tikanga Maori for the communal benefit of the tangata whenua of the area and does not have an adverse effect on the environment; or*
- (d) *In the case of coastal water (other than open coastal water), the water, heat, or energy is required for an individual’s reasonable domestic or recreational needs and the taking, use, or diversion does not, or is not likely to, have an adverse effect on the environment; or*
- (e) *The water is required to be taken or used for fire-fighting purposes.*

Under the definition section of the Act “fresh water” means all water (surface water and groundwater), except coastal water and geothermal water.

Provisions in this Plan relating to surface water management cannot be inconsistent with the objectives and policies in the Regional Policy Statement.

Section 30(1) of the Act states the following as Regional Council functions in respect of water quantity:

- (c) *The control of the use of land for the purpose of - ...*
 - (iii) *the maintenance of the quantity of water in water bodies and coastal water:*
 - (iiia) *the maintenance and enhancement of ecosystems in water bodies and coastal water:*
 - ...
- (e) *The control of the taking, use, damming and diversion of water and the control of the quantity, level and flow of water in any water body including-*
 - (i) *the setting of maximum or minimum levels or flows of water;*
 - (ii) *the control of the range or rate of change of levels or flows of water.*
 - ...
- (g) *In relation to any bed of a water body, the control of the introduction or planting of any plant in, on, or under that land, for the purpose of-*
 - ...
 - (iii) *the maintenance of the quantity of water in that water body:*

9.3 ISSUES

1. The taking, damming or diversion of surface water can adversely affect the life supporting capacity, the natural character and intrinsic and amenity values of rivers, lakes and wetlands.
2. The cumulative effects of taking, damming or diversion of surface water on the availability of water for domestic needs, stock and water demanding land uses.
3. The lack of surface water adversely affects the social, cultural and economic well being of the community.
4. The wastage and inefficient use of surface water.
5. The potential for loss or degradation of the mauri and wairua of water bodies from taking, using, damming and diverting of water.
6. The demand on river water resources may exceed the availability of water during low flow periods in some areas.
7. The need to be able to determine river and stream flows to a required level of accuracy.
8. The need to improve knowledge and understanding of the effect of water level and flow and land use change on the biology, ecology and chemistry of rivers, lakes and wetlands.

9.4 OBJECTIVES

1. **The maintenance of water flows and levels in rivers, lakes and indigenous wetlands that are sufficient to provide for the preservation of their natural character, safeguard life-supporting capacity, and has particular regard to protecting their intrinsic ecosystem, amenity and cultural values.**
2. **The sustainable management of Northland's surface water resource whilst avoiding, remedying or mitigating adverse environmental effects.**
3. **The efficient use of surface water.**

9.5 POLICIES

Rivers, or Sections of Rivers, and Lakes deemed to have Outstanding Values

1. To recognise that the following rivers, or sections of rivers, and lakes have outstanding features and values for which it is appropriate to regulate the taking, use, damming and diverting of water for:
 - Waipoua;
 - Whirinaki;
 - Waipapa;

- Mangamuka;
- Punaruku;
- Lake Ora;
- Waikohatu;
- Wairau.

Maps of these rivers, or sections of rivers, and lakes deemed to have outstanding values are shown in Appendix 18.

2. To include by way of a plan change further rivers, or sections of rivers, and lakes as having outstanding value where they meet any of the following criteria:
 - (a) Have catchments which are dominated by indigenous vegetation and which are largely unmodified natural ecosystems or ecological sequences from headwaters to lowlands; or
 - (b) Are recognised by any judicial authority or which subject to agreement by the Council in consultation with an iwi authority are recognised to be a taonga requiring flow preservation in a natural or near natural state; or
 - (c) Are an essential part of an outstanding natural feature or landscape, and where changing the water level or flows would adversely affect those values.

Explanation: *Policies 1 and 2 seek to preserve and protect the flows or water levels in rivers or sections of rivers, and lakes that are deemed to be of outstanding value. The intent is to recognise an exclusive group of rivers, section of rivers and lakes. Policy 9.05.01 identifies those rivers or sections of rivers, and lakes which the Council considers to have outstanding values. Appendix 18 shows maps of these. Policy 9.05.01 recognises that the list of rivers or sections of rivers, and lakes meeting the criteria is not comprehensive and other rivers, or sections of rivers, and lakes meeting the criteria may be added to the list via a variation or plan change process.*

An additional important benefit of these policies is to provide a selection of rivers, or sections of rivers, and lakes that can be used as a benchmark in our understanding of the impacts that have been sustained by other rivers and lakes and that will help define the targets to be achieved in the management of the rivers and lakes.

Where some water allocation is allowed from this category of river, or section of river, natural flows must not be significantly affected and the resulting flows will be well above the minimum flows set in Policies 9.05.05, 9.05.06 and 9.05.07.

Criteria for Flow Sensitive Rivers of High Ecological Value

3. To recognise that smaller rivers, being those with a Mean Annual Low Flow (MALF) of less than 300 l/s, are more sensitive to the potentially adverse effects of flow reduction on their life supporting capacity than are larger rivers.

Explanation: *The potential for effects from flow reduction on the life supporting capacity of the aquatic ecosystem is to a large extent related to the size of the river. For example, research indicates that larger rivers are*

better buffered from potentially adverse flow related habitat and water quality effects than are smaller rivers. The water depth and velocity is less likely to fall outside a range preferred by aquatic life in larger rivers. The implication of this is that proportionately less water can be taken out of small rivers than larger rivers.

The Mean Annual Low Flow (MALF) has been specified as the Design Minimum Flow (DMF) for this category of river. For the purposes of these policies, the MALF is obtained by averaging the lowest daily flow (or the best estimate thereof) for each year of record. This average estimates a natural minimum which generally occurs in the summer.

While 300 litres per second MALF is not a small river by Northland standards, the use of this threshold is a derivation based on the limited ecological and habitat information which is relevant to this region. For example the National Institute of Water and Atmospheric Research (NIWA) have advised that 300 l/s is a conservative cut off for identifying small stream fish communities. Some research from other parts of New Zealand which is relevant to Northland, suggests that the MALF needs to be maintained to avoid flow effects on habitat essential to the production of aquatic food upon which river animals feed, (that is, food producing habitat). The MALF represents a conservative environmental bottom line. At this stage it is a best indicator of a range in flows which should flag a particular concern as to the potential for adverse effects on one or more components of the life supporting capacity of the aquatic ecosystem in the environments characterised in Policy 9.05.04. Guidelines for flow sensitive rivers and sections of rivers are provided in Appendix 11.

4. To recognise that rivers or sections of rivers with the following characteristics are likely to have high ecosystem values which may be sensitive to the potential adverse effects of flow reduction:
 - (a) Significant areas of gravel substrates; and
 - (b) Riparian vegetation, which provides shade and acts as a nutrient filter, within the Riparian Management Zone; and
 - (c) A high diversity of aquatic life; or
 - (d) Threatened aquatic life.

Explanation: *Few rivers have catchments which are unmodified and which remain to this day in indigenous vegetation. However many rivers contain sections and subcatchments in which there is a predominance of native vegetation. Where this vegetation includes riparian vegetation, the aquatic habitats tend to be ecologically rich. Some research also suggests that these habitats are potentially the most sensitive to adverse effect arising from flow reduction.*

Minimum Flow Requirements for Flow Sensitive Rivers of High Ecological Value

5. Unless provided for by other policies in this section, to ensure that as a result of the taking, use, damming or diverting of surface water, flows are not reduced below the Mean Annual Low Flow (MALF) in rivers, or sections of rivers, which contain the characteristics described in Policy 9.05.04 and which have a MALF of less than 300 l/s.

Explanation: *Relatively higher minimum flows may be required to protect the life supporting capacity of the aquatic ecosystems in these environments than in other situations such as more modified environments, larger rivers and deep, slow flowing lowland rivers.*

Rivers or sections of rivers identified as meeting all of the criteria, either as a result of a resource consent application or catchment investigation, will be recorded on the Council's Geographical Information System (GIS).

Minimum Flow Requirements When MALF Does Not Apply

6. To recognise that rivers, or sections of rivers, which do not have the characteristics described in Policy 9.05.04 are less sensitive to the potentially adverse effects of flow reduction arising from the taking, damming and diverting of surface water and therefore relatively lower minimum flows are acceptable to avoid adverse effects on the life supporting capacity of the aquatic ecosystem.

Explanation: *Such rivers can be broadly divided into three groups;*

- (a) *Small rivers in which invertebrates or indigenous or other fish are shown to have a low diversity and in which the aquatic ecosystem has been modified or adversely affected. The 7 day, 1 in 5 year low flow generally represents between 70 - 84% of the MALF depending on the size of the river.*
 - (b) *Larger rivers; that is those with a MALF of more than 300 litres per second.*
 - (c) *Lowland type rivers which are characterised by predominantly low gradient, low velocity, fine substrate and deep water. Although these rivers can be important as habitat, spawning grounds and migration routes for fish and invertebrates, and often have a greater diversity of aquatic life than less degraded upland rivers, their cross sectional characteristics render depth, velocity and habitat characteristics less affected by flow reduction.*
7. Unless provided for by other policies in this section, to ensure that as a result of the taking, damming and diversion of surface water in rivers or sections of rivers which do not fall within the scope of Policy 9.05.04, are not reduced below the 7 day, 1 in 5 year return period low flow.

Explanation: *The continuous "7 day" 1 in 5 year return period low flow is used as the Design Minimum Flow (DMF) for rivers in this category. The "7 day" value is used, as opposed to past Council practice of using the "1 day" value, as it is considered to be a more reliable and meaningful statistical measure of flow.*

One hundred percent of the 7 day DMF is used because greater allocations would potentially allow the regular imposition of flows amounting to extreme events which would occur only rarely under natural conditions. In the absence of more definitive scientific studies on the effects of flow regulation in these Northland rivers, a precautionary approach is justified.

Research carried out in Northland by the Council suggests that maintaining 100% of the seven day DMF will generally maintain the life supporting capacity of the aquatic ecosystem although there are documented exceptions where flows both below and above this level of minimum flow are justified.

Exceptional Circumstances

8. To consider alternative lesser minimum flows where it can be demonstrated that lesser flows do not result in adverse effects and cumulative adverse environmental effects on aquatic ecosystems.

Consideration of a lesser minimum flow may be justified by (but not limited to) the following circumstances:

- (a) Where the natural values below the point of the take are limited, including the absence of threatened flora and fauna, and any adverse environmental effects would be not more than minor.
- (b) Where little or no flow has been required to be maintained below an existing water supply dam for a period greater than 10 years, and the benefits of maintaining a greater continuation flow or developing alternative water sources cannot be justified in terms of the costs to the community or to others, and the potential adverse effects of taking, damming or diverting water from any other source to supplement that water supply.
- (c) Other circumstances as demonstrated by applicants for water permits and as assessed by the Council on a case-by-case basis.

9. To consider greater minimum flows where it can be demonstrated that greater flows may be required to avoid, remedy or mitigate adverse environmental effects.

Consideration of a greater flow may be justified by (but not limited to) the following circumstances:

- (a) Where there are significant levels of oxygen demanding organic material, ammonia and nutrient inputs into the river which may have higher dilution requirements, or
- (b) Where significant growths of aquatic weeds are present, or are likely to occur, above or below the point of take, which may have an adverse effect on the diurnal dissolved oxygen range due to plant respiration, and there is a need to maintain oxygen levels within an acceptable range, or
- (c) Where the diversity, numbers or biomass of threatened fauna or flora is likely to be adversely affected by flows being reduced to Design Minimum Flow levels.

- (d) Where the water body is recognised by any judicial authority or which subject to an agreement by the Council in consultation with an iwi authority, is recognised to be a taonga requiring a greater flow.
- (e) Other circumstances as demonstrated by applicants for water permits and as assessed by the Council on a case-by-case basis.

Explanation to Policies 8 and 9: *These policies allow for greater or lesser flows to be maintained in a river. The list of circumstances presented in Policies 9.05.08 and 9.05.09 under which alternative minimum flows may be considered is not comprehensive. Circumstances which may allow justification under 9.05.08(a) include: where there are waterfalls or other obstacles to fish passage below the point of take; the length of the river affected by the take is short; the take is close to tidal water or to a low gradient river section; and the take will not cause adverse physical, habitat or water quality effects downstream. The Council can consider other relevant circumstances and will judge each application on a case-by-case basis. Existing and potential users will have to justify departures for greater levels of allocation. The conservative measures applied will prevail unless there is information made available which justifies an alternative approach. There will need to be a high level of certainty as to the absence of adverse effects, and this in most cases will require a detailed scientific approach. In this regard there is ongoing work on the habitat requirements of native stream fauna and on water quality aspects in relation to flow and catchment management. This research will improve the information upon which flows are managed in years to come.*

Research undertaken by MAF Policy has indicated that many lowland rivers have poor water quality due to the direct and indirect influences of land use, waste and nutrient inputs. There is evidence that these influences can be exacerbated by reduced flows in some situations. One Northland investigation in what appears to be a typical Northland lowland river has indicated that about 200% of the design minimum low flow is required to maintain a water quality of an acceptable standard for aquatic life at critical times of the day during the summer. Where consideration has been given to greater flows a priority is placed on water use for the dilution of waste, either from authorised discharges, or contaminated runoff. However, over time, this priority will reduce as discharges of organic waste into surface waters are reduced or are adequately treated in accordance with other provisions in this Plan.

Policy 9.05.08(b) provides for large water supply dams that have been in existence for more than ten years, for example water supply reservoirs. This policy recognises that these large dams generally affect downstream hydrology by reducing flows below what would otherwise be the natural design flow. In effect, the section below such dams is often dewatered for part of the year and this changes the ecological condition of the stream or river. A relevant consideration in the assessment of the positive and adverse effect of allowing little or no flow from these dams to continue is the ecological benefit that could arise if flow were restored to the stream or river below the dam.

Adverse Effects

10. Notwithstanding Policy 9.05.08 to ensure that, as a result of taking, use, damming and diverting of water:
 - (a) The natural character of the river or lake and its margins is preserved, as far as practicable;
 - (b) Adverse effects on significant indigenous wetlands are avoided and adverse effects on other indigenous wetlands are avoided, remedied or mitigated;
 - (c) Particular regard is had to the maintenance of amenity, landscape, heritage, cultural and recreational values are;
 - (d) Bed and bank stability is maintained;
 - (e) Adverse effects on the ecology of rivers and lakes are avoided where practicable, or remedied or mitigated;
 - (f) Adverse effects on significant indigenous vegetation and significant habitats of indigenous fauna are avoided, remedied or mitigated to the extent practicable.
 - (g) Adverse effects on the water quality of rivers, lakes and wetlands are avoided, remedied or mitigated.
 - (h) Adverse effects on the migration and spawning of native fish are avoided, remedied or mitigated.

Explanation: *While the policies on the maintenance of minimum flows focus on environmental bottom lines in respect of aquatic habitats and water quality in rivers, this policy identifies many of the other factors that are relevant and may need to be considered in relation to surface water depending on the particular circumstances when assessing the effects of taking, damming or diverting water in rivers and lakes.*

Existing Users

11. To allow a lead-in time for existing authorised water users to comply with any increased minimum flow requirements. The lead-in time shall be based on the need and practicability of obtaining alternative sources and will be assessed on a case-by-case basis.

Explanation: *Existing users whose run of stream allocations fall outside the scope of the policy may have to find or develop alternative sources of water such as storage or groundwater, or justify departures from the minimum flow policy based on a comprehensive assessment of the effects of their water take. Where alternative sources need to be obtained, a lead-in time is provided for.*

Some water permits do not provide for the maintenance of Design Minimum Flows. These will be assessed by staff when other water permit applications in the catchment are being processed, and if appropriate, the conditions will be reviewed in accordance with ss.128(1)(b) of the Act.

Effects of Land Use on Catchment Hydrology

12. When estimating Design Minimum Flows for rivers, and minimum water levels for lakes, to consider the effects of existing and likely future land uses on water yield.

Explanation: *Research has well established that vegetation patterns, type and trends within a catchment can significantly influence its hydrology. It is important for the Council to monitor such influences so they can be taken into account in water planning and management. It must also be appreciated that localised catchment trends can be masked and offset by longer term climatic trends such as the generally wetter summers during La Nina climatic conditions. These should be taken into account when assessing the Design Minimum Flows for a river. This consideration may include determining an expiry date for a resource consent to coincide with any likely future change in catchment yields.*

Cultural Values

13. To recognise, and as far as practicable, provide for the cultural and spiritual values held by the tangata whenua for the resource when considering applications for the taking, using, damming or diverting of water from surface water resources.

Explanation: *This policy requires the consideration of any cultural and spiritual values held by the tangata whenua when assessing applications for surface water takes. This is expressed in Section 6(e) of the Act.*

Refer also Policies in Section 6.04.

Statutory Takes

14. To give priority to existing domestic and stock drinking water needs and public water supply provided that those needs are reasonable.

Explanation: *Domestic and stock water needs are provided for as a right under s.14 of the Act provided they do not have adverse environmental effects. For the purpose of this policy domestic needs include water for consumption and household activities on an individual property. The importance of maintaining existing public water supply needs requires that this use is given precedence when allocating surface water.*

Water Use Strategies

15. To encourage water users to:
- (a) Undertake rainwater collection and storage, including rainfall runoff.
 - (b) Efficiently use and minimise the wastage of surface water taken and used for any purpose.
 - (c) Investigate alternative water sources and water use strategies for use during low flow periods.

Explanation: *Storage of water is desirable wherever it can be achieved. While most dwellings in rural areas collect rainwater for their household supply, a significant amount overflows to the ground due to inadequate storage. Additional rainwater tanks and runoff collection ponds could lessen the demand on other limited sources during prolonged dry periods.*

Surface water in Northland is a relatively small and finite resource. It is important that it is used efficiently and that wastage is minimised. Wastage can be a result of inadequate systems to take, distribute and store surface water (for example, leaky reticulation networks) or it can result from inaccurate assessment of industry needs. The use of water meters, particularly on public water supplies, is one method of helping to minimise waste.

Some territorial authorities have in place a programme for maintaining and upgrading reticulation systems in an effort to reduce wastage.

Alternative water sources may include other rivers or ground water sources or the building of dams. Alternative water use strategies will include the abstraction and storage of water during higher flows for use during periods of low water availability. It may also include the conjunctive use of different sources, both direct takes and storage reservoirs, and the re-use of wastewater rather than freshwater, to meet the needs of the user. The transfer of water units may also be a useful mechanism for water users to meet demand.

Serious Temporary Water Shortages

16. Where surface water flows and/or levels in rivers, lakes and indigenous wetlands are insufficient to meet the requirements of existing lawful users taking into account instream values, to apportion, restrict or suspend water use, including discharges to water, through a Water Shortage Direction.
17. When implementing the Water Shortage Direction, to give priority to the following uses (in order of priority from highest to lowest):
 - (a) Water for the maintenance of public health.
 - (b) Water necessary for the maintenance of animal health.
 - (c) Prevention of long-term or irreversible damage to the water resource and related ecosystems.
 - (d) Horticultural irrigation, industrial and other farming and commercial uses for which continued water use is essential for the continued operation of their primary business.
 - (e) Pasture, lawn and domestic garden irrigation.
 - (f) Swimming pools, vehicle washing and uses not essential for continued commercial operation.
18. Where a public water supply authority is unable to comply with the river flow conditions on its consent, to allow non-compliance to occur, but only when the supply authority has already implemented significant water conservation measures and the continuation of the supply is needed for the maintenance of public health.

Explanation to Policies 16, 17 and 18: *These three policies outline the steps the Council will take, and the steps the Council expects users to take, when faced with a serious temporary water shortage in Northland. They apply to water taken from natural water bodies but do not apply to rainwater stored in tanks or man made reservoirs or to wastewater. Given the current pattern of water use, water resources and water management regime in Northland, the application of a Water Shortage Direction, in accordance with s.329 of the Act, to large areas of the region at any one time is unlikely. It is most likely that the need would be confined to a few sub-catchments at any one time.*

Compliance with resource consents, efficient use of water and voluntary reductions are important prerequisites to the implementation of a Water Shortage Direction. Only when these are insufficient to prevent a severe shortage of water is a Water Shortage Direction necessary.

The maintenance of people's health is given the highest priority of water use. Animal health is the next priority, recognising that stock generally cannot be easily moved to where there is water and feed, although this may be possible and desirable in some instances.

It is recognised that public water supplies cannot differentiate between types of users, nor can it control how much non-priority users are taking. Public education programmes and peer pressure may achieve voluntary rationing of those non-priority users.

Research Requirements

19. To improve understanding of:
 - (a) The minimum flows required to maintain instream processes and protect instream values.
 - (b) The effect of water level changes on the biology, ecology and chemistry of lakes and wetlands.
 - (c) Land use effects on river, lake and wetland hydrology.

Explanation: *Carrying out and supporting such research into the functioning of rivers, lakes and wetlands is important to clarify the type and scale of activities that will potentially produce adverse environmental effects and which therefore should be managed. Improved understanding based on new information can come from the Council implementing its duty under s.35 of the Act and through the resource consent process and monitoring under s.88 and s.104 of the Act.*

20. To provide for the sustainable use of the energy of water through the creation of hydro-electrical schemes, in a manner that does not result in the adverse effects detailed in Policy 9.05.10.

Explanation: *The use of hydro-electrical schemes to generate electricity for a single household or a small community can provide a sustainable alternative energy source where other energy sources are impractical or unavailable. However, the effects that may arise from the location and extent of the works and the damming, diversion and discharge of the water require control.*

Cross reference 7.04.01 and 9.04.01 – 03

9.6 METHODS OF IMPLEMENTATION

For Policies 1 and 2

1. Review every 5 years the list of rivers, or sections of river, and lakes which have features/values outlined in Policy 9.05.02 and consult with affected parties prior to public notification.
2. Include rules to restrict the taking, use, damming or diverting of water in such rivers, or sections of rivers, or lakes.
3. To consult with iwi authorities regarding the basis upon which rivers, or sections of rivers, and lakes are considered to be taonga requiring preservation in a natural or near natural state.

For Policies 3 and 4

4. Make available to proposed users, any information the Council holds in respect to the proposed catchment.

Note: Any information made available will be in accordance with the Council's charging policy which is reviewed annually in the Council's Annual Plan).

5. Require applications for water permits to include an evaluation in regard to the characteristics listed in Policy 9.05.04. Guidance is given in Appendix 12.

Cross-references: 35.02.01, 35.02.02

For Policies 5, 6, 7, 8 and 9

6. Include rules for the taking, use, damming or diverting of surface water.

Cross-reference: Section 24

7. Impose conditions on water permits to set the Mean Annual Low Flow as the Design Minimum Flow downstream of takes, uses, dams and diversions from rivers which meet all the criteria listed in Policy 9.05, unless evidence is provided which indicates that lower flows are unlikely to have significant adverse environmental effects.
8. Impose conditions on water permits to set 100% of the 7 day 1 in 5 year return period low flow as the Design Minimum Flow downstream of takes, uses, dams and diversions from rivers which do not meet all the criteria listed in Policy 9.05.04, unless evidence is provided which indicates that lower flows are unlikely to have significant adverse environmental effects.
9. Require applicants for water permits which will result in lower than the Design Minimum Flow, to demonstrate, based on a detailed assessment, that adverse effects on the life supporting capacity of the aquatic ecosystem, and cumulative adverse effects, including those on other authorised users will be avoided.

Cross-reference: 36.02.02(1)

10. Where circumstances, such as regular environmental monitoring, by the Council or consent holders indicate the need to review Design Minimum Flows in any particular case, commission or undertake investigations to establish whether a change to the Design Minimum Flow is justified.

For Policy 10

11. Require applications for water permits to take, use, dam or divert water to include an assessment as required by Section 88 and the Fourth Schedule of the Act which demonstrates inter alia the effect of the proposal on the matters listed in Policy 9.05.10. The scope and detail of such assessments need to be appropriate to the circumstances and to the scale of the potential effects in relation to the proposed use.

Cross-reference: 36.02.03

12. Where necessary to avoid, remedy or mitigate adverse effects, impose conditions on water permits, to require portions of flows, over and above the Design Minimum Flow to be released downstream of the dam provided that the flow released is not greater than that which is occurring naturally immediately before the dam.
13. Within two years of the Plan becoming operative prepare a report reviewing Rules 24.01.05, 24.04.02, 25.04, 28.01.01 and 28.04.01, Information Requirements 36.02.01(e) and 36.02.01(f) and Assessment Criteria 37.02.05 in order to identify how these provisions may be amended so as to give effect to s.6(c) of the Act. Prepare a plan change to give effect to this review on its completion.

For Policy 11

14. When existing water permits expire, impose conditions on any new water permit which sets a date by which the Design Minimum Flow, or any alternative flow which is required to avoid, remedy or mitigate adverse effects, is to be maintained.

For Policy 12

15. Recognise the following Design Minimum Flows as being of acceptable accuracy for flow correlation purposes and continue to monitor flows and review the estimates on a five yearly basis:

Flow Recorder Site	Grid Reference NZMS260 Series	MALF (litres per second)	1 in 5 year, 7 day low flow (litres per second)
Awanui River at School Cut	O04:352-761	557	460
Mangakahia River at Gorge	P06:878-189	1451	1171
Maungaparerua at Tyrees Ford	P05:913-625	33	23
Ngunguru River at Dugmores	O07:378-164	79	61
Mangere River at Kara Weir	O07:226-093	61	49
Manganui River at Permanent Station	O07:111-816	276	154
Wairua River at Purua	O06:149-159	1986	1535

Waipapa River at Forest Ranger	P05:730-583	709	559
Waitangi River at Wakelins	P05:061-577	966	552
Kaihu River at Gorge	P07:727-042	718	609

Note: Refer also to Table 1 of this Plan in Section 1 for details on the catchment areas above each flow recorder site.

16. Where flow data other than that listed in Method 14 is used for flow correlation purposes, require applicants to justify the use of that flow data in terms of the accuracy of the Design Minimum Flow estimate.
17. Require the flow correlation methodology in Appendix 11 or other appropriate correlation methods to be followed when estimating Design Minimum Flows for catchments with no records.
18. Establish long-term data collection and monitoring systems on land use trends and hydrology, in key catchments representative of the range of catchment and climatic conditions in Northland.
19. Carry out investigations as appropriate to determine Design Minimum Flows which take into account flow data and upstream abstractions.
20. Liaise with District Councils over the reciprocal provision of relevant information on land use and water yield.

For Policy 13

21. Advise tangata whenua (as defined in Section 41) of all applications for water permits, and encourage applicants for water permits to include information regarding the effects of any surface water take on cultural values in the application. Where necessary, commission a report from the appropriate tangata whenua (as defined in Section 41) on the effects of the activity on their cultural values. The commissioning of such reports shall be subject to prior discussion with the applicant and shall be deemed to be a report coming within the scope of s.92 of the Act.

Refer also to Methods 6.05.01, 6.05.02 and 6.05.04

For Policy 14

22. Under Section 14 of the Act a person is not prohibited from taking or using fresh water for an individual's reasonable domestic needs or for the reasonable needs of an individual's animals for drinking water provided that the taking or use does not, or is not likely to have an adverse effect on the environment. Include an advice note in Section 24 to this effect.

Cross-reference: 24.01.01

23. Include rules which permit the taking of small quantities of surface water where the adverse effects are likely to be minor. This method will have particular application to the catchments listed below:
 - Mangatete River catchment
 - Aurere River catchment

- Parapara River catchment
- Taipa River catchment
- Oruaiti River catchment
- Kaeo River catchment
- Hakaru River catchment
- Otamatea River Catchment but excluding Wairua River Catchment
- Arapaoa River Catchment but excluding Paparoa Creek catchment
- Rivers draining west from The Bluff, Tinopai to Te Kowhai Floodgate Rd
- Northern Wairoa River from below the Mangakahia River – Wairua River confluence, but not including the Manganui, Omana, and Waiotama River catchments.
- Whangape Harbour and river catchments
- Herekino Harbour and river catchments
- Hokianga Harbour and river catchments but excluding Taheke River Catchment
- West Coast draining rivers and streams from Maunganui Bluff to, but not including Shipwreck Bay (excludes harbour catchments).

Cross-reference: 24.01.03

24. Include rules which control the taking of surface water in catchments not listed in Method 9.06.23, and the taking of surface water over and above the quantity allowed as a permitted activity in accordance with Methods 9.06.22 and 9.06.23.

Cross-reference: 24.03.03

25. Identify and investigate catchments where permitted surface water takes are having or are likely to have an adverse cumulative effect, and if necessary, include rules via a Plan change.
26. Liaise with District Councils, and make submissions, where appropriate on:
- District Plan changes and reviews relating to subdivisions and the potential impacts on water resources.
 - Applications for land use and subdivision consents where the proposed source of water is small or supplies a number of existing users, and where there is potential for increased water demand.

For Policy 15

27. Include a rule which permits the collection of rainfall runoff into off-stream reservoirs.

Cross-reference: 24.01.05

28. Educate water users about methods to collect and store water through public education programmes.

29. Make submissions on district plan changes and reviews encouraging provisions to allow the construction of extra storage tanks on residential properties.
30. In addition to the information that may be required in response to s.88, s.104 and the Fourth Schedule of the Act, require applications for water permits to include specific information on alternative water use strategies and how the proposed methods of taking, reticulation and use of water will encourage the efficient use and the minimisation of wastage.

Cross-reference: 35.02.01

31. Include conditions on water permits where appropriate which encourage the efficient use and minimisation of wastage of water.

For Policies 16, 17 and 18

32. Monitor river flows and rainfall for early warning of possible water shortages in catchments at most risk, and increase resource consent monitoring in those catchments where necessary.
33. Use media release to inform the public of the possibility of water shortages and on methods to minimise water use and wastage.
34. Implement water shortage directions where necessary, in accordance with the requirements of Section 329 of the Act.
35. Encourage all users, regardless of the type of use, to implement appropriate water conservation measures and avoid wastage.

For Policy 19

36. To carry out and support research, and as appropriate, require investigations into the biological, chemical and ecological functioning of Northland rivers, lakes and wetlands and the effects of different flows, levels and land uses on those functions. The Council will identify research priorities to be implemented through its Annual Plan. It will also liaise with other agencies such as the Department of Conservation in order to focus research effort within Northland, as far as possible.
37. Review the applicability of the MALF and the seven day one in five year return period flow as Design Minimum Flows having regard to new information and ongoing research.

For Policy 20

38. Include rules that control the take, use, damming, diversion and discharge from hydro-electrical schemes in rivers and lakes.

Cross reference Rule 29.02.12

9.7 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVES, POLICIES AND METHODS RELATING TO TAKING, USING, DAMMING AND DIVERTING SURFACE WATER

The principal reasons for adopting the objectives are set out in the introduction and issues section. The principal reasons for adopting each policy are incorporated in the explanation for each policy. The principal reasons for adopting the methods of implementation are as follows:

9.7.1 Rules and Environmental Standards

Rules and environmental standards are used to provide an efficient and effective means of managing Northland's surface water takes, uses, dams or diversions. Permitted activities allow activities to be undertaken without a resource consent, where it is unlikely that there will be any adverse effects including adverse cumulative effects. Discretionary activities allow for site specific assessments of the activity on the water resource. Non-complying activities target those water resources which are particularly sensitive to changes in water quantity or flows, and those activities which are likely to have a significant adverse effect on the resource.

Information requirements and assessment criteria listed in this Plan, provide clarity for the applicants by specifying how the application will be assessed and therefore why the information is required. It will also ensure a consistent approach to decision making.

To have no rules would mean that all surface water takes, uses, dams and diversions (apart from taking and using water for an individual's reasonable domestic and stock drinking water needs) would be non-complying activities and would require resource consents. This is considered to be an inefficient and costly method of achieving the objectives and policies.

The following methods relate to rules, environmental standards, information requirements and assessment criteria:

9.06.02	9.06.05 – 9.06.12	9.06.15	9.06.20 – 9.06.23
9.06.26	9.06.29 – 9.06.30		

9.7.2 Education, Provision of Information and Advice

A large number of water users take water for stock and domestic needs. Education and provision of information is an appropriate method to target these users with respect to promoting storage, minimising wastage and implementing water conservation measures.

Information requirements for water permit applications are likely to increase with the implementation of this Plan. With respect to identifying rivers, or sections of rivers, which are high value flow sensitive rivers, the Council will provide any relevant information available to it. This will avoid duplication of investigations. This information sharing is considered to be an effective way of developing an information database on such rivers.

The following methods relate to education and provision of information:

9.06.04	9.06.27	9.06.32	9.06.34
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9.7.3 Investigation and Monitoring

Knowledge of the flows in Northland’s rivers is the most important factor associated with the implementation of the policies and investigations and monitoring is the only appropriate method for gaining this knowledge. The lack of information in the past has led to some inaccurate flow estimations so that until such time as adequate flow records are collected, a consistent methodology for low flow estimation is required.

There is a nation-wide need for more research on the ecological functioning of rivers and how flow reductions, discharge and land uses might adversely affect those functions. The Council can obtain more information on these aspects via research and investigations both within Northland and from relevant studies in other parts of New Zealand. This information can come from a number of sources including national research funded by contestable government funds, regional state of the environment studies, tertiary institutions and resource consent monitoring. Co-ordination with District Councils is important to maximise the amount of useful resource information available for the region.

The following methods relate to investigations and monitoring:

9.06.14	9.06.16	9.06.17	9.06.18	9.06.24
9.06.31	9.06.33	9.06.35	9.06.36	

9.7.4 Advocacy

Where District Council functions overlap with Regional Council functions in terms of effects, liaising with them and making submissions on District Plans and applications for subdivision and land use consents are effective means for achieving integration.

The following methods relate to advocacy:

9.06.19	9.06.25	9.06.28
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10. GROUNDWATER MANAGEMENT

10.1 INTRODUCTION

Groundwater is defined in this Plan as being the water which occurs beneath the groundwater table in soils and geological formations which are fully saturated. Groundwater can be fresh water or geothermal water.

There are three main types of material in Northland in which fresh water is stored as groundwater. These are sand and gravel formations, volcanic cones and lava flows, and sedimentary rocks such as greywacke and limestone. All are relatively small aquifers. The sand/gravel aquifers and the volcanic aquifers are the main source of groundwater supply in Northland, being used for a wide range of purposes including domestic and farm requirements, horticultural irrigation, industrial needs, and numerous public water supplies. The greywacke aquifers can generally only provide adequate water for farm and domestic needs. There are many small sand and gravel aquifers along the coast which, in conjunction with rainwater collection from roofs, are the predominant water supply source for many coastal settlements.

Freshwater aquifers are recharged by rainfall and because rainfall varies over time, groundwater levels – and therefore the amount available for use – also vary across seasons and from year to year.

Geothermal water is defined in the Act as:

Water heated within the earth by natural phenomena to a temperature of 30 degrees Celsius or more; and includes all steam, water and water vapour, and every mixture of all or any of them that has been heated by natural phenomena.

Northland has one geothermal field centred on Ngawha Springs to the east of Kaikohe. The extent of the field is shown in Schedule C. Current uses of this resource are limited to the associated surface resources such as hot water springs for bathing purposes. The underground resource has the potential for commercial energy production and resource consents for a pilot power station have been granted. At the time of writing the Proposed Plan, these consents had yet to be exercised. At the release of the revised Proposed Plan, these consents were being exercised and trial energy generation is underway.

10.2 CONTROLS UNDER THE RESOURCE MANAGEMENT ACT 1991

The controls for groundwater use are the same as for surface water use. These are outlined in Section 9.02.

10.3 ISSUES

1. Groundwater “mining” can occur when groundwater is taken at a greater rate than it is recharged, with the consequent lowering of groundwater levels, and in the long-term, loss of the aquifer as a viable source of water.
2. The taking of water from one bore can lower the water level in neighbouring bores, resulting in a conflict between resource users.

3. The reduction of water levels and flows in springs, streams, lakes and wetlands as a result of taking fresh water from an aquifer, and the potential adverse effects on another user's water supply, the habitat of aquatic flora and fauna, cultural and spiritual values and any other values which may be associated with the resource.
 4. The potential for ground settlement to occur when taking groundwater from soft clays or peats or other settlement prone materials, with consequent flooding or drainage problems.
 5. The potential reduction in aquifer recharge as a result of changing land uses, and the subsequent effect on groundwater levels and associated spring flows and seepage areas.
 6. The potential demand for groundwater takes from basalt aquifers as a result of intensive horticultural development of the fertile volcanic soils which overlie them, and the conflict with existing authorised users of associated springs and streams. For example, the volcanic soils south of Kaikohe which are suitable for intensive horticulture, the groundwater resource represents the only significant on-site source of irrigation water. Any significant groundwater takes, however, particularly around the edge of this aquifer system, are likely to reduce spring flows.
 7. The potential contamination of groundwater from:
 - (a) Discharges of contaminants onto or into land;
 - (b) Contaminated sites;
 - (c) Poor bore construction allowing movement of poor quality groundwater between aquifers;
 - (d) Inappropriate bore location on flood plains, near sewage disposal sites or chemical storage sites;
 - (e) Excessive pumping of coastal aquifers allowing the freshwater/saltwater interface to move inland.
- Note:** The land use component of (a) is addressed in the discharges section.
8. The potential conflict between the use and development of the groundwater resource (fresh water and geothermal water) and traditional and spiritual values of the resource as held by the tangata whenua. The "mauri o te wai" is degraded if the resource is used inappropriately.
 9. The lack of understanding by the community of how groundwater is stored in the soil and rock formations and how it changes in response to climatic conditions and groundwater takes.
 10. The complexity of the hydrological cycle of groundwater aquifers and the practical difficulties in monitoring and investigating the resource. Investigations have been undertaken on groundwater aquifers which are a significant water supply source in Northland, but more investigations are required to better understand the resource.
 11. The long-term cooling of the water in geothermal aquifers if the water is extracted at such a rate that the time for heating the recharged water is

reduced. The cooling of the water may result in mineral deposits within the fractures of the rock, reducing or stopping spring flows. This, in turn, may also cause water to discharge at other locations which may not be currently affected by geothermal waters.

10.4 OBJECTIVES

1. **The sustainable use and development of Northland’s groundwater resources while avoiding, remedying or mitigating actual and potential adverse effects on groundwater quantity and quality.**
2. **The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources.**
3. **The management of groundwater resources so that the potential adverse effects of land subsidence are avoided.**

Explanation: *The objectives seek to allow the use and development of Northland’s groundwater resources while ensuring that effects on other groundwater users, surface water users and values, and on land, are avoided, remedied or mitigated.*

10.5 POLICIES

Sustainable Use and Development

1. To ensure the sustainable use of groundwater resources, by avoiding groundwater takes that exceed recharge which result in any of the following:
 - (a) Saltwater intrusion or reduced groundwater quality;
 - (b) A lowering of the groundwater table below existing efficient bore takes;
 - (c) A lowering of the temperature of geothermal waters in geothermal aquifers and springs;
 - (d) Adverse effects on surface water resources in terms of Policy 10.05.07.

Explanation: *This policy requires that groundwater allocation and use, including that of geothermal water, is managed in a way that does not result in the loss of the resource or limit its use.*

This policy also promotes “efficient bore takes”. An example of an efficient bore take is when a bore fully penetrates the water bearing layer and takes water from the base of the aquifer. The water level in a bore, which is only partially penetrating an aquifer or is drawing water from the top of the aquifer, may be drawn below the bottom of that bore as a result of water being taken (at a sustainable rate) from another deeper bore. The user of the shallow bore has not lost his or her use of the groundwater resource. Rather, the method of extraction is no longer effective.

It would be wasteful management of the groundwater resource, should shallow water supply bores restrict the use of an available resource.

Similarly, when a take reduces the pressure of an aquifer it may cause a flowing artesian bore to stop flowing. In this case, the use of the resource is not limited, nor is the user denied the resource. Another method is simply required to make the water available, that is, the installation of a pump.

This policy promotes efficient management of the available groundwater resource. It recognises that some groundwater reduction must occur if the resource is to be used, but it does not necessarily mean that use of the resource is lost. Any reduction should be a short-term effect, which is remedied through recharge of the aquifer.

The policy also promotes the avoidance of adverse effects on surface water, which may result from taking groundwater.

Refer also to Method 10.05.07.

Aquifers ‘At Risk’

2. To recognise that aquifers ‘at risk’ to adverse effects may be in locations where:
 - (a) The overlying soils are suitable for water intensive land uses; or
 - (b) There are limited surface water resource; or
 - (c) There are numerous springs; or
 - (d) One of the aquifer’s boundaries is sea water; or
 - (e) On-site effluent disposal occurs over unconfined aquifers; or
 - (f) There is geothermal activity; or
 - (g) The aquifer’s recharge area is compromised by inappropriate subdivision, use or development.

Explanation: *Use of aquifers with the particular characteristics listed is likely to result in adverse effects such as reduced groundwater quantity and quality. Where there are numerous springs fed by the aquifer, these springs could be adversely affected by lowering of the water levels in the aquifer.*

Knowledge of Aquifers

3. To improve understanding of groundwater aquifer systems.

Explanation: *Groundwater aquifer systems are extremely complex and difficult to understand as most of the system is hidden under the ground. Important information can be gained by studying the aquifer profile from bore logs, interpreting the hydraulics of the aquifer from pump tests, and monitoring groundwater levels.*

Where there is a reasonably homogeneous formation, such as sand, these types of investigations may be sufficient. However, given the extremely variable nature of Northland’s basalt aquifers, more detailed investigations are likely to be required.

Effects of Land Use on Aquifer Recharge

4. When allocating groundwater resources, to take into account any reduction in recharge that may occur in time, as a result of land uses over groundwater recharge areas.

Explanation: *This policy recognises that changes in land use can affect the recharge of an aquifer and that the effect can change with time. For example, the development of a paved urban environment over part of an aquifer recharge area which diverts and discharges the stormwater to a surface water body, prevents any recharge to that area of the aquifer. The development of plantation forests over an aquifer recharge area may not have a significant effect on recharge in the first few years but when the canopy is closed, a significant proportion of the rainfall is intercepted and this potentially also affects recharge rates. Further Northland research needs to be carried out on this aspect.*

When determining the safe yield of an aquifer based on recharge rates, changes to current land uses must be taken into account.

5. Encourage the return of collected or diverted stormwater to aquifer recharge in aquifers 'at risk'.

Explanation: *At risk' aquifers are susceptible to adverse effects from groundwater water use. The return of water to these aquifers will be beneficial to maintaining sustainable water levels in these aquifers.*

Small Groundwater Takes

6. To avoid cumulative adverse effects arising from small takes, that limit the use or quality of groundwater aquifers.

Explanation: *Taking water from a bore lowers the groundwater level around the bore. In most aquifers, the amount of drawdown reduces with distance until there is no drawdown. The size of this cone of drawdown is dependent on the rate of taking, and how fast the water can move through the aquifer. Pump tests in a number of different aquifers indicate that taking small volumes of water will have a negligible effect on other users provided there is adequate separation.*

Effect on Surface Water Resources

7. To ensure the springflows to associated surface water bodies, and water levels in lakes and wetlands, which may be affected by groundwater takes, are sufficient to:

- (a) Maintain the life supporting capacity of the surface water resource;
- (b) Protect the natural character of the surface water body and the habitats of aquatic flora and fauna;
- (c) Maintain any associated or dependent values, such as amenity or recreational values; and
- (d) Protect the water supply of any existing authorised user of the surface water resource.

Explanation: *This policy recognises the hydraulic link between groundwater resources and surface water resources and the effects that groundwater takes can have on surface water resources. The policy effectively gives priority to the surface water flow and water level requirements of authorised users, including the maintenance of aquatic habitats and amenity and recreational values.*

Refer also to Policy 10.05.01

Cultural Values

8. When allocating groundwater, to recognise, and as far as practical, provide for the cultural and spiritual values held by the tangata whenua for the groundwater resources and associated surface water resources.

Explanation: *This policy requires consideration of any cultural or spiritual values held by the tangata whenua when assessing applications and allocating groundwater resources. This is expressed in ss.6(e) of the Act.*

Refer also Policies in Section 6.

Ground Subsidence

9. To avoid, remedy or mitigate any ground subsidence as a result of groundwater takes, use or diversion, where this is likely to cause adverse flooding, drainage problems, or building damage.

Explanation: *Materials such as soft clays and peats can be prone to settlement with excessive or long-term groundwater take or diversion. The main effects of ground settlement are likely to be flooding and drainage problems or building damage. For example, the Ruawai and Awanui Flats may be prone to ground subsidence if significant long-term groundwater takes were to occur.*

Bore Construction

10. To ensure bore construction, maintenance, alteration and closure is undertaken in a manner which prevents:
- (a) The contamination of groundwater in one aquifer from another aquifer, or from contaminated or potentially contaminated sites;
 - (b) The loss of pressure in confined aquifers;
 - (c) Water wastage in flowing artesian conditions;
 - (d) Uncontrolled release of geothermal pressure and fluids;
 - (e) As far as practicable, other adverse effects on groundwater quality and quantity.

Explanation: *This policy seeks to avoid groundwater contamination from other aquifers, direct contamination from contaminants entering the bore itself, and from contaminants leaking around the outside of the bore casing.*

This policy is also directed at ensuring bores which tap confined aquifers are adequately sealed so that there is minimum loss of pressure, or wastage of water where the bore is under flowing artesian conditions.

10.6 METHODS OF IMPLEMENTATION

Except in situations where a consent holder is required by conditions of a consent to monitor the effects of an activity, or where the Council has entered into an arrangement for another party to carry out site specific monitoring, the monitoring and investigative functions detailed in this section will be undertaken by or under the direction of the Council.

For Policy 1

1. To review groundwater recharge estimates on a 5 yearly basis having regard to new information collected including groundwater level trends, rainfall records, actual water use and changing land use.
2. Continue to monitor the groundwater levels, spring flows (where relevant) and associated rainfall data for the following aquifer systems:
 - (a) Aupouri Peninsula sand and shell bed aquifers;
 - (b) Taipa sand aquifer;
 - (c) Kaikohe basalt aquifers;
 - (d) Russell gravel and weathered greywacke aquifers;
 - (e) Whangarei basalt aquifers – Maunu-Maungatapere-Whatitiri, Glenbervie, Three Mile Bush (Kamo), Matarau;
 - (f) Maungakaramea basalt aquifer;
 - (g) Tara basalt aquifer;
 - (h) Mangawhai sand aquifer;
 - (i) Mangonui/Coopers Beach/Cable Bay fractured rock aquifer;
 - (j) Ruawai silt sand aquifer.
3. Under Section 14 of the Act a person is not prohibited from taking or using fresh water for an individual's reasonable domestic needs or for the reasonable needs of an individual's animals for drinking water provided that the taking or use does not, or is not likely to have an adverse effect on the environment. Include an advice note in Section 25 to this effect.
4. Include rules which control the taking of groundwater to ensure the sustainable management of the resource:

Cross-references: 25.01.01, 25.01.03
5. Include a rule which requires the measurement of the volume of groundwater taken where takes are likely to adversely affect surface water resources, where the average annual recharge of the aquifer is more than 50% allocated, or where the volume to be taken exceeds 200 cubic metres per day.

Cross-references: 25.03.01

6. Include a rule which requires any disused bore tapping an artesian aquifer to be capped and sealed to contain pressure or artesian flows.

Cross-references: 26.01.01

7. To monitor the salinity of groundwater in the shallow gravel aquifer at Russell and the shallow sand aquifer at Taipa on a regular basis and to monitor the quality of other, at risk coastal aquifers, (listed in Schedule B) as frequently as required to identify any trends.
8. Identify other coastal aquifers where the demand for groundwater supply is increasing by assessing the number of bores being constructed and to provide information to the district councils regarding the potential risk of saltwater intrusion and faecal contamination.

For Policy 2

9. Identify those aquifers which are considered to be 'at risk' to adverse effects from groundwater use and development as those listed in Schedules A, B, C and G and shown on the maps.
10. Periodically review and revise the extent and location of 'at risk' aquifers as new information becomes available.
11. Include rules which control the take of groundwater from aquifers at risk.

For Policy 3

12. Provide information on Northland's groundwater resources to the public by way of media releases, pamphlets and field day displays.
13. Where aquifers are under pressure from development, carry out investigations to better understand the resource. Proposals for relevant investigations will be publicised through the Annual Plan process.
14. Establish a GIS integrated database on which to keep records of the bore logs.
15. Collect information on the location of recharge areas, the volume of recharge, the volume of discharge from the system, and the direction of groundwater movement.
16. Carry out investigations to better understand the role of groundwater in the hydrology of dune lakes in order to better understand the potential effects of bore takes on dune lakes.

For Policies 4 and 5

17. Liaise with district councils in the development of land use and subdivision provisions over aquifer recharge zones and make submissions on District Plans where necessary.

18. Continue to monitor the effects of land use changes on the groundwater resource in the Aupouri Peninsula.

For Policy 6

19. Include rules which permit the taking of minor volumes of groundwater subject to adequate separation distances from other bores or surface water bodies.

Cross-references: 26.01.01, 25.01.03

20. Where monitoring shows the resource is declining in quantity and quality, the Council will undertake a management plan for the resource.

For Policy 7

21. Include rules which control the taking of groundwater where that activity is likely to adversely affect the springflows to an associated surface water body, or water levels in any lake or wetland.

Cross-reference: 25.03.01

22. Require resource consent applicants to provide an assessment of the environmental effects of taking groundwater on springflows and water levels and the effects on the surface water bodies life-supporting capacity, natural character, intrinsic values and any associated or dependent values.

Cross-references: 35.02.01, 35.02.06

For Policy 8

23. Encourage applicants for water permits to include information regarding the effects of the groundwater take on cultural values. Where necessary, the Council will commission report from the appropriate tangata whenua (as defined in Section 41) on the effects of the activity on their cultural values. The commissioning of such reports shall be subject to prior discussion with the applicant and shall be deemed to be a report coming within the scope of Section 92 of the Act.

Refer also Methods 6.05.01, 6.05.02 and 6.05.04.

For Policy 9

24. Include rules which control the taking, use and diversion of groundwater where the activity is likely to result in significant ground settlement.

For Policy 10

25. Include rules which permit the construction of temporary bores, except where these are for the purpose of groundwater exploration, and rules which permit the maintenance, and closure of all bores subject to environmental conditions.

Cross-reference: 26.01.01

26. Include rules that require a resource consent for the construction of a new bore and the alteration of an existing bore.

27. Continue to supply borelog books to drillers, so that records of borelogs can be returned in compliance with the rules in this Plan, and recorded on a database.
28. Establish a GIS integrated database on which to keep records of the bore logs.

10.7 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVES, POLICIES AND METHODS RELATING TO TAKING, USING, DAMMING AND DIVERTING GROUNDWATER

The principal reasons for adopting the objectives are set out in the introduction and issues sections. The principal reasons for adopting each policy are incorporated in the explanation. The principal reasons for the methods of implementation are as follows:

10.7.1 Rules and Environmental Standards

There is a presumption in the Act that taking water for purposes other than a person's reasonable domestic needs or the reasonable drinking needs of an individual's animals is prohibited unless allowed by a rule or a resource consent. In this respect the rules relating to the taking of groundwater are generally permissive. Without the rules in this Plan, a resource consent would be required.

The rules, therefore, permit "small" quantities of groundwater to be taken in circumstances that will result in negligible effect or will have only a temporary adverse effect. Cumulative effects on other users are taken into account by means of separation distances. Any adverse cumulative effect on the groundwater resource itself is limited by the volume restriction and that the permitted activity rules excludes specific types of aquifers which are sensitive to groundwater takes. There is a low likelihood of an adverse cumulative effect due to a large number of small takes from the permitted aquifers.

Regulation has also been used to control the standard of construction of groundwater bores. While most bore construction is permitted subject to conditions, the controlled and discretionary activity rules target specific aquifers which are at risk from saltwater intrusion, groundwater pollution, or increasing demand.

The following methods relate to rules and environmental standards:

10.06.03	10.06.04	10.06.05	10.06.08	10.06.10
10.06.18	10.06.20	10.06.21	10.06.22	10.06.23
10.06.24	10.06.25			

10.7.2 Education, Provision of Information and Advice

Groundwater is, to a large extent, poorly understood by the public. Many still refer to groundwater as being underground streams. There is also a lack of understanding as to how groundwater behaves. Education will minimise the concerns that many people have with respect to groundwater takes and their potential adverse effects.

Results of groundwater monitoring and information on the number of bores being drilled in particular areas, should also be passed on to relevant District Councils for water supply and sewage disposal strategies.

The following methods relate to education, provision of information and advice:

10.06.07 10.06.09 10.06.11 10.06.26

10.7.3 Investigation and Monitoring

The methods are based on the assumption that the Council's existing groundwater monitoring will continue, including groundwater levels and groundwater quality. Monitoring the state of the environment and the effectiveness of regional plans is a specific function of the Council but it is considered to be a significant method of achieving the objectives and policies in its own right.

Increasing the Council's knowledge of Northland's groundwater resources relies also on the geological and pump test information provided by drillers. This information is also important to indicate the intensity of water use in a particular area of an aquifer.

Groundwater management of aquifers with a high demand requires detailed knowledge of how the aquifer system works. While this information is available for some aquifers, such as Aupouri Peninsula, further investigations are required in others, such as the Kaikohe basalts, to gain a better understanding of the hydrologic cycle of the aquifer.

The following methods relate to investigations and monitoring:

10.06.01 10.06.02 10.06.06 10.06.09 10.06.12
 10.06.13 10.06.14 10.06.15 10.06.17 10.06.19
 10.06.27

10.7.4 Advocacy

Land uses can affect the recharge of aquifers. The Council will liaise with the District Councils to promote the protection of aquifer recharge zones.

The following method relates to advocacy:

10.06.16

11. USE OF RIVER AND LAKE BEDS AND DEVELOPMENT ON FLOODPLAINS

11.1 INTRODUCTION

Northland's natural land drainage pattern comprises a dense network of small to medium sized streams and rivers, with relatively steep grades in the headwaters to very low grades in the floodplains. Many of the rivers are relatively short, with small catchment areas. The largest river is the Northern Wairoa River, which drains one third of the land area in Northland.

Changes to the river flow dynamics, for example, through the placement of a structure on the bed, removal of bed material, or channel realignment, will result in a change to some aspect of the river's hydraulic processes. Changes may cause the flow to be deflected resulting in bank erosion, or may increase the flow velocity, causing the bed to degrade in one place with a corresponding build up of material in another place where the material is deposited.

Northland also has a number of dune lakes, and some inland lakes which were formed through the damming of valleys by lava flows. The steady state of these systems are more influenced by rainfall, evaporation and discharges to groundwater or rivers rather than by any activities associated with the use of the lake beds.

Rivers and lakes often have associated wetlands. The natural balance of the water in wetlands is very sensitive to activities affecting the bed of the wetland, river, or lake, particularly where it changes the water level. Most of Northland's natural wetlands have been drained and now form part of artificial drainage systems. This drainage has occurred at a small scale (individual farm drainage) and at a large scale such as that at Awanui, Ruawai and Hikurangi.

Development of the land has involved, and continues to involve, the use of river and lake beds. For example:

- Construction of culverts and bridges for public and private access;
- Pump intake structures, weirs and dams for water supplies;
- Drainage of wetlands and peatlands for land development where, in some cases, drainage is an on-going activity;
- Stream realignment, floodgates and stopbanks for flood protection;
- Access over, under, or on the river bed for network utilities such as power, gas and telecommunications; and
- Scour protection

Some rivers are also used as a source of gravel.

Natural drainage systems, which support continuous flows, are important to the life cycle of many fish species which require an unobstructed passage between the sea and the headwaters of the catchment.

The legal basis for controlling activities affecting the beds of lakes and rivers is primarily the *Resource Management Act 1991*. However, drainage and flood control powers are also provided to local authorities under the *Land Drainage Act 1908*, *Soil*

Conservation and Rivers Control Act 1941, and the *Local Government Act 1974*, all of which are subject to the *Resource Management Act 1991*. It is the landowner or occupier's responsibility to maintain watercourses on their property to provide a free flow of water. The Regional Council can, under the *Land Drainage Act* and the *Soil Conservation and Rivers Control Act*, require any landowner to do so.

There are a number of gazetted drainage districts within the region which are managed in accordance with these Acts. The Far North District Council administers five drainage districts, and the Whangarei District Council administers the Hikurangi Swamp Drainage District and the Hikurangi Swamp Major Scheme. The Kaipara District Council administers some 39 Drainage Districts, the major ones including Raupo, Kaihu Valley and Kaihu River Control/Drainage District, Awakino Land Drainage District, and the Horehore Drainage District.

11.2 CONTROLS UNDER THE RESOURCE MANAGEMENT ACT 1991

Section 13 of the Act restricts certain uses of the beds of lakes and rivers as follows:

- (1) *No person may, in relation to the bed of any lake or river, -*
- (a) *Use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed; or*
 - (b) *Excavate, drill, tunnel, or otherwise disturb the bed; or*
 - (c) *Introduce or plant any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed; or*
 - (d) *Deposit any substance in, on, or under the bed; or*
 - (e) *Reclaim or drain the bed –*
- unless expressly allowed by a rule in a regional plan and in any relevant proposed regional plan or a resource consent.*
- (2) *No person may –*
- (a) *Enter or pass across the bed of any river or lake; or*
 - (b) *Disturb, remove, damage, or destroy any plant or part of any plant (whether exotic or indigenous) or the habitats of any such plants or of animals in, on, or under the bed of any lake or river –*
- in a manner that contravenes a rule in a regional plan or proposed regional plan unless that activity is –*
- (c) *Expressly allowed by a resource consent granted by the regional council responsible for the plan; or*
 - (d) *Allowed by Section 20 (certain existing lawful uses allowed).*

Section 13(1) means that all activities that affect the beds of lakes and rivers are prohibited unless they are either:

- (a) Permitted by a rule in a regional plan, or
- (b) Allowed, subject to a resource consent.

Section 13(2) means that a person's access to lake and river beds, including any access for stock under a person's control, and any activities which generally disturb plants, or plant and animal habitats, are permitted unless a rule in a Regional Plan states that:

- (a) A resource consent is required, or
- (a) The activity is still permitted but is now subject to certain conditions.

The term 'bed' is defined in the Act and is contained in Section 41.

The restrictions in s.13 do not apply to any artificial watercourses, because they have been specifically excluded from the definition of "river". The artificial watercourses most commonly encountered in Northland are those for the drainage of land and those constructed for carrying floodwaters.

The definition of river includes an intermittently flowing body of fresh water.

In some instances, the definition of 'river' and 'bed' may also include wetlands.

Section 14 of the Act contains restrictions relating to water including the taking, use, damming or diverting of water. Some of these activities may occur in association with s.13.01 activities (use of a river or lake bed), such as the diversion of water around structures. Section 9 activities (use of land) and s.15 activities (discharges of water and contaminants) must also be considered when assessing the resource consent requirements for activities associated with the bed of lakes or rivers.

11.3 ISSUES

1. The potential for adverse effects on aquatic ecosystems and water quality arising from the need to manage watercourses so as to maintain free flow of water.
2. The channelisation and stopbanking of streams and rivers for flood control and/or land drainage and the possibility of adverse effects downstream as a result, including flooding, channel erosion, siltation and degradation of water quality.
3. The extent, duration and frequency of flooding in watercourses and floodplains, and hampered drainage of low or flat land which may be made worse by inappropriate use and development, or by lack of maintenance in or near watercourses.
4. The erosion of the beds or banks of rivers and lakes and siltation resulting from obstructions to flow or disturbance of the river or lake beds, from structures such as bridges, culverts, weirs, dam structures and pump intake structures.
5. The loss of wetlands and peatlands resulting from works within river and lake beds and land drainage activities.
6. The potential for wetlands to be restored naturally when drained land is no longer managed for production purposes, and the subsequent conflict when drain maintenance recommences.

7. The potential for adverse effects on aquatic ecosystems and the Riparian Management Zone, as a result of dam structures, weirs, and other structures and other activities in, on, over or under the beds of rivers and lakes.
8. The degradation and loss of riparian and aquatic habitats, and the accelerated erosion of the river and lake beds and their margins, when stock congregate in the stream. This can be especially significant during hot dry weather conditions or where the stream is the only source of drinking water provided. This can increase sediment input into the water and also increases the potential for direct contamination of the water from animal wastes.
9. Short-term contamination of water bodies from construction activities such as; concreting, earthworks or use of vehicles and machinery, on river or lake beds and banks.
10. The potential adverse effect on aquatic indigenous vegetation and habitats of indigenous aquatic animals through the introduction of exotic plants and animals into a river or lake or into the bed of a river or lake.
11. The potential for factors, such as the placement of structures, climate change, land use change and water takes to cause flow reductions within rivers and lakes and other water bodies, which (either cumulatively or individually) during resource allocation may lead to adverse effects upon the viability of the following;
 - (a) Aquatic ecosystems within rivers, lakes and indigenous wetlands,
 - (b) The ability of downstream lawful water users to meet their reasonable needs, especially during times of low flow.
12. The use, placement, alteration or replacement of structures in, on, over or under the beds of rivers and lakes leading to over-utilisation or inappropriate use of surface water resources.
13. The use, placement, alteration or replacement of structures in, on, over or under the beds of rivers and lakes that adversely affect continuation flows.
14. The reduction in freshwater biodiversity and biological productivity due to the loss of access to some parts of rivers and lakes by migratory indigenous fish and invertebrate species and trout, as a result of the use, placement, alteration or replacement of structures in, on, over or under the beds of rivers and lakes.

11.4 OBJECTIVES

1. **To ensure that the use of river and lake beds is undertaken in a manner that preserves natural character through, and has regard to maintaining amenity values, minimising erosion and safeguarding the life supporting capacity of associated ecosystems.**

Cross-reference 11.03.09 and 11.03.14
2. **Flood control of floodplains that protects individuals, communities and their properties**

3. The management of land drainage activities so that adverse effects on water and soil resources are avoided, remedied or mitigated.

***Explanation:** The objective recognises that activities within the beds of rivers and lakes change the dynamics of the flow paths, particularly for rivers. This can cause erosion within the channel, and flooding of land upstream and downstream. Structures may reduce the natural character of the environment, as can the removal of vegetation on the beds and/or banks of rivers. Water quality can also be reduced by bed disturbance as well as from the release by dam structures of impounded water.*

4. The management, control of location and frequency of structures in, on, under or over the beds of rivers and lakes so as to maintain adequate minimum continuation flows in order to provide for:

- (a) The protection of indigenous aquatic ecosystems and habitats;
- (b) The current and potential needs of existing lawful water users;
- (c) The need to manage potential risk upon property and people; and
- (d) The maintenance of natural character.

Cross-reference 11.03.07, 11.03.11 and 11.03.13

5. The provision of fish and invertebrate passage for indigenous fish and invertebrate species and trout, within rivers, lakes and indigenous wetlands sufficient to sustain viable fish and invertebrate populations.

Cross-reference 11.03.14

6. The use of off-stream reservoirs and other off-stream water storage techniques as an alternative to the placement of dam structures on the beds of rivers and lakes.

Cross-reference 11.03.11 and 11.03.12

***Explanation:** These objectives recognise and promote the environmental responsibilities and duties devolved to all resource users in Northland pursuant to Part II of the Act. At the same time the objectives recognise that the Regional Council has specific functions and duties pursuant to s.13 (through ss.30) of the Act to set in place a policy framework so that sustainable management of freshwater resources is achieved. These objectives highlight the community's aspirations for; maintaining and improving ecologically viable and healthy freshwater, while also providing for the maintenance of natural character of Northlands freshwater environments. These objectives also promote off-stream reservoir storage options as they provide greater certainty for resource users with minimal environmental effect.*

11.5 POLICIES

Adverse Effects

1. To ensure that as a result of any use of a river or lake bed:
 - (a) The natural character of the river or lake and its margins is preserved, except where preservation is not consistent with sustainable management.
 - (b) There are no more than minor adverse effects of the aquatic habitats of rivers, or sections of rivers, or lakes deemed to have outstanding values identified in Policy 9.05.01 or any dune lake listed in Schedule E.
 - (c) Adverse effects on significant indigenous wetlands are avoided, and for indigenous wetlands adverse effects are remedied or mitigated.
 - (d) Existing lawful public access to and along rivers or lakes is maintained or enhanced.
 - (e) Any adverse effects on amenity or recreational values are avoided, remedied or mitigated.
 - (f) Bed and bank stability is maintained or enhanced.
 - (g) Significant ecosystem effects arising from short-term adverse water quality effects are avoided.
 - (h) Long-term water quality is maintained or enhanced.
 - (i) Access by indigenous fish and invertebrate species and trout to habitats is maintained, or, where appropriate, restored if such maintenance or access would promote the sustainable management of resources and enhance aquatic ecosystems.
 - (j) Adverse effects on peatlands and their hydrology and dependant ecosystems are not more than minor.
 - (k) Adverse effects on human life, health and safety, private and community property are avoided.
 - (l) Water temperature, dissolved oxygen and other chemical qualities of the water body are not changed to a point where there are significant adverse effects on the existing aquatic ecosystems.
 - (m) The relationship of Maori their culture and traditions with freshwater environments is recognised and provided for.

Explanation: *This policy sets out the effects based criteria that must be considered when a consent authority is assessing an application involving the use of a river or lake bed. It therefore requires that users and developers ensure that adverse effects on these values are identified, and are avoided, remedied or mitigated.*

Guidelines on fish pass design are provided in Appendix 15.

Uses in this policy include those activities listed in ss.13(1) of the Act, that is:

- (a) *Use, erect, reconstruct, place, alter, extend, remove or demolish any structure or part of any structure in, on, under or over the bed; or*

- (b) *Excavate, drill, tunnel or otherwise disturb the bed; or*
- (c) *Introduce or plant any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed; or*
- (d) *Deposit any substance in, on, or under the bed; or*
- (e) *Reclaim or drain the bed.*

Cultural Values

2. When considering applications for activities affecting the bed of a river or lake, to recognise, and as far as practicable, provide for the cultural and spiritual values held by the tangata whenua for the bed, and for the water body.

Explanation: *This policy reflects ss.6(e) of the Act and complements policies in Section 6 of this Plan (Recognition and Provision for Maori and their Culture and Traditions).*

Existing Drainage Districts and Flood Control Schemes

3. To avoid, remedy or mitigate adverse environmental effects resulting from the maintenance of existing land drainage and flood control schemes, and any new works associated with those existing schemes.

Explanation: *Land drainage and flood control schemes can occur on an individual property basis or on a catchment scale. The existing schemes which have already significantly modified the environment, should be managed so that any adverse effects on people and their properties are avoided, remedied or mitigated. Adverse environmental effects from further drainage activities or inadvertent over drainage should also be avoided.*

New Land Drainage

4. To ensure that, as a result of new land drainage activities outside the gazetted Drainage Districts and Flood Control Schemes:
 - (a) The adverse effects on aquatic and riparian habitats in rivers, or sections of rivers, deemed to have outstanding values identified in Policies 9.05.01 and 9.05.02, and in flow sensitive rivers, or sections of rivers, as described in Policies 9.05.03 and 9.05.04 are avoided and adverse effects on other rivers, lakes and indigenous wetlands, are avoided, remedied or mitigated.
 - (b) Bed and bank stability is maintained.
 - (c) Long-term water quality is maintained.
 - (d) Peatlands are not adversely affected.
 - (e) The adverse effects on groundwater levels are avoided, remedied or mitigated.
 - (f) The effects of ground subsidence from dewatering are mitigated.

Explanation: *Drains are often dug in developed land which has a low productivity due to high water tables. If the land is close to indigenous wetlands or peatlands, the drainage has the potential to lower the water table in those wetlands. The resulting discharge into the natural watercourse can*

also have an impact on the water quality of the receiving waters. Dewatering from settlement prone materials such as soft clays and peat soils can result in subsidence, resulting in building and property damage and flooding and drainage problems. Land drainage can also affect the ability of an aquifer to recharge which in turn affects the ability to take and use water.

Flooding and Erosion Mitigation

5. To promote structures and works that are effective in controlling floodwaters and in mitigating the effects of flooding and minimising erosion whilst avoiding, remedying or mitigating adverse environmental effects.

Explanation: *Ad hoc flood or erosion protection structures are structures which have been developed on an individual property basis to protect individual sections from flooding or erosion. While such structures can be desirable, providing they do not have adverse off-site effects, they can at times generate problems which negate the intended benefits.*

Alternatives to flood or erosion mitigation measures can include “do nothing”, or relocation of developments under threat, if that is practical.

A catchment floodplain study which has been carried out on the Northern Wairoa River contains information which can be used to assess the impacts of any proposed flood mitigation structure in this catchment.

The Council will have regard to this policy when considering applications for land use consents in river beds and applications for land use consents for the construction of stopbanks.

Maintenance of the Free Flow of Water

6. To ensure that when undertaking works in the beds of rivers and on floodplains that are required to maintain a free flow of water, adverse environmental effects are avoided, remedied or mitigated.

Explanation: *While landowners are required under the Land Drainage Act 1908 to maintain watercourses on their property so that the water can flow through unimpeded from upstream properties, their duties under the Resource Management Act 1991 are not abrogated. Any adverse effects must still be avoided, remedied or mitigated.*

Role of Wetlands and Floodplains

7. To recognise the role that wetlands and low-lying areas of land play in the management of floodwaters.

Explanation: *Wetlands and other low-lying areas can provide an important buffer storage for floodwaters and buffer adverse effects from flooding. Works in the beds of rivers and lakes and on floodplains can increase the risk of flooding downstream, with potential adverse effects on property and human life.*

Plantings

8. To allow the introduction or planting of plants in, on or under the bed of any river or lake, and the on-going maintenance of such plantings where such plantings will:
 - (a) Enhance or maintain water quality through the interception of contaminants from adjoining land; or
 - (b) Avoid, remedy, or mitigate flooding or erosion; and
 - (c) Avoid, remedy or mitigate adverse effects on the aquatic ecosystem.

Explanation: *This policy is intended to ensure that any introduction or planting of any plant in a river or lake bed for flood mitigation, erosion protection, habitat restoration or enhancement, or for mitigating non-point source discharges of contaminants, will not result in the displacement of desirable species which are already present, nor will it adversely affect the ability of the river to carry floodwaters.*

“Desirable species” excludes any pest plants listed in a regional pest management strategy.

Land Uses on Floodplains

9. To encourage land uses on floodplains that do not result in adverse environmental effects or increased risks to people, properties or communities arising from the passage of floodwaters across floodplains.

Explanation: *Floodplains are created as a result of floodwaters overtopping the banks of the river. Some land uses, such as plantation forests, have the potential to trap flood debris, eventually creating a barrier to the floodwaters. The diverted water may affect some other structure or property which is not usually affected by floodwaters.*

10. To encourage the restoration and enhancement of riparian vegetation and habitats.

Explanation: *Developments on floodplains and the use of beds of lakes and rivers can affect riparian vegetation and habitats. Where opportunities arise to restore or enhance these areas, this should be undertaken to offset the effects of the use or development. Riparian vegetation can also be an important mitigation measure against flooding hazards.*

11. To manage indigenous wetlands in accordance with the objectives, policies and methods of the Regional Policy Statement.

Explanation: *The Regional Policy Statement contains specific objectives, policies and methods for the management of indigenous vegetation and habitat including wetlands. This policy recognises the importance of these objectives, policies and methods in providing protection for indigenous wetlands in Northland. The criteria provided within Appendix 13B of this Plan which are used to assess “significant indigenous wetlands” are derived directly from criteria provided within the Regional Policy Statement.*

12. To manage areas subject to land drainage and flood control schemes through long duration resource consents that are supported by management plans prepared in accordance with Appendix 17.

Explanation: *The Council will grant consent for the taking, diversion and discharge of drainage water within those areas specified in Schedule D, where an application is supported by a comprehensive drainage district management plan. These resource consents will provide for all diversion and discharge of drainage water within the area covered by the drainage district management plan that is existing or anticipated in the long-term.*

Dam Structures (Including Weirs) in Rivers and Lakes

13. When considering consents for constructing new dam structures on the bed of a river or lake to require:
- (a) In permanently flowing rivers the maintenance of design minimum flows sufficient to meet the needs of existing aquatic ecosystems;
 - (b) That the migration of indigenous fish and invertebrate species, and trout is provided for in accordance with Policies 11.05.15 and 11.05.16;
 - (c) Dissolved oxygen, water temperature and other chemical thresholds that are critical to indigenous aquatic life and healthy ecosystem functioning are maintained;
 - (d) Current and potential future land uses are considered;
 - (e) The proximity of dwellings, public land and areas where the public reside or congregate are taken into consideration with regards to the potential risks and hazards;
 - (f) Adverse effects on significant indigenous vegetation and significant habitats of indigenous fauna are avoided, remedied or mitigated;
 - (g) Potential adverse effects on existing lawful water users are avoided, remedied or mitigated.

Cross-reference 11.04.01 and 11.04.04

14. To control the location, size, scale and frequency of dam structures within rivers and lakes to ensure that adequate continuation flows are maintained within the catchment.

Cross-reference 11.04.04 and 11.04.06

15. Depending on actual or potential upstream existence of habitat for indigenous fish or invertebrate species or trout, the construction and maintenance of fish and invertebrate passes for new dam structures on the beds of rivers or lakes is required, except where no flow beyond the structure is required.
16. To consider the construction of fish and invertebrate passes for existing dam structures on the beds of rivers and lakes where currently no indigenous fish and invertebrate or trout passage exists and where the placement of a fish pass would enhance the fish and invertebrate ecosystem.

17. For existing dam structures on the beds of rivers and lakes to require the maintenance of existing fish and invertebrate passes in good operational order.

Cross-reference 11.04.05

Explanation (For Policies 15, 16 and 17): *The Council aims to promote the maintenance of existing fish passes and the mandatory installation of fish and invertebrate passes (when associated with any new dam structure or alteration where one could be installed) in order to maintain current (and where practical improve future) fish and invertebrate access, and/or restoration of fish and invertebrate passage in order to improve biological diversity particularly within degraded ecosystems.*

11.6 METHODS OF IMPLEMENTATION

For Policy 1

1. Include rules that permit activities associated with the beds of rivers and lakes which have little or no adverse effects, or have beneficial effects.

Cross-references: 27.01.03, 28.01.01, 28.01.02, 28.01.03, 28.01.04, 29.01.01 – 29.01.11, 30.01.01, 31.01.01

2. Include rules that control activities associated with the beds of rivers and lakes which have or are likely to have adverse effects on the environment, particularly on rivers, or sections of rivers, or lakes deemed to have outstanding values pursuant to Policies 9.05.01 and 9.05.02 and flow sensitive rivers.

Cross-references: 27.03.02, 28.03.01, 29.03.01, 31.03.01

3. Require an assessment of environmental effects of any proposed activity on those matters listed in Policy 11.05.01.

Cross-reference: 35.03.01

4. Promote the inclusion of appropriate provisions in district plans controlling subdivision, use and development of land on floodplains where:

- (a) The effect of flooding increases risk to human life, health and safety, or
- (b) The effect of flooding has significant adverse effect on private and community property, flood flows, or flood mitigation structures or works.

5. Provide information on erosion and sediment control measures, fish pass designs, appropriate design criteria for structures, and measures to protect aquatic habitat and fauna.

6. Within two years of the Regional Water and Soil Plan becoming operative prepare a report reviewing Rule 28.04.01, Information Requirements 36.02.01(e) and 36.02.01(f) and Assessment Criteria 36.02.05 in order to identify how these provisions may be amended so as to give effect to ss.6(c)

of the Act. Prepare a plan change to give effect to this review on its completion.

For Policy 2

7. Encourage applicants for land use consents to include information regarding the effects of the activities on cultural values. Where necessary, the Council will commission a report from the appropriate tangata whenua (as defined in Section 41 of this Plan) on the effects of the activity on their cultural values. The commissioning of such reports shall be subject to prior discussion with the applicant and shall be deemed to be a report coming within the scope of Section 92 of the *Resource Management Act 1991*.

Refer also Methods 6.05.01, 6.05.02 and 6.05.04.

For Policy 3

8. Include rules which ensure existing drainage districts and flood control schemes are operated in accordance with an approved management plan. (Matters that should be addressed in a drainage district management plan are given in Appendix 18).

Cross-reference: 27.01.03

For Policy 4

9. Include rules which control new land drainage activities which may adversely affect the environment, particularly those matters listed in Policy 11.05.04.

Cross-reference: 27.03.03

For Policies 5 and 6

10. Include rules which control the use, placement, alteration or removal of stopbanks and approaches to river crossings.

Cross-references: 27.01.04, 27.03.01, 29.01.03 – 5, 29.03.01

11. Include rules which permit disturbance of river beds for the maintenance of the free flow of water, subject to environmental standards.

12. Require the assessment of the effects of structures or works on land or on the bed of a river which are intended to control floodwaters or mitigate erosion, to include a consideration of alternative methods or taking no action. (This should demonstrate that the proposal is the best practicable option.)

Cross-reference: 27.01.03

13. Require an assessment of environmental effects pursuant to the Fourth Schedule of the Act to accompany an application for a land use consent. The level of information should be consistent with the scale of the activity.

Cross-reference: 35.03.01

For Policy 7

14. Include rules which make works or structures that would result in the drainage, destruction, or result in significant adverse effects on indigenous wetlands a prohibited activity.
15. To promote and encourage the restoration of wetlands where this can mitigate the potential for and effects of flooding and erosion.
16. Provide information on the importance of wetlands by preparing pamphlets, organising seminars, and having displays at field days, in liaison with other relevant organisations wherever possible.

For Policy 8

17. Include rules which permit the introduction or planting of plants which have beneficial effects on the environment.

Cross-reference: 30.01.01

For Policy 9

18. Provide information regarding the likely effects of developments on floodplains.

For Policy 10

19. Within two years of the Plan becoming operative prepare a report reviewing Section 32.01 in order to identify whether new standards are necessary to provide for the protection of significant areas of indigenous vegetation and significant habitats of indigenous fauna. If required, prepare a plan change to give effect to this review on its completion.

For Policy 11

20. The Council will, in consultation with District Councils', landowners, iwi and stakeholders, identify and prepare a comprehensive state of the environment report on significant indigenous wetlands in accordance with the objectives policies and methods set out in the Regional Policy Statement (in relation to indigenous vegetation and habitats of indigenous fauna), within 5 years of the Plan becoming operative.
21. The relevant provisions will be reviewed to assess their adequacy and appropriateness for the management of significant indigenous wetlands following the identification and the state of the environment evaluation of such areas in accordance with Method of Implementation 11.06.20 above, and following consultation with District Councils', landowners, Iwi and stakeholders.
22. Until the identification process has been undertaken, the Council will assess the significance of indigenous wetlands on a case-by-case basis using the criteria set out in Appendix 13B.

For Policy 12

23. Require drainage district management plans to be prepared by the Council, relevant District Council or by groups of landholders within Scheme area.

For Policies 13 - 17

24. Include provisions for the passage of indigenous fish and invertebrate species, and trout in the rules for new and existing dam structures.
25. The Council will monitor any new dam structure on the bed of a river or lake, which results in the need for minimum flow requirements to be monitored on a schedule of not less than every two years, except in drought conditions where monitoring may be required on a more frequent basis.
26. Investigate and promote best practice in accordance with Policy 11.05.13.
27. Make comments and submissions on land use and subdivision consent applications if located downstream or in close proximity to any existing dam structure.
28. In relation to the beds of rivers and lakes require a resource consent for:
- (a) All new dam structures (established after 18 March 2006);
 - (b) An existing dam structure if it is altered so as to hold more or less water;
 - (c) Replaced or removed dam structures; or
 - (d) The continued damming, diversion and discharge of water for all new dam structures (established after 18 March 2006) which are more than minor.

Cross-reference: 28.02.01, 28.02.02, 28.03.01

Explanation: Through requirements under s.14 of the Act, damming and diversion of water and the discharge of water to water is a discretionary activity unless authorised by a rule in a regional plan. Therefore any new damming, diversion and discharge of water to water will require consent from 18 March 2006. Any lawfully established (after 18 March 2006) damming, diversion or discharge if considered to have a more than minor effect will require continued consent.

29. To require applications for land use consents on the beds of rivers or lakes to include an assessment (as required by Section 88 and the Fourth Schedule of the Act) which demonstrates inter-alia the effects of the proposal on the matters listed in Policy 11.05.13.
31. To permit the use and repair of legally established (as at 18 March 2006) or new dam structures on the bed of a river or lake, established after 18 March 2006, once consent has expired (that original consent being for no less than a 10-year term).
32. Include consideration of principles for fish pass design in dam structures that have the ability to block or reduce stream flow.

Cross-reference: Appendix 15.

33. To promote and advocate through pamphlets, information days, seminars and field days, the need to create and maintain fish and invertebrate passage.
34. To promote and advocate through pamphlets, information days, seminars and field days the construction of water storage sites off-stream as a means of reducing the adverse effects upon indigenous aquatic ecosystems and lawfully existing downstream water users.

11.7 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVES, POLICIES AND METHODS RELATING TO RIVER AND LAKE BEDS

The principal reasons for adopting the objectives are set out in the introduction and issues sections. The principal reasons for adopting each policy are incorporated in the explanation. The principal reasons for the methods of implementation are as follows.

11.7.1 Rules and Environmental Standards

There are a number of restrictions in the Act relating to the use of river and lake beds, which means that many activities are prohibited unless allowed by a rule or a resource consent. The use of rules in this instance seeks to allow activities which have minor adverse effects if environmental standards are met.

The rules permit minor structures such as culverts, bridges, fords and bank protection works subject to environmental standards relating to drainage and flooding effects, riverbeds, bank stability, fish passage, protection of indigenous wetlands, high value flow sensitive rivers, water quality and natural characteristics. The rules also permit some land drainage activities, minor extractions and the planting of appropriate vegetation in the river or lake bed.

The following methods relate to rules and environmental standards:

11.06.01	11.06.02	11.06.03	11.06.06	11.06.07
11.06.08	11.06.09	11.06.10	11.06.11	11.06.12
11.06.13	11.06.14	11.06.17	11.06.19	11.06.20
11.06.21	11.06.22	11.06.23		

11.7.2 Education, Provision of Information and Advice

An educative approach, in conjunction with rules, environmental standards and the provision of information will assist in achieving integrated resource management. Alone, rules are unlikely to achieve the environmental outcomes sought.

To complement the permitted activity rules and the effects based environmental standards, the provision of guidelines to assist users to comply with the environmental standards is proposed. While these guidelines will contain recommended design criteria for structures and flood paths, complying with design criteria is not compulsory if the appropriate effects are achieved. Conversely, in some situations, compliance with the design criteria may not achieve the effects desired. This is inherent in the use of guidelines.

Relevant Regional Council records relating to past flooding and drainage problems and the likely effects of development in those areas should be passed on to applicants to assist them to achieve the objectives.

The following methods relate to education, provision of information and advice:

11.06.05 11.06.16

11.7.3 Advocacy

As for the provision of information relating to the likely effects of development, the Regional Council has a role in ensuring that subdivisions, use and development on floodplains are appropriately controlled in District Plans.

The following method relates to advocacy:

11.06.04 11.06.15

12. LAND MANAGEMENT

12.1 INTRODUCTION

Land is made up of the material of the earth's crust, the soils that overlay it, and the vegetative cover on that soil. Weathering processes, influenced by climatic and biological activity, have acted and continue to act through time to produce the characteristics and pattern of Northland's soils, landforms and drainage patterns. A description of Northland's geology and soils and associated landforms is contained in the Resource Description Section of this Plan.

Northland's drainage pattern consists of many short rivers with relatively small flows. Most of these drain into harbours which are generally shallow and are vulnerable to sedimentation. The flood flows which carry the sediments from the hill country to the sea are not large enough to completely flush the sediment through the harbour systems, and therefore sedimentation of Northland's harbours is a potential cumulative effect of naturally occurring and accelerated erosion.

The main rural land uses in Northland include dairying, drystock farming, intensive farming such as pig and poultry farms, cropping, horticulture, forestry and quarrying. All of these can contribute to sediment and other contaminants entering water bodies via surface runoff. These discharges are known as non-point source or diffuse source discharges.

Surface runoff is affected by some agricultural management systems, such as mob stocking or land cultivation, which can compact the soil's upper layer. Overgrazing increases this runoff as the land is left with little vegetative cover. Runoff from cattle races, especially when located adjacent to streams, can have adverse effects on the water quality as can animals where they have access to the stream banks and beds.

Excessive fertiliser use, inaccurate spreading and applying fertiliser just before rain can lead to an increase of nutrient levels in ground and surface waters.

Wetlands, especially those along the banks of water bodies, have an important role in trapping nitrogen and sediment, reducing peak flood flows, and in providing suitable habitats for instream fauna during periods of low river flow. Unfortunately, many farmers view wetland areas as land with potential for pasture, and so drainage of natural wetlands is still relatively common.

Land clearance and earthworks including activities such as crushing, logging, preparation of house platforms, roading, and tracking can increase the volume of sediment and nutrients entering the waterways, and increase the amount of debris in streams, especially where inappropriate land management practices are used. Roads and tracks on steep land are dependent on careful design, location, construction and maintenance in order to avoid major sediment inputs to streams through earthslips and runoff. The temperature of the water can also be increased through the removal of shading riparian vegetation.

The regional roading network is another diffuse source of sediment, nutrients, heavy metals, oil and grease which can enter Northland's water bodies. Effluent on roads from stock trucks is another source of contamination. Because of this, many stock trucks now have effluent holding tanks.

Some land use practices (such as grazing and vegetation clearance), particularly if poorly managed or on steep erosion prone land, can make the land more vulnerable to erosion. Where accelerated erosion occurs, the productivity of the eroded land is lowered and it is unlikely to return to its former productivity.

12.2 CONTROLS UNDER THE RESOURCE MANAGEMENT ACT 1991

Section 30 of the Act sets out the functions of regional councils. Subsections 1(a) and 1(b) direct the Council towards establishing and implementing policies and methods to achieve integrated management of the resources of the region and to prepare policies as to any effects of the use of land which are of regional significance, respectively. For these two functions, the Council cannot regulate by the use of rules in a regional plan. In contrast ss.30(1)(c) sets out more specific purposes for which the Council can include policies, methods and rules.

Under ss.30(1)(c) of the Act, it is a function of the Council “ *to control the use of land for the purposes of-*

- (i) *Soil conservation:*
- (ii) *The maintenance and enhancement of the quality of water in water bodies and coastal water:*
- (iii) *The maintenance of the quantity of water in water bodies and coastal water:*
- (iv) *The avoidance or mitigation of natural hazards:*
- (v) *The prevention or mitigation of any adverse effects of the storage, use, disposal or transportation of hazardous substances”.*

Under s.9 of the Act, no person may use land in a manner that contravenes a rule in a plan or proposed plan. Therefore, unless a rule in this Plan or a district plan restricts an activity on land, the activity can be undertaken without a resource consent.

Regional plans can contain land use rules only for the purposes stated in Section 30 of the Act. Although the Council can include objectives and policies for the protection of values in Part II of the Act, such as indigenous vegetation and sites of cultural significance, this Plan can only contain rules where these impact on regional council functions. They cannot contain rules solely for the protection of indigenous vegetation or sites of cultural significance. That is a function of the district councils and such rules should be contained within district plans.

12.3 EROSION AND DISCHARGE OF SEDIMENT

Erosion is a natural process which occurs extensively in Northland because of the nature of its geology and soils and climate patterns. Erosion can be accelerated through people’s land use practices. The main products of natural and accelerated erosion are sediment, and degraded soils which may never recover to their former level of production.

When sediment enters water, it can have a number of adverse effects on the stream environment. For example:

- It can act as a carrier of nutrients, particularly phosphorus;
- It can smother aquatic organisms, habitats and food sources;
- It can cause discoloration of the water, detracting from its aesthetic qualities;
- It can reduce light penetration and damage habitat value for fish and plant life;
- It can clog filters and machinery if the water is used for water supplies and lead to an unacceptable drinking quality;
- It can reduce the water carrying capacity of streams, increasing their susceptibility to flooding.

12.4 ISSUES

1. The accelerated soil loss resulting from the exposure of soil to sun, wind and rain through land use and land disturbance practices such as roading, vegetation clearance, overgrazing in dry or wet conditions, urban subdivision developments, quarrying, mining and cultivation. These practices increase the potential for sediment to be washed into streams, particularly on steep, erosion prone land.
2. The cumulative adverse effects of sedimentation on estuarine and harbour environments.
3. The degradation of surface water and groundwater quality as a result of discharges of contaminants such as sediment, nutrients and bacteria from non-point sources, particularly from pastoral land, and from direct defecation by stock into water.
4. The loss of soil quality and productivity from land management practices such as burning, overgrazing which can cause pugging, and the use of heavy machinery on wet soils, together with practices which result in accelerated erosion.
5. The potential for an increase in peak flood flows as a result of large scale vegetation clearance within a single catchment.
6. The loss of wetland functions such as nutrient and sediment trapping, indigenous habitat values, and buffer storage of water through land development practices such as drainage, stock grazing and watering.
7. The loss or degradation of waahi tapu and other sites of significance to Maori through land disturbance activities.
8. The adverse effects on aquatic habitats and the loss of natural character of rivers, lakes and wetlands and their margins as a result of the removal of riparian vegetation.
9. The loss of areas of significant indigenous vegetation and habitats of significant indigenous fauna through land management practices.
10. Land users are often unaware of the effects of their activities on the environment and the range of alternative methods/practices that may be available.

12.5 OBJECTIVES

1. The protection of the soil resources including soil quality and soil quantity, from degradation or loss as a result of unsustainable land use and land use practices.
2. The safeguarding of the life-supporting capacity of water and ecosystems from the adverse effects of unsustainable land uses and land use practices.
3. People and communities are informed about sustainable land management and the impacts of their activities on soil and water resources.
4. Avoid, remedy or mitigate the adverse effects of activities so as to achieve the protection of areas of significant indigenous vegetation, significant habitats of indigenous fauna, natural character of water bodies and their margins; and to recognise and provide for waahi tapu and other sites of significance to tangata whenua.

12.6 POLICIES

1. To promote soil conservation as an integral part of all land use and development activities by:
 - (a) Encouraging sustainable land use practices;
 - (b) Addressing on-site and off-site water and soil problems;
 - (c) Addressing actual and potential erosion problems;
 - (d) Maintaining soil quality (depth, structure, water holding capacity, organic matter and fertility) as far as practicable.

Explanation: *Soil conservation is the key land management practice that will help to keep soil on hillslopes and maintain productivity. By raising awareness by landowners of on-site and off-site effects of soil loss through education and advice on wise land use practices, the amount of soil entering water bodies will be reduced.*

2. To avoid, remedy or mitigate adverse effects of land use activities on water bodies and their margins, particularly on water quality, water flows and levels, aquatic ecosystems and riparian habitats.

Explanation: *This policy seeks to ensure that the adverse effects of land use activities on potentially affected water bodies are avoided, remedied or mitigated. Adverse effects could result from sediment discharges, increases in water temperature and loss of habitat.*

3. To avoid or reduce the discharge of sediment to all surface waters and to minimise soil losses from land use activities, particularly on erosion prone land.

Explanation: *This policy seeks to minimise soil losses from land use activities on highly erodible land and to control activities adjacent to all surface waters. Water bodies and highly erodible land are targeted as being the most at risk from adverse effects of erosion and sedimentation.*

4. When assessing applications for resource consents for land disturbance activities adjacent to water bodies, to have regard to:
 - (a) The maintenance of biological and physical processes;
 - (b) The maintenance of habitat for feeding, breeding and sheltering indigenous fauna;
 - (c) The maintenance of biodiversity;
 - (d) The maintenance of migratory pathways for fish;
 - (e) The times of day, or year which will least affect feeding, spawning or migratory patterns of fish and other aquatic species;
 - (f) The amount of shading the existing riparian vegetation provides;
 - (g) Any proposals for restoration or enhancement of riparian vegetation or aquatic ecosystems.

Explanation: *This policy provides direction for when assessing consent applications in order to avoid, remedy or mitigate any adverse effect on water bodies that may result from land disturbance activities adjacent to water bodies.*

5. To recognise the value of forests, shrublands and wetlands, in particular those containing permanent indigenous vegetation, in preventing and ameliorating erosion and flooding.

Explanation: *This policy recognises the important role of the root structure of trees and shrubs in reducing erosion on steep erosion prone land.*

Wetlands are recognised for their role in trapping sediments and storing floodwaters.

6. To avoid, remedy or mitigate adverse effects of vegetation clearance, where any resulting increase in flood flows may have an adverse effect on human life, health and safety, and private and community property.

Explanation: *This policy recognises that large scale vegetation clearance in a catchment can increase the frequency of moderate flood events which can adversely affect downstream property and landowners. In a mature forest, a large proportion of the rainfall is intercepted by the leaves of the trees and trapped in hollows between roots, thus reducing the stormwater runoff. This can have significant effects on reducing flooding downstream, particularly at lower rainfall intensities.*

7. To promote riparian management along the margins of lakes, rivers and streams, and coastal waters by:
 - (a) recognising the benefits of riparian vegetation;

- (b) protecting or enhancing existing riparian vegetation, particularly indigenous vegetation;
- (c) managing and where appropriate, protecting and enhancing existing riparian vegetation, particularly indigenous vegetation;
- (d) encouraging the rehabilitation or the creation of wetlands;
- (e) educating landusers;

such that the discharges from non-point sources into water bodies are reduced, and river systems are buffered against extremes of high and low flows.

Explanation: *Riparian management is effective in reducing the effects of non-point source discharges. The mechanisms involved are complex, and therefore education and site specific investigations are required before riparian management on a catchment basis could be implemented. It is the Council's long-term intention that all Riparian Management Zones be protected from stock. However, a number of commonsense measures, such as the maintenance of a riparian vegetation strip adjacent to water bodies, where appropriate fencing areas where stock have access to water bodies, and fencing wetland areas associated with rivers and streams, can be effective in reducing non-point source discharges from particular sites on a property.*

8. To support industry based training programmes and the development of codes of practice for Northland, in association with manuals of best management practices, which promote sustainable land management.

Explanation: *Some industries are already using codes of practice, and are reviewing them to provide more guidance to operators as to how certain effects could be avoided. Manuals of best management practices, which give more prescriptive detail, can be used alongside codes of practice. The development of guidelines or best management practices is supported through the establishment of a Working Group.*

Suitable training is also an important aspect of using codes of practice and best management practices. Where accredited training programmes are developed, the Council may recognise operators through a streamlined consent process.

9. To encourage voluntary retirement and where necessary the revegetation of land for the purposes of water and soil conservation.

Explanation: *An important land management method, that almost guarantees protection and enhancement of water quality and reduction in erosion, is to retire highly erosion prone land in vegetation that will not be removed. However, government agencies and local authorities are often not sufficiently resourced to purchase land for the purpose of retiring it permanently. Other ways need to be investigated in addition to the current options.*

10. To promote the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

Explanation: *While this Plan cannot contain rules for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, it is an important policy matter to provide for. Effective protection will involve the integration of provisions within this Plan and District Plans.*

11. To avoid, remedy or mitigate the adverse effects of vegetation disturbance by promoting:
 - (a) The maintenance, enhancement or revegetation of erosion prone areas,
 - (b) The conversion of erosion prone areas to forestry or soil conservation woodlots or reversion or active restoration to native bush,
 - (c) Compliance with industry recognised standards and procedures,
 - (d) The maintenance and retention of erosion control plantings.

Explanation: *All land is inherently erodible and following vegetation clearance, the potential for erosion can be enhanced. However, much accelerated erosion can be avoided, remedied, or mitigated by ensuring long-term vegetation cover on land and adhering to industry recognised standards and procedures.*

12. To have regard to the cultural and spiritual values held by the tangata whenua for the resource when considering applications for land disturbance activities.

Explanation: *This policy requires the consideration of any cultural and spiritual values held by the tangata whenua when assessing applications for land disturbance activities, including the consideration of any site or place of significance to tangata whenua. This is expressed in ss.6(e) of the Act.*

Refer also Policies in Section 6.06.

12.7 METHODS OF IMPLEMENTATION

For Policy 1

1. Encourage landowners and/or managers to prepare environmental property plans, particularly those in erosion prone areas, through education.
2. Promote and facilitate the establishment of landcare groups to achieve sustainable catchment management.
3. Provide information on soil conservation, riparian management, land rehabilitation, and revegetation techniques by preparing pamphlets, organising seminars, holding workshops, having displays at field days, including on-farm seminars for catchment based land care groups.

The Council will set priorities for such programmes each year through the Annual Plan.

4. Facilitate a land management working group who will review best land management practices.

Possible members of the working group could include representatives from central and local government, environmental groups, resource user groups and iwi.

For Policies 1, 3, 4 and 7

5. In conjunction with District Council's develop a comprehensive strategy for the management of land adjacent to the Coastal Marine Area and develop rules to give effect to the strategy within 5 years.
6. Develop and implement a strategy for monitoring sustainable land use in the region.

For Policies 2, 3, 4, 5, 6 and 7

7. Include all land with severe to extreme erosion risk in the definition of erosion prone land – that is land use capability classes VIIe1, VIIe2, VIIe3, VIIe4, VIIe5, VIIe6, VIIe7, VIIe8, VIIe9, VIIe10, VIIIe1, VIIIe2, VIIIe3 and VIIIs1 and include these areas on 1:100,000 scale maps in this Plan showing readily identifiable topographical features.
8. Include rules requiring resource consents for vegetation clearance which may result in adverse effects on water and soil resources.
9. Co-ordinate and initiate the development of sustainable land management guidelines for the Northland region, including topics such as, but not limited to, soils, erosion, grazing, land preparation, farm waste, weeds and pests.
10. Include rules requiring resource consents where there is a high risk of erosion to avoid, remedy or mitigate the adverse effects of land disturbance activities.

Cross-references: 33.02, 33.03, 34.02, 34.03

11. Identify the Riparian Management Zone using the criteria in Figure 7 and where appropriate include rules relating to activities within the Riparian Management Zone.

Refer also to Method 12.07.03

12. Follow up non-compliance with standards and conditions on permitted activities rules and on resource consents by education, advice, or abatement or enforcement notices.
13. For applications for resource consents for land disturbance activities in the Riparian Management Zone, require an assessment of effects in addition to that outlined in the Fourth Schedule of the Act on the water body (water quality, natural character, aquatic habitats and riparian vegetation) particularly if it is an outstanding value or flow sensitive section of river as described in Policies 9.05.01 to 9.05.04.

Cross-reference: 35.04

14. To investigate and monitor any long-term effects on hydrological patterns which may result from land use change.

15. Include rules restricting land use activities where they will result in the dewatering of groundwater to an extent that it results in ground subsidence, or a reduction in seasonal or annual groundwater levels.

For Policies 6, 7 and 9

16. Assess incentives and other methods that could be used to encourage voluntary retirement or protection of land and vegetation for the purposes of water quality, soil conservation, and the protection of indigenous vegetation and habitats of indigenous fauna.

Refer also Method 3 for Policy 9.05.07.

For Policy 8

17. Institute appropriate awards to landowners, organisations, companies or schools that demonstrate initiatives and works (including publications and essays) that promote the sustainable management of land in the region.

For Policy 10

18. When processing resource consent applications for land use, obtain information relating to indigenous vegetation and habitats, and provide for the protection of significant areas when making decisions.
19. Within two years of the Regional Water and Soil Plan becoming operative prepare a report reviewing Section 32.01 in order to identify whether new standards are necessary to provide for the protection of significant areas of indigenous vegetation and significant habitats of indigenous fauna. If required, prepare a plan change to give effect to this review on its completion.

For Policy 11

20. Encourage District Councils to consider soil conservation matters when controlling the effects of the use of land.

For Policy 12

21. Encourage applicants for resource consent activities that may have an adverse effect on waahi tapu and other taonga to consult with tangata whenua prior to their application being processed.

12.8 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVES, POLICIES AND METHODS RELATING TO LAND DISTURBANCE ACTIVITIES

The principal reasons for adopting the objectives are set out in Sections 12.01 and 12.02. The principal reason for adopting each policy is incorporated in the explanation. The principal reasons for the methods of implementation are as follows:

12.8.1 Rules and Environmental Standards

Northland's land and water resources have suffered from the effects of land use practices ever since land was converted from forests and wetlands to pasture.

Catchment studies have illustrated that pastoral farming degrades water quality when compared with catchments in native vegetation.

The underlying assumption in the Act is that a person can undertake any land use activity unless there are restrictions in a Regional Plan. The Council has made a decision to restrict the adverse effects of land use activities and has targeted greatest control on those areas at greatest risk; steep land with high erosion potential, and the area adjacent to water bodies which has been defined as the “Riparian Management Zone”.

The following methods relate to rules and environmental standards:

12.07.08 12.07.09 12.07.10 12.07.11 12.07.12

12.8.2 Education, Provision of Information and Advice

Education, provision of information and advice go hand in hand with rules and environmental standards. Alone, these types of methods are unlikely to achieve the objective.

The following methods relate to education, provision of information and advice:

12.07.01 12.07.02 12.07.03 12.07.04 12.07.16

12.8.3 Incentives

Landcare groups can deal with specific problems or develop a sustainable catchment plan for their area. Personal satisfaction and a co-operative community effort can be gained from these groups. Landcare groups also benefit the community through off-site effects, such as improved downstream water quality.

Other incentives and methods to encourage protection works or to protect significant areas for the benefits of the community or region need to be investigated.

Awards for sustainable land management will assist in achieving the objectives.

The following methods relate to incentives:

12.07.02 12.07.14 12.07.15

12.8.4 Investigation and Monitoring

The method recognises the need to develop understanding of the potential effect of land use change on hydrological patterns. Monitoring the state of the environment is a function of the Council. However, this specific method is considered significant in achieving the objectives and policies of this Plan.

The following methods relate to investigations and monitoring:

12.07.05 12.07.06 12.07.07 12.07.13 12.07.14

13. INTEGRATED CATCHMENT MANAGEMENT

13.1 INTRODUCTION

Integrated catchment management includes the consideration of:

- The catchment geology, soils, climate, vegetation including riparian vegetation, current and future land uses and water uses, non-point source and point source discharges and catchment drainage;
- Their effects on water quantity, water quality, habitats and ecological values;
- The amenity values of the catchment, and the community's objectives for the use, development and protection of the natural and physical resources; and
- The identification of the special resource values within a catchment which require particular recognition and protection.

The objectives and policies in this Plan seek to achieve integrated management of Northland's natural and physical resources. The objectives and policies must be considered together when addressing activities within catchments.

However, the effects of use and development of resources can be more complex in some catchments than in others. In Northland, the most common issue which has a number of interrelated effects is high water demand. High water demand can:

- Adversely affect other users;
- Adversely affect water quality directly through flow reduction; and
- Adversely affect water quality by reducing the ability of the stream to assimilate discharges.

Another common issue is the reduction in water quality through discharges and land use practices, particularly in closed systems such as lakes.

For these catchments, a regional plan to deal with specific catchment issues may be appropriate.

Unsustainable land uses can also have wide ranging effects through soil loss. Soil loss reduces the land's productive capacity, either through insidious losses of soil particles and nutrients through overland or subsurface flow, or through soil erosion processes. The soil finds its way into the waterways and is eventually deposited in estuaries and harbours. Siltation of estuaries can have a major impact on sensitive ecosystems. Soil erosion and soil productivity loss can generally be managed through better land management practices. However, given the high intensity rainfall that can occur in Northland, and the effect on Northland's ecosystems, soil erosion is considered to be a significant resource management issue which may warrant the preparation of specific regional plans.

Section 65 of the Act sets out some of the circumstances in which a regional council may think it desirable to prepare a regional plan for all or any part of the region. For example, groundwater aquifers may extend across a number of catchments, and necessitate an approach which integrates management of the resource across catchment boundaries. Given the complex nature of the many catchments in Northland, specific regional plans for some catchments and resources will achieve

more effective integrated management of the natural and physical resources. There are other mechanisms that can be used to effectively manage the effects of activities. These include setting common expiry dates for resource consents in a catchment so that the effects of all activities can be assessed at the same time.

13.2 ISSUES

1. The complex interrelated effects of water use, land use, water quantity and water quality within catchments, further complicated when the pressure on one resource increases.
2. Significant conflicts between the use and development of a catchment's natural and physical resources and their protection, and the uncertainty as to the long-term effects of the use and development.
3. Major land use changes may have both beneficial and adverse effects on the land and water resources within a catchment, in the short-term and the long-term. These effects are better addressed on a catchment basis.
4. The complexity of groundwater aquifer systems and the potential adverse effect of taking from groundwater resource on the long-term sustainability of the resource, and on associated surface water resources.
5. The high value placed on the natural resources of the catchment by the community and their desire for involvement and information about the effects of different activities on those resources.

13.3 OBJECTIVE

1. **Integrated catchment management to achieve the sustainable use of all resources and the minimisation of conflicts.**

***Explanation:** To give effect to the purpose and principles of the Act, the Council can establish and implement objectives, policies and methods to achieve integrated management of the natural and physical resources. While this Plan achieves this on a regional basis, more effective integrated management for specific catchment issues may be achieved by preparing Regional Plans on a catchment basis.*

13.4 POLICIES

1. Regional catchment management plans will be prepared for a specific catchment, where there is:
 - (a) A significant conflict between the use, development or protection of natural and physical resources, or the avoidance or mitigation of such conflict;
 - (b) A use of land or water that has, or is likely to have, actual or potential adverse effects on soil conservation, air quality or water quality;

- (c) A significant concern of tangata whenua for their cultural well being in relation to the natural and physical resources within the catchment;
- (d) Significant potential benefits from the restoration or enhancement of any natural and physical resources which are in a deteriorated state.

Explanation: *The circumstances prioritised in this Policy are derived from a list of eight in s.65 of the Act. The preparation of regional plans for these circumstances will be given priority in Northland. Northland has a number of catchments which meet the listed criteria, and the Council has had a number of informal requests for regional plans to be prepared for particular catchments.*

2. To ensure individuals, industry and others with an interest in, or who are affected by, resource use within a catchment, are adequately informed about resource use issues and are given the opportunity to be involved in the preparation of catchment plans.

Explanation: *A lack of information may result in the community making inaccurate assumptions about the effects of a particular resource use such as taking water or discharged contaminants to water. The results of the Regional Councils and consent holder monitoring need to be conveyed to the public in a way that is easily understood*

3. To promote integrated catchment management in absence of 'catchment specific' regional plan.

Explanation: *Catchment specific regional plans cannot be prepared for all catchments. However, by ensuring a specific catchment has a specific review date, the effect on resources of all resource consents issued in that catchment can be reviewed and a management plan process initiated if necessary. Review clauses may be included as a resource consent condition to coincide with a catchment review date. On reaching the review date, the Council will evaluate the pressures on that resource. If a particular catchment is under pressure, consents can be 'called in' within the framework of the management plan.*

4. To integrate the findings of research and monitoring of land use effects on water quantity into water resource management.

Explanation: *Sustainable use and development of Northland's water resource requires prediction of effects so that appropriate management options can be implemented which avoid, remedy or mitigate adverse effects. It is essential to integrate the effects of land uses with other water resource information. For example, a change in land use may change the hydrological characteristics of a catchment, which may in turn, influence water quality. This may increase the significance of other activities such as discharges.*

5. To encourage and promote the integration of resource management between District Councils and the Regional Council.

Explanation: *Many resource management issues cross jurisdiction boundaries and thus require a consistent and joint approach to addressing them.*

13.5 METHODS OF IMPLEMENTATION

For Policy 1

1. The timing and priority of the preparation of regional catchment management plans will be decided in accordance with Policy 13.04.01 and through the Strategic and Annual Plan process. The process of preparation will be in accordance with the First Schedule of the Act. The following group may be considered first:
 - (a) Mangakahia River catchment;
 - (b) Awanui River catchment, including the Kaitaia Drainage District;
 - (c) Kaikohe Basalt Aquifer System and the Punakitere/Taheke River;
 - (d) Kaihu River Catchment.
2. Identify any other catchments which meet the criteria in Policy 13.04.01 by analysing the state of the environment reports.
3. Collect relevant data in a timely manner, to assist in the preparation of the plans outlined in Method 13.05.01 and 13.05.02.
4. The scope of a regional plan for a specific catchment, while dealing with specific catchment issues, should generally follow the terms of reference outlined in Appendix 16.
5. When preparing a regional plan for a specific catchment, the Council shall consult with interested parties.

For Policy 2

6. Liaise with community agencies and groups including territorial authorities, ratepayer associations, resource users, environmental groups and iwi, and hold public meetings to collect and disseminate information, particularly with regard to the results of monitoring within the catchment.

For Policy 3

7. Establish review dates for each catchment, and in catchments with high demand for and pressure on resources, include review dates on resource consents, while not limiting the duration of the resource consents unnecessarily.

For Policy 4

8. Carry out regular review of research and monitoring findings.
9. Advise District Councils, other agencies and water users where effects on water availability are likely to be of concern.
10. Incorporate relevant findings into five yearly reviews of Design Minimum Flows where such flows may be affected.
11. Promote land and rivercare groups.

For Policy 5

12. Comment on and lodge submissions to plans prepared by District Councils and resource consent applications.

13.6 PRINCIPAL REASONS FOR ADOPTING THE OBJECTIVE, POLICY AND METHODS RELATING TO INTEGRATED CATCHMENT MANAGEMENT

The principal reasons for adopting the objectives are set out in the Sections 13.01 and 13.02. The principal reason for adopting each policy is incorporated in the explanation. The principal reasons for the methods of implementation are as follows.

13.6.1 Preparation of Catchment Specific Regional Plans

While this Plan seeks to achieve integrated management of the natural and physical resources on a regional basis, more effective integrated management for specific catchment issues may be achieved by preparing regional plans on a catchment basis. Catchment specific regional plans would also allow for better consideration of community values.

The following methods relate to the preparation of catchment specific regional plans:

13.05.01 13.05.02 13.05.04 13.05.05

13.6.2 Monitoring and Research

Detailed land and water resource investigations will be required to collect information on which to base water policies and methods in catchment specific regional plans. In catchments for which it is unlikely that catchment specific regional plans will be prepared, a review of monitoring results on a catchment basis will provide essential information for resource management in conjunction with reviewing state of the environment monitoring.

The following methods relate to monitoring and research:

13.05.03 13.05.08 13.05.10

13.6.3 Education, Provision of Information and Advice

Integrated management requires consideration of information about all activities in a catchment and how they affect the natural and physical resources. This information needs to be collated and presented in a form that enables that kind of consideration. Often landowners observe a change in the water resource and link it to only one known activity when there could be a number of reasons for the change. Education and provision of information and advice is important to ensure that all stakeholders with an interest in, or affected by, the use of resources in a catchment understand the processes that are occurring in the catchment.

The following methods relate to education, provision of information and advice:

13.05.06 13.05.09 13.05.11

13.6.4 Common Expiry Dates

Given the large number of catchments in Northland, it is not realistic to prepare catchment specific regional plans for all of them. For those catchments which do not have specific management plans, having a common expiry date on resource consents will allow a review of all the activities at the same time thus achieving integrated management.

The following method relates to common expiry dates:

13.05.07